

# Land and Water Resource Management Plan

for



Bayfield County Land Conservation Committee and  
Land and Water Conservation Department

February 2010  
For Implementation 2010 – 2020

## Acknowledgements

This plan was prepared under the authority of Chapter 92, Wisconsin Statutes and under the direction of the Bayfield County Land Conservation Committee, the Bayfield County Board, and the Land and Water Conservation Department

### Bayfield County Land Conservation Committee

Chair..... David L. Good  
Vice Chair ..... James Beeksma  
Member ..... Marco Bichanich  
Member ..... Kenneth “Bucky” Jardine  
Farm Service Agency Representative ..... Peter Tetzner

### Bayfield County Board

Chair..... William D. Kacvinsky  
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USDA Natural Resources Conservation Service  
USDA Farm Service Agency  
Bayfield County Planning & Zoning Department  
Bayfield County Land Information Department  
University of Wisconsin Extension  
US Fish and Wildlife Service  
US Forest Service  
Ducks Unlimited  
Trout Unlimited  
Bayfield County Lakes Forum  
Eau Claire Lakes Association  
Friends of the St. Croix Headwaters  
Bad River Watershed Association  
Iron River Lakes Association  
Bayfield Regional Conservancy

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## Plan Approvals

Bayfield County Land Conservation Committee on February 5, 2010  
Bayfield County Board on February 23, 2010  
Wisconsin Land & Water Conservation Board on April 6, 2010

## Initial Implementation Period

January 1, 2010 – December 31, 2015

# DRAFT RESOLUTION

## *A RESOLUTION APPROVING THE BAYFIELD COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN*

**WHEREAS**, Chapter 92.10 of the Wisconsin Statutes requires that all counties in the state of Wisconsin develop a Land and Water Resource Management Plan; and

**WHEREAS**, the Bayfield County Land Conservation Committee sent out surveys, hosted one informational session, contacted representatives of partnering NGOs, (hosted a meeting(s) open to the public), and held one public hearing to explain the plan process, solicit public opinion, and to solicit participation in the revision of the Land and Water Resource Management Plan; and

**WHEREAS**, the Bayfield County Land Conservation Committee formed a volunteer workgroup to draft a county-wide AIS Strategic Plan with the goals, objectives, and activities to address aquatic invasive species control, education, and prevention incorporated into this LWRMP; and

**WHEREAS**, the resulting LWRMP identifies land and water resource management goals, objectives, and activities for implementation by the Bayfield County Land Conservation Committee and the LWCD staff for the next ten years, including a work plan revision after 5 years; and

**WHEREAS**, at their February 2010 meeting, the Bayfield County Land Conservation Committee approved the Land and Water Resource Management Plan and forwarded the approved plan to the Bayfield County Board for their review and action; and

**WHEREAS**, the Bayfield County Land Conservation Committee staff will present the revised Land and Water Resource Management Plan to the Wisconsin Land and Water Conservation Board, at their meeting on April 6, 2010; and

**WHEREAS**, the Bayfield County Land and Water Resource Management Plan will be reviewed and approved by the Wisconsin Land and Water Conservation Board at their meeting on April 6, 2010:

**NOW THEREFORE BE IT RESOLVED** that the Bayfield County Board of Supervisors, does approve the Bayfield County Land and Water Resource Management Plan to be implemented for the period January 2010 through December 2020, with a work plan review and update in 2014.

# Executive Summary

## Bayfield County Land & Water Resource Management Plan

### **Introduction**

The Bayfield County Land and Water Resource Management Plan (LWRMP) was developed to meet requirements in Chapter 92 of the Wisconsin Statutes. The intent of the plan is to guide local water quality protection activities and increase public participation in the management of Bayfield County's natural resources. The LWRMPs are intended to provide counties (through their Land Conservation Committees) the tools, flexibility, and funding necessary to address state and local water quality goals and priorities. The Bayfield County Land and Water Resource Management Plan contains realistic objectives and activities intended to meet the goals established by a diverse advisory committee consisting of volunteer citizens from throughout the county and natural resource agency representatives who work in Bayfield County. The resulting work plan will guide the Land Conservation Committee and their staff through 2020.

### **Plan Organization**

The Bayfield County Land and Water Resource Management Plan is divided into three main volumes of information. Volume I provides a general overview of the county and an assessment of the county's resources. Volume II addresses the implementation of the agricultural performance standards for nonpoint pollution reduction and outlines implementation of plan goals, objectives, and activities. It includes a detailed work plan and discussion of ongoing monitoring efforts in the county. Volume III includes plan maps. Additional supporting information is found in the appendices.

### **Public Participation**

Bayfield County provided several opportunities for citizens to provide input in preparation of the current LWRMP revision. The 2005-2009 LWRMP was used as a starting point for this revision.

### **Surveys and Questionnaires**

The 2005-2009 LWRMP was developed with a series of public participation opportunities including informational meetings, a public hearing, questionnaires, surveys, and interactions with clients and partners. The LWRMP provided the framework and focus for the Bayfield County Land and Water Conservation Department (LWCD) conservation efforts over the past five years. The basic elements of the plan have proven to be effective in focusing available LWCD resources on identified local conservation concerns. There has been continued and growing public support for the activities and projects implemented by the LWCD under the LWRMP.

A public input survey conducted by the LWCD in March 2009 in preparation for the 2010-2020 LWRMP revision confirmed that basic conservation issues and concerns identified for the 2005 plan have remained constant. Survey results are included in Appendix A. Other public participation methods supported the importance of these concerns. Priority concerns are captured in the following list:

- *Land use activities including forestry, agriculture, and development*
- *Wetland protection and restoration*
- *Habitat loss*
- *Shoreland protection*
- *County and town road maintenance and construction*
- *Environmental education*
- *Invasive species control*

### **Advisory Committee**

Public participation in the LWRMP development in 2009 included the following steps:

- A list of potential advisors to the LWRMP revision effort was compiled from those expressing interest in response to the public survey or those with known interest through past interactions with the LWCD.
- An advisory committee that included representatives from partnering agencies, non governmental agencies, municipalities, and citizen volunteers provided input in plan development. The committee represented diverse interest groups including agriculture, government, lake and river associations, environmental education, contractors, real estate, and forestry. The committee included DNR participation.
- One advisory committee meeting was held to identify and prioritize issues, define goals and objectives, and develop a list of activities for plan implementation. This meeting was held December 16, 2009.
- The advisory committee reviewed and commented on the draft plan. Committee comments were considered in development of the final plan.
- Press releases informed the public about plan development, and a public hearing was conducted to receive comments on the final plan on February 5, 2010.

### **Goals Objectives and Activities**

The objectives and activities are organized under five main goals:

- Goal I. Protect and enhance surface water, wetlands, and groundwater to maintain water quality, ecologic function, and recreation and aesthetic values.**
- Goal II. Reduce environmental damage from invasive species to aquatic and terrestrial habitats.**
- Goal III. Protect, restore, and enhance wildlife habitat in forests, lakes, and streams.**
- Goal IV. Increase natural resource education and LWCD outreach opportunities.**
- Goal V. Ensure adequate supervisory, staff, and financial resources to effectively implement the LWRMP goals, objectives, and activities.**

The Land Conservation Committee and staff will implement the goals, objectives, and activities of the land and water resource management plan using the following guiding principles:

### ***Plan Guiding Principles***

- Uphold the protection of natural resources while considering the importance of the Bayfield County economy.
- Utilize limited staff and financial resources efficiently.
- Facilitate partnerships and support efforts of other organizations where consistent with land and water resource priorities.
- Emphasize education to increase understanding of natural resource concerns and the methods to address these concerns and encourage beneficial changes in behavior.
- Restore and protect native habitats while meeting water quality objectives.
- Utilize information and recommendations in partner organization water quality and habitat management plans.

### **Plan Implementation**

Volume II outlines roles, responsibilities, funding and staffing needs, program and project evaluation, and a detailed work plan that includes each goal, objective, and activity. Volume II also outlines the Bayfield County priority farm strategy and agricultural and non-agricultural standards and prohibitions implementation. Priority areas will be targeted for voluntary participation and supporting educational efforts based on their potential to enhance the quality of the natural resources. Prioritization criteria for cost-share and technical assistance include geographic location, resource concern, partnership cooperation, and landowner interest among other criteria.

The NR 151 performance standards strategy is to encourage voluntary compliance through education and technical assistance. A comprehensive educational strategy has been developed which includes: media contact development, news releases, workshops, distribution of printed materials, website outreach, group presentations, and personal contacts.

Lack of adequate, stable funding for staff and landowner cost share assistance is a chronic impediment to LWRMP implementation. Funding may not be available to implement all of the activities outlined in the work plan. Funding for plan implementation can come from diverse sources including individuals, NGOs, local government, and state and federal agencies. Acquisition of staffing and implementation funds through grant applications will be a priority.

The work plan lists the annual funding required for plan implementation. The source and purpose of available funding will determine which elements of the work plan will be completed.

### **Progress Tracking and Plan Evaluation**

Plan evaluation is necessary to assess whether goals, objectives, and activities are being accomplished. The LCC lacks the resources to conduct scientifically supportable monitoring and research to verify the effectiveness of routine projects and events. The LCC will implement the LWRMP to applicable technical and educational standards determined by the NRCS, DNR, SOC, UWEX, and others to be effective, beneficial, and sustainable. Documentation of progress

will be compiled where feasible to verify the effectiveness of new initiatives, practices, and projects in an appropriate metric.

The Land and Water Conservation Department staff will review progress toward plan completion on a yearly basis and provide periodic staff reports at LCC meetings. A written annual report will be provided to the public, the county, and DATCP.

### **Conclusion**

Land and water resources are very important to Bayfield County. Water quality exceeds the EPA minimum standards in most areas of Bayfield County, allowing focus on resource protection rather than restoration activities. The county has taken the lead in resource protection by implementing rigorous protection standards. For example, the county has established shoreland ordinance requirements that exceed state minimums by forty percent or more. Structural setbacks on Lake Superior are based on site specific soils data that considers bank recession rates. The county received a wetland stewardship award for the protection of Sultz Swamp. In addition, one of only two purchase of development rights (PDR) projects in the state protects the viewscape and watershed around the City of Bayfield.

The LCC and the LWCD staff enjoy a high level of professional respect among clients, citizens, and partners. The LWRMP reflects citizen interest in local priorities, encourages local leadership, and supports partner participation in protecting the natural resources of Bayfield County. This plan empowers the Land Conservation Committee to provide the local leadership and focus needed to coordinate a wide spectrum of conservation activities along with a diverse group of partners. The implementation of this plan will provide the basis for the future of land and water conservation in Bayfield County.

# Table of Contents

Acknowledgements.....	i
County Resolution .....	iii
Executive Summary .....	iv
Table of Contents .....	viii

## Volume I – Plan Background

Introduction.....	1
County Resource Information	
General Description .....	4
Geology.....	4
Soils.....	4
Habitat Type Classifications.....	6
Historical Vegetative Cover.....	7
Major Watershed Basins	
Lake Superior Basin.....	8
St. Croix Basin .....	9
Upper Chippewa Basin .....	10
Surface Water	
Rivers & Natural Streams .....	11
Lakes.....	11
Impaired Waters Listing .....	11
Outstanding and Exceptional Resource Waters.....	12
Wetlands .....	14
Shorelands.....	15
Groundwater .....	15
Threatened & Endangered Resources .....	16
Invasive Terrestrial and Aquatic Species.....	17
Land Use & Management	
Land Ownership.....	18
Agriculture .....	18
Forestry .....	19
Recreation .....	19
Urban.....	20
Township & Transportation System.....	21
Land Protection.....	21
Soil & Water Regulations, Standards and Best Management Practices	
Federal Regulations .....	22
State Regulations and Standards .....	22
County Regulations and Plans .....	27
Related Municipal Regulations.....	29
Other Voluntary Conservation Initiatives.....	29
LWCD Activities .....	30

## Volume II – Plan Implementation

NR 151 Implementation in Bayfield County .....	31
Priority Projects .....	31
Implementation Strategy .....	32
Selecting Priority Farms .....	33
Goals, Objectives and Activities	
Goals .....	39
Plan Guiding Principles .....	39
Objectives and Activities	
Goal 1. Protect and Enhance Surface Waters, Wetlands, and Groundwater .....	40
Goal 2. Reduce Environmental Damage from Invasive Species .....	42
Goal 3. Protect, Enhance, and Restore Wildlife Habitat.....	42
Goal 4. Increase Natural Resources Education and LWCD Outreach.....	43
Goal 5. Ensure Adequate Resources to Effectively Implement the LWRMP .....	45
Role of County in Plan Implementation .....	46
Role of Other Agencies in Plan Implementation .....	46
List of LWMP Partners.....	47
Funding Plan Implementation.....	48
Monitoring and Assessment.....	49
LWCD Work Plan 2010-11 .....	52
Partner Web Sites.....	58

## List of Tables

Table 1. Bayfield County Outstanding Resource Waters .....	13
Table 2. Bayfield County Exceptional Resource Waters.....	13
Table 3. Priority Wetland and Aquatic Priority Sites in the Lake Superior Basin .....	14
Table 4. Documented Priority AIS in Bayfield County – 2009.....	17
Table 5. Bayfield County Publicly Owned Conservation & Recreation Land .....	18
Table 6. Bayfield County Land in Agriculture .....	18
Table 7. Resource Monitoring in Bayfield County.....	50
Table 8. Bayfield County Citizen WDNR Self Help Monitoring Program .....	51
Table 9. Goal 1. Protect and Enhance Surface Waters, Wetlands, and Groundwater. ....	53
Table 10. Goal 2. Reduce Environmental Damage from Invasive Species .....	55
Table 11. Goal 3. Protect, Enhance, and Restore Wildlife Habitat.....	55
Table 12. Goal 4. Increase Natural Resources Education and LWCD Outreach.....	56
Table 13. Goal 5. Ensure Adequate Resources to Effectively Implement the LWRMP .....	57

## Volume III – Plan Figures

- Figure 1. Bayfield County Topography
- Figure 2. Bayfield County Elevations
- Figure 3. Bayfield County Extreme Slopes
- Figure 4. Bayfield County General Soil Association Map
- Figure 5. Bayfield County Original Vegetation
- Figure 6. Bayfield County Watersheds
- Figure 7. Bayfield County Wetland and Water Resources
- Figure 8. Groundwater Susceptibility Contamination
- Figure 9. Bayfield County Land Cover
- Figure 10. Bayfield County Public Land
- Figure 11. Bayfield County Zoning Districts
- Figure 12. Lake Superior Shoreline Setbacks

## Appendices

Appendix A – Public Survey Results.....	A-1
Appendix B – Waiver from Cropland Soil Erosion Control Planning .....	B-1
Appendix C – Conservation/Best Management Practices .....	C-1
Appendix D - Glossary of Terms.....	D-1
Appendix E – References.....	E-1

# Volume I. Plan Background

## Introduction

### **Authority**

Chapter 92 of the Wisconsin Statutes authorizes the creation and lists duties and responsibilities of Land Conservation Committees (LCC). Each county is required to have a LCC. The committees are responsible for administering soil and water conservation programs and for providing technical assistance and conservation education. The Wisconsin Department of Agriculture, Trade & Consumer Protection (DATCP) provides grant funding to aid counties in implementing their program through the Soil and Water Resource Management section.

The 1997-1999 biennial budget bill changed the way the State of Wisconsin allocated funds to counties for soil and water resource management. The intent of this change was to encourage and support local water quality planning through preparation of county land and water resource management plans. These plans are intended to provide counties, through their Land Conservation Committees, the tools, flexibility, and funding to be able to address both statewide goals and priorities identified at the local level.

### **Plan Requirements**

A county land and water resource management plan must include, at a minimum, the following:

- Public participation
- Cropland soil erosion control plan or waiver from plan requirements approved by the Land and Water Conservation Board and DATCP
- Coordinated implementation strategy
- A resource assessment including water quality, soil erosion conditions, and causes of nonpoint source water pollution
- Water quality and soil erosion goals
- Standards for the Farmland Preservation Program
- A work plan describing objectives and activities for each goal
- A progress tracking and evaluation method
- A process for landowner notification if needed
- A public hearing
- Agricultural and non-agricultural performance standards

## **Public Participation**

Bayfield County provided several opportunities for citizens to provide input in preparation for the current LWRMP revision. The 2005-2009 LWRMP was used as a starting point for this revision.

### Surveys and Questionnaires

The 2005-2009 Bayfield County Land and Water Resource Management Plan was developed with a series of public participation opportunities including informational meetings, a public hearing, questionnaires, surveys, and interactions with clients and partners. The LWRMP provided the framework and focus for the Bayfield County Land and Water Conservation Department (LWCD) conservation efforts over the past five years. The basic elements of the plan have proven to be effective in focusing available LWCD resources on identified local conservation concerns. There has been continued and growing public support for the activities and projects implemented by the LWCD under the LWRMP.

A public input survey conducted by the LWCD in March 2009 in preparation for the 2010-2020 LWRMP revision confirmed that these basic conservation issues and concerns have remained constant. Survey results are included in Appendix A. The survey and other public participation methods for this plan identified common, recurring concerns. Priority concerns are captured in the following list:

- *Land use activities including forestry, agriculture, and development*
- *Wetland protection and restoration*
- *Habitat loss*
- *Shoreland protection*
- *County and town road maintenance and construction*
- *Environmental education*
- *Invasive species control*

### Advisory Committee

Public participation in the LWRMP development in 2009 included the following steps:

- A list of potential advisors to the LWRMP revision effort was compiled from those expressing interest in response to the public survey or those with known interest through past interactions with the LWCD.
- An advisory committee that included representatives from partnering agencies, non governmental agencies, municipalities, and citizen volunteers provided input in plan development. The committee represented diverse interest groups including agriculture, government, lake and river associations, environmental education, contractors, real estate, and forestry. The committee included DNR participation.
- One advisory committee meeting was held to identify and prioritize issues, define goals and objectives, and develop a list of activities for plan implementation. This meeting was held December 16, 2009.

- The advisory committee reviewed and commented on the draft plan. Committee comments were considered in development of the final plan.
- A public hearing was conducted to receive comments on the final plan on February 5, 2010. The public hearing was noticed in the official Bayfield County newspaper two weeks before the hearing. No one from the public attended the hearing. The LCC approved the plan with minor editing changes to be made, and forwarded to the Bayfield County Board for approval on February 16, 2010.

### **Other Management Plans**

A review of other available natural resource management documents provided additional information about the public's interests and concerns for the county's natural resources. Those sources were also used to identify information gaps.

### **Local Cooperation**

The Bayfield County LWCD has a long history of cooperating with and supporting the conservation activities of other organizations and agencies. The close relationship the LWCD has with various partners allows real-time exchange of information and project planning. The LWCD actively participates in conservation related forums whenever possible. LWRM planning information was considered through the following groups and documents:

Lakes Superior Partner Team	Lake Superior Habitat Team
Bayfield County Comprehensive Plan	Bayfield County AIS Strategic Plan
Bayfield County Lakes Forum	Iron River Area Lakes Association
Lake Superior Basin Plan	Upper St. Croix Basin Plan
Bayfield County Towns Association	

Priorities were solicited through the citizen and partner survey and via review of the draft plan.

### **Plan Organization**

The Bayfield County Land and Water Resource Management Plan is divided into three main volumes of information. Volume I is a general overview of the county and an assessment of the county's natural resources. Volume II identifies the goals, objectives, and activities including an education strategy. This volume also outlines implementation of the agricultural performance standards for nonpoint pollution reduction. It includes a detailed work plan and discussion of ongoing monitoring efforts in the county. Volume III includes plan maps. Additional supporting information is found in the appendices.

## County Resource Information

### General Description

Bayfield County is the second largest county in Wisconsin in area and covers approximately 966,000 acres. It is the northernmost and second largest county in Wisconsin. The county is bordered by Douglas County to the west, Sawyer and Washburn Counties to the south, Ashland County to the east, and Lake Superior to the north.

Figures 1 and 2 illustrate the elevation and topography of the county. Bayfield County's highest point is at Mount Telemark which stands 1,700 feet above sea level. The elevation at Washburn is 654 feet, and at Lake Superior the elevation is 602 feet above sea level. Bayfield boasts 962 inland lakes covering 565 square miles and 22,629 acres.

### Geology

A good portion of the northern two-thirds of Bayfield County is underlain by sedimentary rocks consisting of sandstone, shale, and conglomerate. Granite, gneiss, greenstone, and quartzite underlie the extreme southeastern part of the county, continuing a band from Iron and Ashland Counties. Lava flows consisting mostly of basalt are found in a band across much of the southern one-third of the county, and also in a narrow band north of Iron River. Bedrock outcrops are numerous in this band and are found in other areas of the county including many places along Lake Superior.

Bedrock is covered by glacial deposits throughout the county. These deposits range from 400 feet near Bayfield to less than 50 feet in an area south of Iron River. The latter area is covered with a layer of relatively impermeable ground moraine deposits. Old Glacial Lake Duluth deposits that consist mostly of red clayey till material can be found along much of the northern half of the county - mostly in the upper portions of watersheds draining to Lake Superior. The barrens area running through the center of the county from the southwest is composed of sandy soils. Material comprised of pitted outwash composed mostly of stratified sand and gravel, is generally found in the higher elevations. End moraine, formed of stratified sand and gravel and glacial till (a mixture of various glacial deposits), is also found in the Bayfield Ridge.

### Soils

Soil survey information is invaluable in making land use decisions providing significant insight into landscape relationships. General characteristics and limitations of Bayfield County Soils are described on following pages.

The USDA Natural Resources Conservation Service (NRCS) completed a digital soil survey for Bayfield County in 2007. This information is available on-line at: <http://soils.usda.gov/survey>. Figure 4 is the soil association map of Bayfield County.

## General Characteristics & Limitations of Bayfield County Soils

**Bedrock-dominated Soils:** These soils are relatively shallow to underlying bedrock. As a result, excavation required for roads, foundations, and utilities is limited. Shallow soil depths also limit filtering capabilities of drainage fields.

**Clay Soils:** These areas include very deep, nearly level to steep, soils that formed in clayey glacial till and/or clayey lacustrine deposits modified by wave action and in the underlying stratified loamy and/or sandy lacustrine deposits. The high clay content of these soils makes them susceptible to surface erosion, especially in areas where native vegetation has been removed. Because they have low soil strength when wet, a layer of cobble stone may be required under well graded, crushed rock to reduce rutting of driveways and to support heavy vehicles such as fire trucks and snow plows. Because clay soils shrink and swell dramatically with varying moisture levels, special construction of foundations is necessary to prevent damage to buildings. The high water-holding capacity of clays contributes to the use of level areas for agriculture, but clay soils also limit the availability of water to plant roots more than till soils do.

**Sand Over Clay (Transitional) Soils:** Very deep, moderately well to somewhat poorly drained soils that formed in sandy sediments, underlain by clayey deposits. Often referred to as the "transition area," these soils separate the clay plain from the higher elevation area that is dominated by sand. These soils have a sand cap over clay or stratified loamy material. Seeps often are prevalent in these areas, especially in spring, and the headwaters of many streams originate here.

Excavations in these soils are subject to cave-ins in spring. With seasonally high water tables, these areas often require alternative sanitary systems such as mounds. Roads in these areas are subject to break-up and often contain unstable wet zones. Seep areas frequently do not freeze in winter creating driving hazards and instability. Some groundwater recharging of aquifers can also occur in these areas.

**Sandy Soils:** Sandy soils often are groundwater recharge areas. These areas are droughty because of low available water capacity and rapid permeability. The rapid permeability of these soils aid in ground water recharge but also provide a poor filter for contaminants. They are subject to rutting because of low soil strength. A gravel base often is necessary to provide adequate strength for roads and driveways. Sandy soils may also present a corrosion hazard for concrete structures.

**Till Soils:** Compared to sandy soils, till soils have a higher available water capacity and slower permeability along with higher nutrient holding capacity. They are better suited to growing trees and other plants. The moderate permeability of these soils aids in ground water recharge. Except in areas with steep slopes, these areas often are better suited for development because the silt and sand mixture provides soil strength for roads and foundations and filtering capability for drainage fields.

**Steep Ravines and Floodplains:** These are steep, well drained to excessively drained soils on ravines. Some areas are freshly undercut by streams and are slumped. Typically these soils are stratified loamy, sandy, and clayey materials with water seeps exiting some strata. These areas

are prone to slumping and instability, and disturbances often result in excessive sedimentation of waterways. Ravine bottoms include alluvial deposits that are subject to flooding.

Because these areas are subject to erosion problems, they are generally unsuited for development. Mass soil wasting and severe gully erosion can occur unless proper safeguards are in place. Upstream watershed changes (i.e., housing, roads, and other impervious surfaces) can cause stable channels in these areas to degrade. The best practice for these areas is a permanent forest cover type.

**Wetland Soils:** These areas are wet for part to most of the year and are typically capable of supporting wetland vegetation. Many areas do not freeze in the winter making winter logging difficult. They occur either where the groundwater table meets the surface of the land or in “perched” conditions where a confining layer in the soil retards downward flow through the soil.

Because these soils frequently are wet, they present severe limitations for construction of buildings and roads. Because of the close contact with the water table, any contamination in these areas can readily spread to groundwater supplies.

### **Habitat Type Classifications<sup>1</sup>**

Habitat type classifications are named for indicator species commonly found in that habitat type. They are important for resource management because the classifications provide information about the vegetation, soils, climate, and wildlife. This information can be used for shoreland vegetation restoration, forest and wildlife habitat improvement plantings, and in making land use decisions.

Habitat types found in Bayfield County include:

#### Superior Clay Plain

This zone borders Lake Superior and extends inland to a maximum of about 15 miles. It is a region of lake modified moraines (till) and lacustrine deposits dominated by calcareous, un-bedded red clay till and intermixed pink sands.

- ASnMi (Sugar Maple/Black snakeroot-Partridgeberry) – Somewhat poorly to moderately well drained soils commonly with one or more foot of sand over clay.
- ArAbSn (Red maple-Balsam fir/Black snakeroot) – Common in Bayfield County except for the peninsula. Somewhat poorly drained clay on lacustrine deposits and water worked till.

#### Bayfield Sand Plains

Extending across the region from southwest to northeast is a band of pitted outwash material dominated by sands and gravels. The area is characterized by many lakes and bogs.

- ATM (Sugar maple-Eastern hemlock/Wild lily-of-the-valley) – Well to moderately well drained loamy soils on moraines and water worked till.

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<sup>1</sup> Kotar, J., Kovach, J.A., Burger T.L. *A Guide to Forest Communities and Habitat Types of Northern Wisconsin (Second Edition)*. Department of Forest Ecology and Management. University of Wisconsin-Madison. Madison, Wisconsin. 2002.

- PArVAa-Po (White pine-Red maple/Blueberry-Wild sarsaparilla) – Sandy outwash soils, but also water worked sands on moraines and lake plains.
- PArV-U (White pine-Red maple/blueberries) – Deep excessively drained outwash sands.

#### Southern Bayfield County (St. Croix River Basin)

East of the pitted outwash is a mixture of till, outwash, and loess deposits, and bedrock controlled areas. Soils are generally stoney loams with a rolling to hilly landscape with swamps common.

- ATD (Sugar maple-Eastern hemlock/Spinulose shield fern) – Scattered throughout. Primarily well drained loamy till and loess.
- AOCa (Sugar maple/Sweet cicely-blue cohosh) – Scattered throughout. Primarily well drained loamy till and loess.
- ACaI (Sugar maple/Blue cohosh-Jewelweed) – Scattered throughout the region and common in southern Bayfield County. Somewhat poorly drained loamy till and loess.
- ATAtOn (Sugar maple-Eastern hemlock/Lady fern-Sensitive fern) – Uncommon and scattered. Somewhat poorly drained loamy till, loess, and residuum.
- TMC (Eastern hemlock/Wild lily-of-the valley-goldthread) – Common throughout. Somewhat poorly drained soils on most landforms. Most common on sandy loams on moraines.
- ArAbVC (Red maple-Balsam fir/Blueberry-Goldthread) – Scattered throughout. Somewhat poorly drained sands. Occurs on most landforms, but most common on pitted outwash.
- AVVb (Sugar maple/Blueberry-Maple-leaved viburnum) – Well drained sandy loams and loamy sands on rolling moraines and pitted outwash.

#### **Historical Vegetative Cover**

Vegetative cover is a critical part of watershed management. In order to understand how watersheds function, it is important to look at the history of activities and their results on the watershed. For example, the over-harvest of large stands of pine and the loss of the duff (organic) layer of the soil causes increased runoff. Figure 5 is a map of original vegetation for Bayfield County

## Major Watershed Basins<sup>2</sup>

A summary of information from each of three major basins in Bayfield County follows. Detailed recommendations for each watershed are found on the Wisconsin DNR web site: [www.dnr.state.wi.us/org/gmu](http://www.dnr.state.wi.us/org/gmu). The Lake Superior and Upper Chippewa Basin plans have not been updated since the last Bayfield County LWRMP. Figure 6 is a map of Bayfield County watersheds. Figure 7 is a map of Bayfield County wetlands and water resources.

### Lake Superior Basin<sup>3</sup>

Lake Superior is the deepest of the Great Lakes and, in surface area, is the largest fresh water lake in the world. The Lake Superior drainage basin in Wisconsin covers about 1.96 million acres or about 3,069 square miles, most of which is forested. Land in Bayfield County makes up about 39 percent of Wisconsin portion of the Lake Superior basin.

The original vegetation of the Lake Superior Basin included huge tracts of forest of white spruce, balsam fir, hemlock, sugar maple, yellow birch, and mixed pine. Forestlands were interspersed with wetland vegetation. Stands of 200-foot tall white pine held the soils together, shading streams in which fish spawned. The southern portions of the basin were (and are now) dotted with wetlands and lakes.

Most of the Wisconsin portion of the Lake Superior coastal area is composed of red clay deposits left behind by glaciers about 10,000 years ago. These geologically young deposits are highly erodible, especially in disturbed areas or on slopes. The red clay includes small particles of sand that remain behind in streambeds as the finer clay particles are carried out into the lake. Some sections of the southern portion of the basin are composed of rugged hill and kettle relief, formed by thick end moraine deposits and pitted outwash.

The Lake Superior shoreline, including its coastal wetlands, is a significant area of biological diversity. It is characterized by a cool climate, undulating and rolling plains, extensive wetlands and several unique natural features such as drowned river mouths and estuaries. The presence of clay soils and lowland boreal forest also contribute to its biological diversity. Extensive peatlands have formed at the mouths of many of the streams entering Lake Superior, usually behind sand spits. They provide habitat for many rare plant and animal species.

Seven main watersheds make up the Lake Superior Basin in Bayfield County:

- **Bayfield Peninsula/Northwest**
- **Bayfield Peninsula/Southeast**
- **Bois and Brule River**
- **Fish Creek**
- **Iron River**
- **Marengo River**
- **White River**

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<sup>2</sup> Information about Wisconsin watersheds and basin plans is available at [www.dnr.wi.us/org/gmu](http://www.dnr.wi.us/org/gmu).

<sup>3</sup> Wisconsin Department of Natural Resources. *The Lake Superior Water Quality Management Plan*. March 1999.

Water quality in the Superior Basin is generally very good in Bayfield County. However, nonpoint source (NPS) pollution such as streambank and shoreline erosion is impacting many areas, causing turbidity and sedimentation of streambeds. Other examples of nonpoint pollution are pollution from stormwater drains, runoff from farm fields and feedlots, sedimentation from logging sites and construction-site erosion.

*Basinwide Resource Management Issues:*

- point source pollution (primarily around the City of Superior in Douglas County)
- lake management
- toxic pollution management (primarily around the City of Superior in Douglas County)
- nonpoint source pollution management
- surface water monitoring and assessment needs

*Basinwide Recommendations:*

- monitor water quality
- evaluate and protect wetlands
- assist county and municipal administrators in enforcement of shoreland and wetland zoning
- protect existing water quality in Class I lakes
- assist local authorities in development of standards for Lake Superior shoreline aesthetic and buffer zones

*Information & Education Recommendation:*

- develop shoreline management education materials to prevent impacts to water resources

**St. Croix Basin<sup>4</sup>**

The St. Croix River originates at Upper St. Croix Lake near Solon Springs and flows approximately 160 miles to join the Mississippi River at Prescott, Wisconsin. The entire basin drains 7,760 square miles in both Minnesota and Wisconsin (40% and 60%, respectively)

Three watersheds make up the St. Croix Basin in Bayfield County.

- **Upper St. Croix & Eau Claire Rivers**
- **Totogatic River**
- **Upper Namekagon River**

Land in the St. Croix Basin is mostly forested, with small tracts of agricultural land interspersed. Water quality in the basin is generally good. However, as the demand for recreational opportunities and shoreland property increases, a decline in water quality, habitat, and natural scenic beauty can be expected. It should be noted that little to no baseline information has been collected from the Bayfield County portion of the St. Croix Basin.

*Basinwide Issues:*

- control agricultural nonpoint source water pollution
- reduce or eliminate the impacts of urban development on lake water quality
- identify sources of metals and other toxic substances
- protect endangered resources

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<sup>4</sup> Wisconsin Department of Natural Resources. *The St. Croix River Water Quality Management Plan*. PUBL-WR-270-94-REV. February 1994. Pages 213-223, 229-235.

- achieve compliance with all Wisconsin Pollutant Discharge Elimination System (WPDES) permits

*Basinwide Recommendations*

- identify water quality problems
- identify water quality needs
- identify management activities for protection
- coordinate DNR programs to manage surface & groundwater resources
- incorporate public concerns in water quality improvement/protection efforts

**Upper Chippewa River Basin<sup>5</sup>**

Only a small part of the county (in the extreme southeastern corner) drains into the Upper Chippewa River Basin. The entire basin within Bayfield County's borders is forested. Many wetland areas exist in this relatively high quality area, as do headwaters to several Outstanding Resource Waters. Hydropower has significantly changed this watershed from its natural state.

Two watersheds of the Upper Chippewa Basins are located (in part) in Bayfield County:

- **Lake Chippewa**
- **West Fork Chippewa River**

Lake Chippewa

This watershed contains excellent water resources, primarily in the form of its many large lakes, especially Lake Chippewa (Chippewa Flowage) which dominates the watershed's southern half. Lake Chippewa is the product of a dam built on the Chippewa River in 1923 by Northern States Power to generate hydroelectric power and control floods. The flowage is the largest body of water in northern Wisconsin and supports an outstanding warm water sports fishery that includes walleye, muskellunge, largemouth bass, and blue gills.

Lake Chippewa drains an undeveloped area that is totally wooded or wetland, and 8 of the 12 named streams in the watershed - Pipestone, Camp One, Blueberry, Yankee Joe, Drake, Hay, and Moss Creeks, and the North Fork of the Chief River - empty directly into the lake. Despite the recreational value of the region, available water quality information on the streams in this watershed, including the section of the Chief River that runs through the Chief River State Wildlife Area, is out of date with most data more than 25 years old.

West Fork Chippewa River

The West Fork of the Chippewa River originates in Bayfield County; the East Fork originates in central Iron County. Both rivers flow southwesterly through Ashland and Sawyer counties until they join at the Chippewa Flowage, a reservoir formed by the Winter Dam. The West Fork supports one reservoir upstream of the Chippewa Flowage - Moose Lake, a water storage impoundment with a thirteen foot head dam. Both the East and West Forks were evaluated for in-stream habitat using the Wisconsin Warm Water Physical Habitat Rating System. The West Fork has a rating of "excellent", the East Fork rates between "good" and "excellent" (Kanehl and Lyons, 1990).

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<sup>5</sup> Wisconsin Department of Natural Resources. *Upper Chippewa River Basin Water Quality Management Plan*. PUBL-WR-345-96-REV. 1996. Madison, WI.

## Surface Water

Bayfield County's total land area covers 944,800 acres. The county boasts an impressive 1,250 square miles of surface water in the form of lakes, rivers, streams, and wetlands. There are 962 lakes totaling 22,629 acres.

### Rivers and Natural Streams

Bayfield County streams are generally small with 90 percent under 20 feet in width. The Namekagon River is the widest with an average width of 58 feet.

Pollutants can enter rivers and streams through two different avenues called point and nonpoint pollution. Runoff from various activities can carry pollutants from watersheds and deposit them in rivers and streams. This is known as nonpoint pollution. Examples of point sources of pollution include a discharge pipe from a manufacturing plant or wastewater treatment facility or an uncontrolled spill.

Stream assessments reveal that water quality in portions of the St. Croix Basin and the Lake Superior Basin is threatened by increasing fertility, increased suspended solids, mercury, polychlorinated biphenyls (pcbs), petroleum, and low biological oxygen demand. Suspected pollutant sources include runoff from construction sites, urban runoff, and forestry. These pollutant sources affect swimming, aquatic life, and drinking water. None of the watersheds in Bayfield County are ranked high for water quality threats to lakes, streams, or groundwater. Individual water body rankings (high, medium, or low) are found on DNR's Surface Water Viewer (<http://dnrmaps.wisconsin.gov/imf/imf>).

### Lakes

Seventy percent of Bayfield County's lakes and impoundments are less than 10 acres in size, although they account for only 8 percent of the lake acreage. The 41 lakes and impoundments exceeding 100 acres account for almost 58 percent of the lake acreage.

Like streams, lakes receive both point and nonpoint sources of pollution. Lakes are also deposition areas for pollutants from the atmosphere, such as mercury. Fish advisories due to mercury are in place on all lakes in Wisconsin.

### Impaired Waters Listing

Water quality standards are set by states, territories, and tribes. These standards identify the designated uses (such as swimming, drinking water, fishing, etc.) for each waterbody. Federal, state, and local agencies and organizations regularly cooperate to obtain and update water quality data. Section 303(d) of the Clean Water Act requires each state to publish updated lists of streams and lakes that are not meeting water quality standards and designated uses because of excess pollutants. This list has become known as the *total maximum daily load (TMDL) or impaired waters list*. A TMDL is a calculation of the maximum amount of pollutant that a waterbody can receive and still meet water quality standards. A TMDL is calculated for each waterbody under Section 303 of the Clean Water Act. There are thirteen lakes in Bayfield County on the impaired waters list. These lakes are all listed for mercury contamination. TMDLs are not generally conducted for mercury contaminated lakes because the source of mercury is airborne contamination – most of which is from sources outside the lake watersheds.

### **Outstanding and Exceptional Resource Waters**

In contrast to the few impaired waters listings in Bayfield County, there are many water bodies on the Outstanding Resource Waters (ORW) and Exceptional Resource Waters (ERW) lists. This points to the need to protect the exceptional water quality in the county.

*Outstanding and Exceptional Resource Waters* are protected through the Department of Natural Resources rules NR 102.1 and NR 102.11 of the Wisconsin Administrative Code. The quality of these waters cannot be lowered due to DNR permitted activities, such as wastewater treatment plants.

- **Outstanding Resource Waters (ORW)** have the highest value as a resource, excellent water quality, and high quality fisheries. They do not currently receive wastewater discharges, nor will point source discharges be allowed in the future, unless the discharge waters meet or exceed the quality of the receiving water. This classification includes national and state wild and scenic rivers and the highest quality Class I trout streams in the state.
- **Exceptional Resource Waters (ERW)** have excellent water quality and valued fisheries, but currently receive wastewater discharges or may receive future discharges necessary to correct environmental or public health problems.

**Table 1. Bayfield County Outstanding Resource Waters**

Bark Bay Slough	Middle Creek
Bark River	Middle Eau Claire Lake
Bear Trap Creek	N Branch Pikes Creek
Big Brook	N Fork Fish Creek
Birch Run	N Fork Whittlesey Creek Below Rd crossing @ S20 T44N R5W
Cranberry River	Namekagon Lake
Cranberry River Trib. T50N R7W S26	Namekagon River From the outlet of Lake Namekagon to the Sawyer County line
DeChamps Creek	Onion River
DeChamps Creek Trib. S32 T48N R8W	Onion River Trib. T50N R4W S31
Diamond Lake	Owen Lake
E Fork Cranberry River	Pike Chain of Lakes Pike, Millicent, Buskey Bay, Hart, Twin Bear, Eagle, Flynn and Hildur
E Fork Iron River	Pikes Creek
E Fork White River Downstream from Delta Lake	Pine Creek
Eighteen Mile Creek	Pine Creek Trib. S10 T47N R6W
Eighteen Mile Creek Trib. S8 T44N R6W	S Fork White River
Fish Creek (Main)	Schacte Creek
N Fork Fish Creek Trib. S13 T47N R6W	Sioux River
Flag River South of town rd S27 T50N R8W	Sioux River Trib. S32 T49N R5W
Four Mile Creek	Star Lake
Hill Creek	Tader Creek
Lenawee Creek Lower 1.0 mi to outlet	Thompson Creek
Little Pine Creek	Totogatic River
Little Sioux River	Townsend Creek
Long Lake Branch Below Drummond L to White River	Twenty Mile Creek
Long Lake Branch Trib. S16 T45N R6W	Upper Eau Claire Lake
Long Lake Branch Trib. S17 T45N R6W	W Fork Chippewa River
Long Lake Branch Trib. S22 T45N R7W	White River Downstream to Pike's Bridge
Long Lake Branch Trib. S27 T45N R7W	Whittlesey Creek Below N Fk to L Superior
Marengo River	

**Table 2. Bayfield County Exceptional Resource Waters**

Bolen Creek	Sand Bay Trib. S6 T51N R4W
Dahl Creek	Saxine Creek
E Fork Flag River	Siskiwit Bay Trib. S34 T51N R6W
Hawkins Creek (S1 T44N R5W to Morgan Creek)	Siskiwit River spring source in S24 T50N R6W downstream to Siskiwit Falls
Little Brook	Slaughter House Creek
Marengo River Trib. S17 T44N R5W	Squaw Bay Tributary T51N R6W S23
Marengo River Trib. S20 T44N R5W	Squaw Creek
Marengo River Trib. S21 T44N R5W	Whiskey Creek Trib. S12 T44N R5W
Marengo River Trib. S3 T44N R5W	White River Below Pike's Bridge
Marengo River Trib. S9 T45N R5W	White River Trib. S26 NWNE T46N R7W
Reefer Creek Headwaters downstream to S32 T49N R9W	White River Trib. S26 SWNE T46N R7W

## Wetlands

Wetlands are defined as areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and that contain soils indicative of wet conditions. Wetlands can be seasonal or permanent and are commonly referred to as potholes, wet meadow, bogs, swamps, and marshes. In 1991, the Wisconsin Wetland Inventory Maps (WWI) indicated that Bayfield County had 80,252 acres of wetland out of a total surface area of 944,902 acres (8.5% of the county). Figure 7 shows Bayfield County wetland distribution.

Although historically thought of as wastelands, it is now known that wetlands perform many important functions on the landscape. Wetlands filter pollutants before they enter surface and groundwater, provide critical habitat and increase diversity for fish and wildlife, reduce flooding by storing and slowly releasing water from rain and snowmelt, reduce peak stormwater flows, reduce shore erosion by protecting banks from the effects of wave and wind action, and serve as recharge and discharge areas for groundwater. Many rare, threatened, and endangered species are found in wetlands. Draining and filling wetlands can remove these valuable functions.

Critical wetlands were identified in *Priority Wetland Sites of Wisconsin's Lake Superior Basin* developed by the DNR's Bureau of Endangered Resources in 1997. The Wisconsin portion of the Lake Superior basin contains rare coastal wetlands not found anywhere else in the basin. These areas are targeted for acquisition and special protection. The document identifies 30 priority wetland sites and 18 priority aquatic sites within the Lake Superior Basin. A list of sites in Bayfield County is included in Table 3 below. Additional priority areas for wetland protection include wetlands in the Whittlesey Creek watershed and coastal wetlands and estuaries such as the Fish Creek estuary.

**Table 3. Priority Wetland and Aquatic Priority Sites in the Lake Superior Basin**

Priority Wetland Sites

Bibon Swamp  
Port Wing  
Bark Bay  
Fish Creek Sloughs  
Lost Creek  
Sand Bay  
Red Cliff Reservation  
Sultz Swamp  
Bayview Beach-Sioux River Slough

Priority Aquatic Sites

White River

All construction projects involving wetlands should be reviewed to ensure local, state, and federal wetland regulations are met prior to construction. The US Army Corps of Engineers, under Section 404 of the Clean Water Act, is responsible for permitting activities in wetlands in nonagricultural situations, such as urban development or road construction. The Wisconsin DNR has water quality certification over wetlands governed by the Corps of Engineers. Agricultural wetlands are regulated by the USDA Natural Resources Conservation Service (NRCS). The USDA Farm Service Agency (FSA) keeps records of all agricultural wetland determinations made by NRCS. The Wisconsin DNR has mapped an inventory of wetlands that are two to five acres and larger. Because these inventories were generally completed through aerial photo

interpretation, rather than on-site inspection, some wetlands may not appear on the inventory. Noninventoried wetlands are still subject to all rules and regulations relating to wetland management and protection.

In addition to state and federal wetland regulation, the county has an existing Shoreland-Wetland Zoning Ordinance authorized by NR 115, Wisconsin Administrative Code, that regulates activities in wetlands that are within 1,000 feet of a lake and 300 feet (or the landward edge of the floodplain) of a river or stream. Cities and villages in the county have similar wetland rules authorized under NR 117, Wisconsin Administrative Code.

### **Shorelands**

Shorelands include lands near lakes, rivers or streams, and certain wetlands. Bayfield County has 531 miles of stream frontage, of which about 382 miles (72%) are in public ownership. Lake frontage in the county totals 732 miles, with roughly 259 miles (35%) in public ownership. Bayfield County also contains diverse coastal wetlands and 86 miles of Lake Superior shoreland.

Shorelands are popular for residential development because of their scenic beauty and the access they provide to water. Shorelands also provide valuable habitat for both aquatic and terrestrial animals and plants, they act as buffers by filtering pollutants before they enter surface water, and control erosion by protecting soil from the impacts of wave action and stormwater runoff.

Many shoreland property owners have removed vegetation in favor of lawn turf in order to maximize the view from their dwelling. Efforts have been made by local, state, and federal agencies to return shorelands to native vegetation. Shoreland restoration is designed to return native species, restore filtering capabilities, reduce peak flows, provide erosion control, and restore natural scenic beauty to the lakes and rivers of Wisconsin.

### **Groundwater**

Groundwater is the primary source of drinking water for most Bayfield County residents. As with 70% of the state, the sand and gravel aquifer is where the main source of groundwater is acquired. This aquifer includes primarily glacial deposits of unconsolidated sand and gravel material. It is not a continuous layer, but rather deposited in lenses or layers of sand and gravel interspersed with other fine grained or low permeability deposits. As a result, well yields vary and depend primarily on the permeability and thickness of the sand and gravel at a particular location. Groundwater is generally abundant in Bayfield County (WDNR 1997).

Bayfield County has five municipal water systems (Bayfield, Drummond, Iron River, Port Wing, and Washburn), and they all have wellhead protection programs. Bayfield has a wellhead protection ordinance.<sup>6</sup>

The WDNR has compiled information regarding susceptibility to groundwater contamination in maps. The map for Bayfield County is included as Figure 8. Susceptibility of groundwater to pollutants is defined here as the ease with which a contaminant can be transported from the land surface to the top of the groundwater called the water table. Many materials that overlie the

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<sup>6</sup> *Protecting Groundwater through Comprehensive Planning. Bayfield County.* On-line reference:<http://wi.water.usgs.gov/gwcomp/find/bayfield/index.html>.

groundwater offer good protection from contaminants that might be transported by infiltrating waters. The amount of protection offered by the overlying material varies, however. Thus, in some areas, the overlying soil and bedrock materials allow contaminants to reach the groundwater more easily than in other areas.

Five physical resource characteristics were identified as important in determining how easily a contaminant can be carried through overlying materials to the groundwater. These characteristics are depth to bedrock, type of bedrock, soil characteristics, depth to water table, and characteristics of surface deposits.

Contamination of groundwater by human activity is a severe problem because contaminants generally travel un-noticed, are difficult to remove and may persist indefinitely. Water percolating through the soil can pick up pollutants and transport them to the groundwater. Contaminants may also enter the groundwater through unused wells that are not properly sealed. Groundwater contamination comes from a variety of sources, including leaking underground petroleum pipes and tanks; failing septic systems; use and storage of road salt; improper use, disposal, and storage of hazardous materials; and improper fertilizer, pesticide, herbicide and animal waste management.

Of private wells in Bayfield County for which DNR has test records, none have met or exceeded the drinking water limit for nitrate-nitrogen or arsenic. There are sites in Bayfield County with contaminated groundwater or soil. These sites are contaminated from leaking underground storage tanks, contaminated industrial areas, and spills. (WDNR 2007)

## Threatened and Endangered Resources

Rare, threatened, and endangered species are those whose populations are at risk. Federal agencies, in cooperation with the Wisconsin Natural Heritage Inventory, identify plant, animal, and natural communities that are threatened, rare, endangered, or special concern. Special concern species are those for which some problem of abundance or distribution is suspected but not yet proven. Bayfield County contains a high number of rare, threatened, and endangered species and plant communities. Current Natural Heritage Inventory lists of species and communities can be found at: <http://dnr.wi.gov/org/land/er/nhi/Countydata>.

## Invasive Terrestrial and Aquatic Species

Like other Wisconsin counties, Bayfield County faces an onslaught of invasive species from other regions and countries. These non-native plants, animals, and pathogens displace native species, disrupt ecosystems, and can harm recreational activities such as fishing, boating, and swimming. They also can damage commercial and industrial interests. Invasive species are found both in the water (aquatic) and on the land (terrestrial). Recent statewide and county efforts and funding have focused on aquatic invasive species.

Because non-native invasive species lack the predators and competitors they faced in their homelands, invasive species can spread rapidly and aggressively. Controlling invasive species is difficult, and getting rid of them is often impossible. People play a major role in spreading invasive species and can also prevent them from spreading.

### Aquatic Invasive Species (AIS)

For lakeshore property owners, Eurasian water-milfoil (EWM) is the invasive aquatic plant that is most often the highest priority. Presently, and fortunately, only 7 lakes, 5 of which are within the Pike/Delta chain of lakes, have populations of EWM in Bayfield County. Dense populations are also in the Washburn Marina and Washburn public boat launch along Lake Superior. Additional species are documented in 17 other lakes across the county. Purple loosestrife is prevalent in the Bayfield Peninsula, and in patches in the southern part of the county. Other aquatic and riparian (shoreline) invasive plants, like Japanese knotweed, common reed, and curly-leaf pondweed are found in small isolated patches, and can possibly be eradicated if treated and monitored closely. A list of documented aquatic invasive species is in Table 4 below.

**Table 4. Documented Priority AIS in Bayfield County - 2009**

<b>AIS</b>	<b>Town</b>	<b>Lake/Area</b>
Eurasian Water-milfoil	Barnes	Sand Bar & Tomahawk Lakes
	Iron River	Buskey Bay, Eagle, Hart, Millicent, & Twin Bear Lakes
	Washburn, City of	Washburn Harbor, Chequamegon Bay
Curly-leaf Pondweed	Iron River	Hart Lake
	Barnes	Upper Eau Claire Lake
Purple Loosestrife	Bayfield, Bayview, Russell	Bayfield Peninsula SE shoreline
	Iron River, Cable	Millicent & Pike Lakes, Cable Lake
	Namakagon	Twin Lakes
	Barnes	Cranberry and Lower Eau Claire Lakes
Eurasian Ruffe	Bell, Clover, Port Wing, Russell	Numerous locations on the N and NE shoreline of Bayfield Peninsula, Lake Superior
Rusty Crayfish	Barnes	Eau Claire Chain of Lakes
	Delta /Iron River	Ruth & Pike Lakes, Pike Chain of Lakes

## Land Use and Management

Figure 9 illustrates Bayfield County land cover. Agriculture, forestry, recreation, and residential land uses are important to consider for soil and water resource management as is land ownership.

### Land Ownership <sup>7</sup>

Bayfield County has a surface area covering approximately 1,502 square miles. Approximately 48 percent of the total land area is public land. These areas include county parks and forests; state parks, forest, and natural and wildlife areas; national forest and parks; and other public lands. Figure 10 illustrates land ownership in Bayfield County. Public lands are summarized in Table 5 below.

<i>Land type</i>	<i>Acres</i>
County Parks & Forests	169,353
Total DNR	22,264
Federal Government	272,770
<b>Total Publicly Owned Land</b>	<b>464,387</b>

Water resources influence land use patterns in the county. The Northwest Regional Planning Commission indicates that shoreland trends include the development of second and even third tiers of shoreland areas. They further suggest that if development continues in these areas, the balance of the county’s developable shorelands will be consumed within the next 20 years. Planned development patterns are reflected in Figure 11, the county’s current zoning district map.

### Agriculture

Agriculture comprises approximately 9 percent of Bayfield County lands. According to the 2009-2010 Wisconsin Blue Book, the number of farmers and farmland has decreased in the past decade, following the statewide trend. However, this decrease has not been as dramatic as in some other areas. In comparison with all other Wisconsin counties, Bayfield County ranks 58th in total acres devoted to agriculture.

**Table 6. Bayfield County Land in Agriculture**

<b>Date</b>	<b>Number of Farms</b>	<b>Average Farm Size (acres)</b>	<b>Land in Agriculture (acres)</b>
1998	380	247	94,000
2002	468	239	112,000
2007	383	233	89,000

Most farms in the county are dairy and beef operations. Other farming operations include organic “truck” farm operations and nurseries. These are important industries which provide valuable services such as raising native and organic produce for local consumption. Crops produced in the county include sunflowers, oats, trefoil (forage and seed), turf grass seed, corn, legumes, grass hay, fruits, vegetable crops (cabbage, pumpkins and various other crops), and nursery stock. Animal operations must now address an increasingly difficult part of farming – manure management. Manure is generally stockpiled or stored and spread on fields when conditions allow. Some producers still allow unlimited access to streams and, in some cases, may contribute

<sup>7</sup> *Bayfield County Land Use Plan*. Northwest Regional Planning Commission. March 2003.

<sup>8</sup> *Wisconsin Blue Book*. 2007-2008.

to streambank erosion, sedimentation, nutrient loading, and shoreland degradation. Cropland soil erosion is not generally an issue due to long hay rotations and limited row crop production. Because of low erosion rates and few acres in cropland, soil erosion transect surveys are not completed in Bayfield County.

Most Bayfield County farmers recognize the environmental and economic benefits of proper use and management of nutrients and pesticides. A small amount of funding has been available from DATCP for nutrient management planning assistance and training. Funding through federal agencies has been available to producers on a limited basis for many years.

### **Forestry**

Forests in Bayfield County provide many sustainable economic benefits. A properly managed forest can provide wildlife habitat, forest products, and recreational opportunities. Forests also play a critical role in maintaining healthy watershed hydrologic conditions and helping to desynchronize snowmelt. The Bayfield County community recognizes the importance of vast, undeveloped forest land to the area economy and the quality of life.

Bayfield County boasts 464,387 acres of publicly owned forest land, all managed for a variety of uses. County, state, and federal management includes the use of forest best management practices in both management and harvest. The current Bayfield County Forest Management Plan covers the years 2006 – 2020. It can be found at: <http://www.bayfieldcounty.org/Forestry-Department.asp>.

More than a decade of monitoring best management practices for water quality by the DNR has dispelled the myth that logging practices are a significant threat to water quality and habitat in the state. The public forests are being well managed by professionals in a multi-use, sustainable manner. Private land managers have more opportunity to improve both silvicultural practices and operational procedures to enhance forest production and environmental sustainability.

Private forest land owners would benefit from additional forest management outreach opportunities. Many landowners do not feel comfortable meeting with agency staff about their lands. To bridge this communication gap, there are organizations like the Living Forest Co-op, Wisconsin Family Forests, Wisconsin Tree Farmer, and the Forest Advocates Program that can assist interested landowners with management direction and ease anxiety about entering into contracts and management plans. The DNR has a private lands forester to assist landowners, some paper mills have foresters available, and there are several private consulting foresters to assist as well.

### **Recreation**

Recreation is an important land use in Bayfield County, because of the many opportunities available. Nearly 82 percent of land in the county is forested, most of which is in national, state, or county ownership, and private industrial forest. Visitors to the area are provided many recreational opportunities including trail riding, skiing, dog sledding, fishing, hunting, boating, swimming, hiking, canoeing, and chances to enjoy natural scenic beauty.

Abundant and clean water resources draw many visitors to the area. Bayfield County surface waters cover approximately 3 percent of the total land area (23,676 acres). Natural lakes and

impounded water account for approximately 22,685 acres, with the balance in rivers and streams. Freshwater coastal resources include 86 miles of Lake Superior coastal shoreline.

Recreation can contribute to the degradation of these unique and generally high quality resources. Use of motorized equipment near water can pollute lakes, streams, wetlands, and groundwater.<sup>9</sup> Eroded trails may negatively affect pristine resources. User conflicts may also arise with various recreational uses. Specific examples of impacts from recreational activities include:

- Soil erosion on recreational trails, campsites, and boat landings
- Soil erosion from improper planning, design, and installation of trails
- Fuel and lubricant spills
- Improper use of chemical pesticides, herbicides, or fertilizers
- Increased runoff from recreation based housing or urban development
- Failing septic systems for recreational based housing
- Disturbance or destruction of wetland or wildlife habitat

Recreational activities require careful thought and planning prior to installation. The use of best management practices for water quality can reduce negative impacts to Bayfield County waters.

### **Urban**

The US Census estimates the 2008 Bayfield County population at 14,926. This value is down 0.6% since the 2000 census. That translates to 10.2 people per square mile of area in the county. With this low population density, Bayfield County cannot be considered an urban county by any measure. Areas with residential, commercial, and industrial development are considered urban in the discussion below.

Housing development in shoreland areas impacts water resources and habitat. In 1990 there were 10,918 housing units in the county, with 4,430 used primarily for seasonal and recreation use. In 2000 housing units had increased to 11,640, with 4,922 for seasonal use. Many seasonal homes are located on waterfront property. With seasonal housing at over 40 percent of the housing stock in the county, the impacts and potential impacts on lakes and rivers are great. Development around lakes, rivers, and wetlands can result in destruction of wetlands, floodplains, unique habitats, and trout streams. Shoreland development also can degrade water quality because of failing septic systems, addition of impervious surfaces, chemical applications (herbicides and fertilizers), and removal of shoreland vegetation.

Urban areas pose many threats to water quality. The addition of impervious surfaces, storm drains, and wetland fill all contribute to problems with the natural movement of water through a watershed. Pollutants from oil, petroleum, road salt, lawn fertilizers and herbicides, debris, and industrial waste are carried down storm drains and are generally untreated. Stormwater runoff causes increased water temperatures, flooding, decreased oxygen levels, streambank erosion, and increased sedimentation.

The communities of Washburn, Bayfield, Red Cliff, Cornucopia, Herbster, Port Wing, Iron River, Grand View, Drummond, Cable, Delta, and Barnes are not large enough for DNR-

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<sup>9</sup> Wisconsin DNR. *Wisconsin's Forestry Best Management Practices for Water Quality Field Manual*. Publication #FR093. 1995.

required stormwater management plans. Some communities have opted to move forward with stormwater system upgrades voluntarily. WDNR requires all construction sites that disturb one or more acres of land to obtain storm water permit coverage under the Wisconsin Pollution Discharge Elimination System (WPDES) Program. Stormwater management practices can reduce infrastructure expenses and reduce sediment and nutrient loading to waterways downstream.

Monitoring of e coli levels at municipal beaches over the past several years indicates e coli spikes regularly following summer rain events. The heavy runoff flowing over areas with a high percentage of impervious surfaces carries waste, nutrients, and other contaminants leading to bacterial contamination.

Communities in Bayfield County are moving toward a green and sustainable philosophy. Many community leaders and teachers are advocates for the sustainability movement. The desire of a growing segment of the citizens to create an environmentally friendly community has provided the opportunity for the LWCD to initiate programs that can support this community movement.

County government is setting an example by implementing projects and practices that will slow and reduce the amount of runoff from county-owned property. Typical projects include rain barrels, rain gardens, retention ponds, and diversion structures. Other public institutions are exploring these options as well, and a few private residents have also moved forward with plans to address urban runoff. The LWCD is providing information and education, technical assistance, and cost share assistance to support the movement.

### **Township & Transportation System**

The county experiences road construction and maintenance problems, especially in the Lake Superior Clay Plain, because of the presence of clay soils and steep slopes. The impervious clay soils and sloping landscape drain uplands quickly. The large volume of water and fast runoff rate can erode streams and damage culverts and bridges that provide stream crossings. Many crossings cannot handle water during flood periods or high water years. Woody material and other debris washed in by floodwaters can block a crossing and back water up over adjacent land and the roadway, resulting in severe washouts and damage to in-stream habitat. Road ditches concentrate flow as well, and are direct conduits to surface waters and wetlands.

### **Land Protection**

Land protection tools such as purchase or donation of conservation easements or title to land are powerful methods to reduce or prevent land use impacts. A conservation easement is a voluntary legal agreement between a landowner and land trust or government agency that protects the conservation values of a piece of land by permanently limiting its present and future uses. The Bayfield Regional Conservancy is an example of a local land trust. The LWCD provides a supporting role to land protection efforts in the Bayfield County by providing information and letters of support.

## Soil and Water Regulations, Standards, and Best Management Practices

### **Federal Regulations**

The Environmental Protection Agency (EPA) is responsible for “protecting human health and to safeguard the natural environment – air, water and land – upon which life depends.” The EPA administers a number of major environmental laws including the Clean Air Act, Clean Water Act, Pollution Prevention Act, and National Environmental Policy Act. The EPA also defines minimum standards for categories for water body uses (such as swimming, drinking water, etc.) DNR and DATCP administer EPA programs for the state of Wisconsin. In turn, these state agencies turn over implementation of many of these programs to the county land conservation committees and their staff.

### **State Regulations and Standards**

*Chapter 30, Wisconsin Statutes – Navigable Water.* DNR provides oversight for this important program. The LWCD staff provide assistance with restoration plans on upon request.

### ***NR 216, WI Admin. Code***

The NPDES program is designed to require stormwater management plans and erosion control plans for sites larger than one acre as required under the EPA’s Clean Water Act. The intent is to keep water leaving construction sites clean through filters, sediment basins, and diversions and to plan for long term stormwater management. DNR stormwater specialists work with local land conservation and zoning departments to implement this program.

Under subchapter III of NR 216, Wis. Adm. Code, a notice of intent must be filed with the DNR by any landowner who disturbs one or more acres of land. This disturbance can create a point source discharge of storm water from the construction site to waters of the state. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating and harvesting of crops for human or livestock consumption, and pasturing or yarding of livestock as well as sod farms and tree nurseries. Agriculture is not exempt from the requirement to submit a notice of intent for one or more acres of land disturbance for the construction of structures such as barns, manure storage facilities, or barnyard runoff control systems. (See s. NR 216.42(2), Wis. Adm. Code.) Furthermore, construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with s. NR 216.46, Wis. Adm. Code and meeting the performance standards of s. NR 151.11, Wis. Adm. Code. An agricultural building or facility is not required to meet the post-construction performance standards of NR 151.12, Wis. Admin. Code.

### ***NR 243***

The NR 243 animal waste and feedlot program is designed to provide financial and technical assistance to those operations that are impacting water quality. This is a complaint based program, and participants are cited and ordered to repair an operation to meet water quality standards. Investigations and citations are issued by DNR. Cost-sharing is administered by DATCP, and LCCs and LWCDs provide technical assistance for this program.

### ***Cropland Soil Erosion Control Plan***

Bayfield County received a waiver from the requirement to develop a cropland soil erosion control plan. In requesting the waiver, the county stated that due to minimal row cropping, soil erosion on cropland was not a major threat to the waters of Bayfield County. The waiver was granted by the Wisconsin Land and Water Conservation Board and the Department of Agriculture, Trade & Consumer Protection January 27, 1998 and is found in Appendix B.

### ***Farmland Preservation and Working Lands Initiative***

The Working Lands Initiative (WLI) is an update to Wisconsin's 30-year-old Farmland Preservation Program. The WLI updates current tools for farmland preservation, introduces new incentives for farmers, and creates new tools for planning and conservation professionals. WLI can be summarized under three separate, but related, ideas: updated farmland preservation planning and zoning, agricultural enterprise areas, and agricultural conservation easements.

Under farmland preservation zoning, county and local governments may update or adopt local ordinances for protection of farmland. While it is not required that these ordinances be certified, certification is required in order for farmers to claim farmland tax credits. Farmers seeking tax credits must also have received at least \$6,000 in gross farm revenue in the past year, or \$18,000 in gross farm revenue in the past three years. Farmers in the program will also be required to comply with the state soil and water conservation standards and prohibitions established in NR 151. Bayfield County is scheduled to update its farmland preservation plan in 2015. The following year, the county will need to seek re-certification of its farmland zoning ordinance in order to maintain farmer eligibility for the tax credit program.

An agricultural enterprise area (AEA) is a contiguous land area, devoted primarily to agricultural uses, designated by DATCP in response to an application submitted by a local government. These areas are targeted for agricultural preservation and development. Only farmers in AEAs will be eligible to enter into new farmland preservation agreements with DATCP, which allows them to claim a tax credit. Any existing farmland preservation agreements will remain in effect until they expire.

WLI also creates a state program to purchase agricultural conservation easements from willing landowners. While ownership of the land covered under the easement is retained by the farmer, these easements will restrict nonagricultural development of that land. Easements are permanent and run with the land. This means the farmer may sell the land, but the easement remains in place and is binding on subsequent landowners. Bayfield County will be responsible for ensuring participants in WLI programs are compliant with current state soil and water conservation standards and prohibitions. The county will be required to check compliance every four years.

### ***NR 151 Performance Standards and Prohibitions***

In 1998, the Animal Waste Advisory Committee (AWAC) developed four general animal waste prohibitions. The prohibitions were considered the basic animal waste guidelines needed to protect water quality. The Wisconsin Department of Natural Resources developed NR 151 beginning with the basic prohibitions developed by AWAC. This rule (NR 151) is part of eight WDNR rules that address runoff pollution, the major cause of polluted waters in Wisconsin and the United States.

NR 151 includes the following:

- **Subchapter I: Implementation and Enforcement Provisions**
- **Subchapter II: Agricultural Performance Standards**
  - ✓ Nutrient Management
  - ✓ Nonpoint Source Pollution Control
  - ✓ Cropland Soil Erosion Control
- **Subchapter III: Non-Agricultural Performance Standards**
  - ✓ Nutrient Management
  - ✓ Transportation Facility Performance Standards
- **Subchapter IV: Process to Develop and Disseminate Non-agricultural Standards**
  - ✓ Standards Oversight Council (SOC)

These standards and prohibitions were promulgated into law on October 1, 2002, under NR 151, Wis. Admin. Code. Under this rule, each county may adopt any or all of the standards and prohibitions. The Non-Agricultural and Agricultural Performance Standards are included on following pages. The Bayfield County approach to NR 151 was developed during the 2004 planning process. The LCC intends to maintain the same general approach developed in the 2004 planning process through the year 2020.

## **AGRICULTURAL PERFORMANCE STANDARDS AND PROHIBITIONS**

### **For farmers who grow agricultural crops:**

- a) Farmers growing agricultural crops must meet “T” (tolerable soil loss) on all cropped fields.
- b) Agricultural producers must follow a nutrient management plan designed to limit entry of nutrients into waters of the state.

### **For farmers who raise, feed, or house livestock:**

- a) Allow no direct runoff from feedlots or stored manure into state waters.
- b) Limit livestock access to waters of the state where high concentrations of animals prevent the maintenance of adequate sod cover.
- c) Agricultural producers must follow a nutrient management plan when applying or contracting to apply manure to limit entry of nutrients into waters of the state.

### **For farmers who have or plan to build a manure storage structure:**

- a) Maintain a structure to prevent overflow, leakage, and structural failure.
- b) Repair or upgrade a failing or leaking structure that poses an imminent health threat or violates groundwater standards.
- c) Meet technical standards for any newly constructed or substantially-altered structures.
- d) Close an existing structure according to accepted standards.

### **For farmers with land in a water quality management area: (defined as 300 feet from a stream, or 1000 feet from a lake or areas susceptible to groundwater contamination)**

- a) Do not stack manure in unconfined piles.
- b) Divert clean water away from feedlots, manure storage areas and barnyards located within this area.

### **Four Animal Waste Prohibitions**

- No overflow of manure storage structures.
- No unconfined manure piles in a water quality management area, 1,000 feet upgradient from sinkholes, or less than 3 feet to groundwater or bedrock.
- No direct runoff from a feedlot with stored manure to waters of the state.
- No unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod cover.

## **Non-Agricultural Performance Standards and Prohibitions**

The LCC determined that the state requirements and enforcement on the Non-Agricultural Performance Standards are adequate in Bayfield County. There are activities included in this plan to assist other agencies in implementing the Non-Agricultural Performance Standards. The Bayfield County LWCD will continue to provide plan review and technical recommendations to partner agencies and departments as time allows.

### **Non-Agricultural Performance Standards & Prohibitions**

#### **For new construction and redevelopment on sites of 1 acre or more:**

- a) Implement an erosion and sediment control plan using best management practices (BMPs) to control sediment runoff.
- b) Educate local units of government and individuals about erosion and sediment control plans.

#### **For most sites covered by construction site erosion control plan:**

- a) Implement a written storm water management plan to control runoff pollution. These plans shall conform to standards for total suspended solids in runoff, peak discharge rates, infiltration, protective areas, fueling and vehicle maintenance areas, timing, and location.

#### **For developed urban areas (population densities of 1,000 or more people per square mile):**

- a) Implement a storm water management plan that includes public education, leaf and grass management where appropriate, nutrient application on municipally-owned land according to an application schedule, and detection and elimination of illicit discharges.
- b) Permitted municipalities shall meet additional control requirements for reduction in total suspended solids.

#### **For non-municipal property covering 5 or more acres of turf or other pervious surface:**

- a) Apply nutrients in accordance with a nutrient management schedule.

#### **For transportation facilities:**

- a) Implement erosion and sediment control plans during construction and management plans for runoff after construction.

### ***Additional State Regulations***

A companion rule of Wisconsin's Runoff Management Program, NR 154, entitled *Best Management Practices, Conditions, and Standards*, is an important tool for implementing NR 151. The Wisconsin Department of Agriculture, Trade & Consumer Protection (DATCP) administers ATCP 50 and assists the counties with implementation of this rule.

The following standards have been incorporated into the implementation section of Bayfield County's Land and Water Resource Management Plan. Statewide program rules, to be implemented through the LWRM plan include:

- NR 151 Runoff Management (Performance Standards and Prohibitions)
  - Subchapter II: Agriculture Performance Standards
  - Subchapter III: Non-Agricultural Standards
  - Subchapter IV: Transportation Performance Standards
- NR 152 Model Ordinances for Construction Site Erosion Control and Stormwater Management
- NR 153 Targeted Runoff Management Grant Program
- NR 154 Best Management Practices and Cost-Share Conditions
- NR 155 Urban Nonpoint Source Water Pollution and Stormwater Management Grant Program
- NR 216 Storm Water Discharge Permits
- NR 243 Animal Feeding Operations
- ATCP 50 Soil and Water Resource Management Program

## **County Regulations and Plans**

Bayfield County has relatively few regulations relating to soil and water resource management. The county currently relies on state and federal regulations as well as voluntary best management practices (BMPs) for the protection of soil and water resources. Bayfield County ordinances can be viewed on-line at [www.bayfieldcounty.org](http://www.bayfieldcounty.org) or obtained from the Bayfield County Planning and Zoning Department. The Land and Water Conservation Department is directly involved in implementing the Shoreland Ordinance and Nonmetallic Mining Ordinance. Local regulations and ordinances currently in place include the following:

### ***Title 13 - Chapter 1 Zoning Code***

The zoning code is adopted for the purpose of promoting and protecting the public health, safety, convenience and general welfare, to further the maintenance of safe and healthful conditions, to prevent and control water pollution, to protect spawning grounds, fish, and aquatic life, to control building sites, placement of structures and land uses, to prevent overcrowding of any natural resource such as a lake, to preserve shore cover and natural beauty, and to promote the better uses of scenic resources.

### ***Title 13 - Chapter 2 Floodplain Zoning***

The purpose of floodplain zoning is to provide a uniform basis for the preparation, implementation and administration of sound floodplain regulations for all floodplains within Bayfield County to: (a) protect life, health and property; (b) minimize expenditures of public monies for costly flood control projects; (c) minimize rescue and relief efforts, generally undertaken at the expense of the general public; (d) minimize business interruptions which usually result in the loss of local incomes; (e) minimize damage to public facilities on the floodplains such as water mains, sewer lines, streets and bridges; (f) minimize the occurrence of future flood blight areas on floodplains; (g) discourage the victimization of unwary land and home buyers; and (h) prevent increases in regional flood heights that could increase flood damage and may result in conflicts or litigation between property owners.

### ***Title 13 - Chapter 3 Shoreland -Wetland Zoning***

Uncontrolled use of the shoreland-wetlands and pollution of the navigable waters of Bayfield County would adversely affect the public health, safety, convenience, and general welfare and impair the tax base. The Legislature of Wisconsin has mandated responsibility to the counties to: (a) further the maintenance of safe and healthful conditions; (b) prevent and control water pollution; (c) protect spawning grounds, fish and aquatic life; (d) control building sites, placement of structures and land uses; and (e) preserve shore cover and natural beauty.

Shoreland development within Bayfield County is currently regulated under the Bayfield County Shoreland Ordinance. Development standards within the ordinance are based on the Bayfield County lakes classification system, which defines the vulnerability of water bodies based on environmental factors such as area, depth, and shoreline irregularity. The lakes classification system also considers existing development patterns. The Bayfield County Zoning Department's *Property Owner's Guide for Protecting & Managing Shorelands in Bayfield County* outlines the classes of lakes found in Bayfield County and provides examples of each. Lakes are divided into 3 classes: Class 1 – Most Developed Lakes; Class 2 – Moderately Sensitive & Moderately Developed Lakes; Class 3 – Most Sensitive Developed & Undeveloped Lakes. The LWCD reviews plans and permits and provides recommendations for activities such as grading, shoreland buffer mitigation, and stormwater management and erosion control to the Bayfield

County Zoning Department and Board of Adjustment for this ordinance. LWCD staff may appear before the Board of Adjustment to explain recommendations, especially for contested case hearings.

***Title 14 Land Divisions – Chapter 1 County Subdivision Control Code***

This ordinance regulates and controls the division and subdivision of land within the unincorporated areas of Bayfield County. Jurisdiction includes all unincorporated lands within Bayfield County exclusive of those lands held in public trust by the federal government or those tribal owned lands located within the Red Cliff Indian Reservation.

***Title 15 Sanitary and Private Sewage Code***

This ordinance assures the proper siting, design, installation, inspection and management of private sewage systems and non-plumbing sanitation systems.

***Title 16 Environment – Chapter 1 Nonmetallic Mining Reclamation Ordinance***

The purpose of this ordinance is to establish a local program to ensure the effective reclamation of nonmetallic mining sites on which nonmetallic mining takes place in Bayfield County. The LWCD reviews reclamation plans and provides recommendations to the Zoning Department and Board of Adjustment for this ordinance.

**County Plans**

***Bayfield County Farmland Preservation Plan***

Bayfield County's Farmland Preservation Plan (FPP) includes goals and policies regarding land use and agricultural preservation. Bayfield County's Farmland Preservation plan expires on December 31, 2015.

***Bayfield County Aquatic Invasive Species Strategic Plan***

Bayfield County via its residents, and now the administration, has been pro-active with addressing Aquatic Invasive Species (AIS). The county received a WDNR AIS Control Grant to hire a project coordinator and develop a strategic plan. In March 2007, the County Board approved a standing Aquatic Invasive Species Committee, which not only would write the plan with input from numerous stakeholders, but oversee the plan once adopted. In April 2008, the County Board adopted the Bayfield County Aquatic Invasive Species Strategic Plan. It is found at: [http://www.bayfieldcounty.org/assets/files/Conservation/AIS\\_SP.pdf](http://www.bayfieldcounty.org/assets/files/Conservation/AIS_SP.pdf). This working document brings together many entities, all who share in the implementation of activities to keep AIS and their effects to a minimum in the county. This includes educational, prevention, monitoring, and management activities as well as activities to sustain the county-wide effort.

***Bayfield County Forest Comprehensive Land Use Plan***

The goal of the county forest plan is to administer the county forest program consistent with the mission statement and the purpose and direction of the County Forest Law as stated in s. 28.11, Wis. Stats. The purpose of the County Forest Law is to provide the basis for a permanent program of county forests and to enable and encourage the planned development and management of the county forests for optimum production of forest products together with recreational opportunities, wildlife, watershed protection and stabilization of stream flow, giving full recognition to the concept of multiple use to assure maximum public benefits; to protect the

public rights, interests, and investments in such lands; and to compensate the counties for the public uses, benefits, and privileges these lands provide; all in a manner which will provide a reasonable revenue to the towns in which such lands lie. The plan is found online at:

[www.bayfieldcounty.org/Forestry-Department](http://www.bayfieldcounty.org/Forestry-Department).

### ***Bayfield County Comprehensive Plan 2010***

In accordance with existing and future needs, the Bayfield County Comprehensive Plan will promote public health, safety, and general welfare of the community. As part of Act 9, a total of nine planning elements are addressed. These nine elements include:

1. Issues and Opportunities
2. Economic Development
3. Agricultural, Natural, and Cultural Resources
4. Transportation
5. Utilities and Community Facilities
6. Land Use
7. Housing
8. Intergovernmental Cooperation
9. Implementation

A public hearing was held on the draft plan December 15, 2009. A copy of the draft is available at: [www.sehinc.com/online/bayfieldco/index.htm](http://www.sehinc.com/online/bayfieldco/index.htm). Some Bayfield County Towns have also developed Comprehensive Plans.

### **Related Municipal Regulations**

Bayfield County cities and villages include Barnes, Bayfield, Cable, Delta, Drummond, Grand View, Iron River, Kelly, Mason, Port Wing, and Washburn. Under Ss. 61.351 & 62.231, Wisconsin Statutes and NR 117, Wisconsin Administrative Code, cities and villages must regulate activities in wetlands located in the shoreland zone. Cities and villages are also required by s. 87.30 (1), Wisconsin Statutes to adopt reasonable and effective floodplain zoning ordinances in flood-prone areas.

### **Other Voluntary Conservation Initiatives**

In addition to state and local regulations, Bayfield County relies upon voluntary standards such as ***Forestry Best Management Practices for Water Quality, Stormwater Management, and Construction Site Erosion Control***, and technical standards outlined by DATCP and USDA Natural Resources Conservation Service (NRCS). Many of these standards are referenced in ***Best Management Practice Guidelines for the Wisconsin portion of the Lake Superior Basin***. These voluntary standards are strongly encouraged for use in regulatory and non-regulatory situations. Conservation practices that may incorporate voluntary standards are listed in Appendix C.

The ***Bayfield Regional Conservancy Strategic Conservation Plan*** can help to guide and prioritize LWCD efforts related to land conservation. The plan used geographic information systems information to identify priority conservation areas (PCAs). These PCAs are defined as areas where several high quality conservation values (e.g., wildlife habitat, water quality, rare species, scenic features, and wetlands) overlap, creating a “hot spot” for conservation. The plan did not identify specific parcels that warrant conservation or parcels that do not warrant protection; rather it is intended to guide a pro-active land protection program targeting the landscape scale PCAs.

## **LWCD Activities**

### Shorelands

Assistance is provided both for voluntary projects and for sites where mitigation is required for permitted activities. Installation of shoreland buffers, waterfront runoff reduction, erosion control practices, and coarse woody habitat are frequently supported. The LWCD prepares and reviews mitigation plans for the shoreland and nonmetallic mining ordinances.

### Agriculture

The LWCD has an engineering technician on staff who is able to design agricultural practices. Many referrals for agricultural practices come from NRCS. Most education for farm owners is in the form of direct technical assistance regarding their projects.

### Forestry

The LWCD provides basic forestry information regarding management options and resource contacts. The LWCD staff considers the condition of the forested land along with the open land and waterways when working with landowners to develop a holistic and comprehensive conservation strategy for their property. The many opportunities for personal contact between the LWCD and landowners leads to a significant amount of forest land to come under some level of informed management.

The LWCD considers forestry an agricultural enterprise and provides technical design and cost-share assistance to landowners with nonpoint conservation concerns related to logging and forestry practices. Road construction, stream crossings, and tree planting assistance are typical of the practices provided to forest land owners.

### Invasive Species

Bayfield County is addressing invasive species through a containment and eradication strategy. Many of the invasive species, both aquatic and terrestrial, remain relatively localized, providing the opportunity to eradicate and contain the spread of these plants, rather than simply to control the damage. The county is a partner with the Northwoods Cooperative Weed Management Area and has an AIS Coordinator on staff. Invasive species work is a growing part of the LWCD conservation activities.

### Education

With limited staff, education is provided primarily through direct assistance to landowners. Presentations and natural resource information is provided on request when staff is available.

Many projects are implemented in cooperation with agency and nongovernmental organization partners.

## Volume II. Plan Implementation

Volume II outlines the goals, objectives, and activities for the Bayfield County Land Conservation Committee and LWCD. An educational strategy is developed under a separate goal. While some activities are required by state statute, priorities were determined by advisory committee participants and the Land Conservation Committee. An important, required activity, NR 151 implementation, is included as a separate section below. The final component of Volume II is an implementation plan or work plan that prioritizes activities and lists the resources needed to implement each activity, along with annual benchmarks.

### NR 151 Implementation in Bayfield County

Bayfield County does not regulate animal waste facilities. The Land Conservation Committee has not pursued local regulation because of the desire for the LWCD to remain an agency that provides only voluntary programs, the limited number of farms in the county, along with limited staff to implement a regulatory program. LCC members agreed that voluntary efforts, education, one-on-one meetings with farm operators, and collaboration with DNR would be the best route for NR 151 implementation.

If a complaint is received regarding compliance, voluntary measures will be pursued to correct the identified concern. If enforcement seems warranted, the case including documentation and existing landowner information will be referred to DNR through the NR 243 or NR 151 programs. *(A method for documentation will be developed to eliminate legal concerns over shared record keeping.)* Traditionally, the Land Conservation Departments have assumed the role of technical provider for these projects.

The detailed NR 151 implementation strategy is included on following pages.

Bayfield County will assume the lead role for the following components of the strategy:

- Information & education activities
- Records inventory
- Secure funding and provide technical assistance – voluntary component
- Administer funding and technical assistance – re-evaluate parcel
- Compliance monitoring
- Annual reporting

#### ***Priority Projects***

Projects are prioritized by the estimated conservation benefits provided by the proposed project and the availability of cost share assistance and other partner resources. The LWCD strives for voluntary compliance by coordinating the interests and resources of landowners and partners to achieve economy of scale and efficiency in implementation. Pooling cost-share and technical resources allows the best projects to receive adequate funding for implementation.

Ranking considerations include landowner interest; watershed and sub-watershed location; environmental benefits; cost of the project; availability of cost share; ability to complete the

project in the current year; and availability of supporting partners. The number of projects requiring ranking varies annually with the availability of funding and the economy.

## Implementation Strategy for NR 151 Agricultural Nonpoint Performance Standards

### *Implementation Considerations*

The Bayfield County Land and Water Conservation Department (LWCD) will work with the Department of Natural Resources (DNR) and other agencies to implement the agricultural performance standards. Implementation of each component of the strategy outlined below will be dependent upon receiving adequate staffing, support, and cost share funds for completion.

Implementation of the agricultural performance strategy will be guided by the following concepts:

- Encourage voluntary participation in an ongoing cost sharing program for agricultural conservation practices
- Implement cost effective practices like conservation plans, nutrient management plans, grazing plans, and streambank fencing over high-cost practices like barnyards and manure storage
- Encourage farmer-developed nutrient management plans
- Coordinate DATCP funding for conservation practices to meet the agricultural performance standards with other cost share opportunities such as the Federal EQIP (Environmental Quality Incentives Program of the Natural Resources Conservation Service)
- It is not necessary for a particular farm/site to address all Agricultural Performance Standards in order to qualify for cost sharing.

### **1. Conduct information and education activities**

The LWCD will distribute information and educational material prepared by the DNR. The information may be distributed via news media, newsletters, handouts, public information meetings, web site, email networks, and one-on-one contacts.

The educational materials will be designed to meet the following objectives:

- Educate landowners about Wisconsin's agricultural performance standards and prohibitions, applicable conservation practices, and cost share grant opportunities; and
- Promote implementation of conservation practices necessary to meet performance standards and prohibitions.

## **2. Systematically select and evaluate parcels for compliance with standards and prohibitions**

### ***A. Records and map inventory***

Records and map inventory will be completed only after landowners are identified for on-site visits. Landowners will be selected for inventory review based on the criteria below for offering on-site visits, technical assistance, and cost sharing.

There may be opportunity to supplement limited file information through requests for information from landowners. Landowners may be willing to voluntarily release information in federal files or from consultant-prepared nutrient management plans, especially if the information supports their compliance with agricultural performance standards.

### **Selecting priority farms for on-site visits, technical assistance, and cost sharing**

The number of farms selected for detailed on-site review will be dependent upon available time and resources.

Priority farms for on-site review will be identified in the following manner (in order of priority)

- 1) Voluntary requests for assistance
- 2) Respond to complaints
- 3) Support existing efforts (such as watershed plans)

Assistance will be available to both livestock and crop producers.

The priorities established below will also be used to offer on-site visits, provide technical assistance, and distribute agricultural cost share funding. The most important priorities are highlighted in bold below. Cost share participants will receive an on-site review and status report under the agricultural performance standards prior to an offer of a cost share contract.

### Location/Resource Considerations

#### **Drains to an outstanding or exceptional resource water**

Within a water quality management area (surface water)

Within a water quality management area (groundwater)

Drains to a 303(d) listed water

### Cost effectiveness and Practice Implementation

#### **Cost effectiveness of Best Management Practices (BMPs)**

#### **Additional funding sources available or committed**

Project addresses more than one NR 151 standard

Project includes nutrient management planning

### ***Procedure for records and map inventory review***

1. Develop a list of potential farms to visit.
2. Based on available map and file information, identify priority level of farm using criteria in list above. Update farm list in priority order.
3. From parcel records, evaluate which standards and prohibitions are likely to apply.
4. If possible based on above evaluations, determine which landowners are currently already meeting standards and prohibitions as a result of:

- a. Installed or implemented BMPs under an existing state or federal cost share agreement; and/or
- b. Maintaining compliance with local or state animal manure regulations (e.g. NR 243, WPDES, etc.).

*Note: It is expected that most landowners identified as priorities above will require on-site visits.*

***B. Onsite evaluations procedure***

1. Visit farms in priority order as staff time is available.
2. Contact owners of selected parcels and schedule site evaluations.
3. Conduct onsite evaluations:
  - a. Determine and document the extent of current compliance with each of the performance standards and prohibitions.
  - b. Where non-compliant, determine costs and eligibility for cost sharing.

*Note: Cost share requirements are based upon whether or not the evaluated cropland or livestock facility is new or existing and whether or not corrective measures are eligible for cost sharing. See NR 151.09(4)(b-c) and 151.095(5)(b-c).*

- c. An evaluation form will be developed as part of the implementation of the plan.

***C. Maintaining voluntary cost share program***

Bayfield County plans to maintain a successful voluntary cost share program with modifications to incorporate the agricultural performance standards. Significant water quality improvements are made through this voluntary participation.

**Voluntary cost sharing guidance**

Applicant farms will be screened using the agricultural performance standards on-site evaluation procedure and compliance status documentation.

Applicants will receive on-site evaluations as described previously.

Cost sharing offered will be prioritized using the criteria for priority sites.

Scheduling of cost share practices will be based upon:

- ✓ State and federal cost share \$ available
- ✓ Farmer’s desired timeframe and match availability
- ✓ Ability to meet agricultural performance standards at a relatively low cost.

Cost sharing may be provided to exceed the agricultural performance standards if water quality benefits are achieved and practices are relatively low-cost.

### 3. Document and report compliance status

#### ***A) NR 151 status report***

Following completion of records review and on-site evaluation, prepare and issue NR 151 status report (developed by DNR and completed by the LWCD) to owners of the evaluated parcels. This report will convey the following information at a minimum:

- Current status of compliance of individual parcels with each of the performance standards and prohibitions.
- Corrective measure options and rough cost estimates to comply with each of the performance standards and prohibitions for which a parcel is not in compliance.
- Status of eligibility for public cost sharing.<sup>10</sup>
- Grant funding sources and technical assistance available from federal, state, and local government, and third party service providers.
- An explanation of conditions that apply if public cost share funds are used. (*If public funds are used, applicable technical standards must be met.*)
- A timeline for completing corrective measures, if necessary.
- Signature lines indicating landowner agreement or disagreement with report findings.
- Process and procedures to contest evaluation results to the county. The Land Conservation Committee will review cases of contested compliance evaluation results at a regularly scheduled LCC meeting.
- (Optional) A copy of performance standards and prohibitions and technical design standards.

*Note: A cover letter describing the ramifications and assumptions related to the status report will be attached.*

*Note: Cost sharing will be encouraged for voluntary compliance, regardless of status on priority list. Cost-effective practices such as fencing, watering facilities, nutrient management planning, conservation planning, grazing plans, and well abandonment will be emphasized.*

#### ***B) Maintain public records***

Keep and maintain evaluation and compliance information as public record.

*Note: The primary objective of this step is to ensure subsequent owners are made aware of (and have access to) NR 151 information pertinent to their property. The method for maintaining these records and for ensuring relevant information is conveyed to subsequent owners will be discussed with the Bayfield County Corporation Counsel.*

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<sup>10</sup> Livestock facilities constructed after October 1, 2002 are not eligible for DATCP cost sharing to reach compliance with the state agricultural performance standards.

#### **4. Provide or arrange for the provision of technical assistance and cost sharing available for installation of BMPs**

##### ***A) Voluntary component (Cooperative)***

1. Receive request for cost-share and/or technical assistance from landowner.  
*Note: Landowners will be prompted to voluntarily apply for cost-sharing based on information provided in a NR 151 Compliance Status Report.*
2. Confirm cost-share grant eligibility and availability of cost-share & technical assistance.
3. Develop and issue cost-share contract (including BMPs to be installed or implemented, estimated costs, project schedule, and notification requirements under NR 151.09(5-6) and/or 151.095(6-7).

*Note: The DNR will assist in developing proper notification language.*

##### ***B) Non-voluntary component (Non-Cooperative)***

In the event a landowner chooses not to install corrective measures either with or without cost sharing and the LCC wishes to request DNR assistance to achieve compliance, the LCC will request that DNR issue landowner notification per NR 151.09(5-6) and/or 151.095(6-7). The LWCD will provide information including cost share money available and design assistance as requested by DNR. DNR will issue the notification if they choose to pursue it.

- If eligible costs are involved, this notification shall include an offer of cost sharing.
- If no eligible costs are involved, or if cost sharing is or was already made available, the notification will not include an offer of cost sharing.

The notification referenced above will be designed by the DNR and contain:

- a) A description of the performance standard or prohibition being addressed;
- b) The compliance status determination made in accordance with NR 151;
- c) The determination of which best management practices or other corrective measures are needed and which, if any, are eligible for cost sharing;
- d) The determination that cost sharing is or has been made available, including a written offer of cost sharing when appropriate;
- e) An offer to provide or coordinate the provision of technical assistance;
- f) A compliance period for meeting the performance standard or prohibition;
- g) An explanation of the possible consequences if the owner or operator fails to comply with provisions of the notice; and
- h) An explanation of state appeals procedures.

## 5. Administer funding and technical assistance (LWCD)

**A) Execute cost-share agreement.** If cost-sharing is involved, finalize and execute cost-share agreement including schedule for installing or implementing BMP(s).

**B) Provide technical services and oversight.**

- Provide conservation plan assistance
- Review conservation plans prepared by other parties
- Provide engineering design assistance
- Review engineering designs provided by other parties
- Provide construction oversight
- Evaluate and certify installation of conservation practices

**C) Re-evaluate parcel.** After corrective measures are applied, conduct evaluation to determine if parcel is now in compliance with relevant performance(s) standard or prohibition(s).

- If site is compliant with additional performance standards, update “NR 151 Status Report” (see component 3.A.) and issue “Letter of NR 151 Compliance.”

*Note: A letter of NR 151 compliance serves as official notification that the site has been determined to now be in compliance with applicable performance standards and prohibitions. This letter would also include a local appeals process if a landowner wishes to contest the findings. When and where counties are not operating under a local ordinance, the issuance of a letter of NR 151 compliance would likely be a joint effort with the DNR in order to give it the significance and standing that it merits.*

- If not compliant, seek non-regulatory remedies or initiate enforcement action.

*Note: Follow-up measures at this stage will differ depending on the circumstances, including whether or not failure to comply is the fault of the landowner. If it is not the fault of the landowner, then non-regulatory remedies will likely be sufficient. If not (e.g., there is an intentional breach of contract) then enforcement action may be necessary under Component 6.*

## 6. Issue required notices and conduct enforcement activities

**A. Notify DNR of enforcement action needed**

If a landowner refuses to respond appropriately to a notice under 4.B., the LCC will notify DNR who will prepare and issue “Notice of NR 151 Violation” letter.

*Note: Enforcement begins with this letter. It may be pursued in circumstances where:*

1. *the landowner has failed to comply with a notice issued under component 4.B, AND*
2. *non-regulatory attempts to resolve the situation have failed.*

*The county will not develop or create the forms or documents. The LWCD will provide information to the DNR who will complete and sign documents.*

**B. Schedule enforcement conference.**

The DNR will set up any necessary enforcement conferences.

***C. Participate in enforcement conference.***

The LWCD will participate in an enforcement conference formally initiated by DNR.

***D. Initiate enforcement action***

Refer cases to DNR for enforcement. Priority list to request follow-up enforcement will be based upon the number and extent of performance standard violations and the priority criteria established in component 2A.

**7. Monitoring compliance**

- Conduct periodic evaluations to verify ongoing compliance. Landowners will be asked to complete a self-certification form annually and return it to the LWCD. The LWCD will also complete spot checks on 5-10 percent of sites on an annual basis.
- Respond to public complaints alleging noncompliance. LWCD will respond to complaints by investigating allegations with file review, telephone confirmation, and/or an on-site visit. If the review demonstrates significant violation(s) of the agricultural performance standards, staff will proceed with the strategy for compliance. This process will begin with documentation (Step 3), proceed to technical assistance (Step 4), administering funding (Step 5), then to enforcement actions (Step 6) if necessary.
- Noncompliance that threatens public health and safety will be immediately referred for enforcement action through appropriate county and state entities.
- Ensure new owners are made aware of (and have access to) NR 151 compliance information that may pertain to the property they have acquired. This may be accomplished through a query of the county tax parcel database.

**8. Tracking and reporting program activities and progress**

- Maintain and convey a record of annual site evaluations showing their location and compliance status.
- Maintain a record of estimated costs of corrective measures for each evaluated parcel.
- Maintain and convey a record showing parcels where public cost sharing has been applied to implement standards and prohibitions, the amount and source of those funds, and the landowner share.
- Maintain and convey a record and location of parcels referred to DNR for enforcement action.
- Maintain and convey a record of the annual cost of technical and administrative assistance needed to administer agricultural performance standards and prohibitions, as established in NR 151.

*Note: The LWCD will provide the above information to the Department of Agriculture, Trade, and Consumer Protection to meet minimum program requirements.*

# Goals, Objectives and Activities

This land and water management plan is developed to serve for a ten year period from 2010 through 2020. The plan goals, objectives, activities will be reviewed after 5 years as currently required by the state. A general definition of each term is provided below. A detailed plan of work follows the list of activities.

**Goals** – General statements of the desired overall result to be accomplished

**Objectives** – More specific steps to reaching plan goals

**Activities** – Methods and actions to reach goals and objectives. All activities should have a tie to plan goals and objectives. *Or* there should be a clear, defensible explanation for why they are completed (for example, they are required by state statute). Additional activities consistent with plan objectives may be added during the plan implementation period.

## Goals (2010 – 2020)<sup>11</sup>

**Goal I. Protect and enhance surface water, wetlands, and groundwater to maintain water quality, ecologic function, and recreation and aesthetic values.**

**Goal II. Reduce environmental damage from invasive species to aquatic and terrestrial habitats.**

**Goal III. Protect, restore, and enhance wildlife habitat in forests, lakes, and streams.**

**Goal IV. Increase natural resource education and LWCD outreach opportunities.**

**Goal V. Ensure adequate supervisory, staff, and financial resources to effectively implement the LWRMP goals, objectives, and activities.**

The Land Conservation Committee and staff will implement the goals, objectives, and activities of the LWRMP using the following guiding principles:

### *Plan Guiding Principles*

- Uphold the protection of natural resources while considering the importance of the Bayfield County economy.
- Utilize limited staff and financial resources efficiently.
- Facilitate partnerships and support efforts of other organizations where consistent with land and water resource priorities.
- Emphasize education to increase understanding of natural resource concerns and the methods to address these concerns and encourage beneficial changes in behavior.
- Restore and protect native habitats while meeting water quality objectives.
- Utilize information and recommendations in partner organization water quality and habitat management plans.

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<sup>11</sup> The goals are listed in order of priority.

## Objectives and Activities<sup>12</sup>

**Goal I. Protect and enhance surface waters, wetlands, and groundwater to maintain water quality, ecologic function, and recreational and aesthetic values.**

### Objectives and Activities

A. Assist waterfront landowners who voluntarily protect, restore, and enhance shorelands and watersheds.

- 1. Provide technical and cost share assistance for shoreland restorations and waterfront runoff reduction projects.**
- 2. Advocate for establishing a landowner shoreland restoration and conservation property tax credit incentive for good stewardship using the Burnett County program as a model.**

B. Implement practices to reduce stormwater runoff volume and velocity.

- 1. Provide technical and cost share assistance to landowners to restore, enhance, and create wetlands on their properties.**
- 2. Promote riparian buffers (adjacent to lakes and streams) through CREP enrollments.**
3. Work with partner communities to initiate a storm water management program using rain gardens and rain barrels.
4. Support “slow the flow” research being conducted by UW Madison and USGS in the Marengo River and Fish Creek watersheds.

C. Reduce environmental impacts from land-use activities in watershed areas.

- 1. Provide technical assistance to landowners for implementing forestry, construction site erosion control, culvert alterations, and other BMPs to reduce the impact of land disturbing activities.**
2. Provide assistance to the Bayfield County Tourism and Forestry Departments in addressing environmental concerns on 500 miles of recreation trails and 4 parks.

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<sup>12</sup> Priority activities are listed in bold

D. Assist the Planning and Zoning Department and riparian landowners with shoreland mitigation and restoration requirements.

1. **Provide shoreland restoration plans to landowners required to do mitigation.**
2. Review mitigation plans submitted by private consultants to verify compliance.
3. Provide technical assistance and work with partners to reduce coastal bluff erosion, slumping, and streambank wall wasting.
4. Review non-metallic mining reclamation plans.
5. Provide technical assistance for revisions to the county shoreland ordinance such as establishing county oversight of rip rap installation, updates to meet state NR 115 requirements, etc.
6. Advocate for a Shoreland Zoning Ordinance provision requiring restoration of all shorelands to Bayfield County shoreland zoning standards.
7. Develop a monitoring and compliance program for mitigation and cost-shared shoreland restoration projects.

E. Develop a groundwater monitoring and protection program.

1. **Promote and cost share well abandonment.**
2. Identify areas of known contamination.
3. Support testing of drinking water wells.

F. Reduce and mitigate surface and groundwater impacts from agricultural land use activities.

1. **Implement the NR 151 Strategy as outlined beginning on page 31.** *The Bayfield NR 151 strategy emphasizes voluntary technical assistance and cost sharing and relies upon the Department of Natural Resources for any needed enforcement support.*
2. **Provide technical and cost share assistance to producers choosing to implement conservation practices on their properties.** *Provide the best financial benefit to producers implementing nonpoint conservation practices by cooperating with agency partners. Use the nonpoint conservation practices available in ATCP 50.*
3. Continue to administer the Wildlife Damage and Abatement Program.
4. Continue to administer the Farmland Preservation Program as modified by the state Working Lands Initiative.

**Goal II. Reduce environmental damage from invasive species to aquatic and terrestrial habitats.**

**Objectives and Activities<sup>13</sup>**

A. Continue to successfully implement the Bayfield County AIS Strategic Plan.

**1. Carry out the activities identified in the AIS Strategic Plan.**

B. Support an effective terrestrial invasive species control program.

1. Develop an effective Terrestrial Invasive Species (TIS) Strategic Plan with project partners.
2. Assist in creating and implementing a rapid response and control crew and program to operate in Bayfield County.
3. Prevent establishment and spread of TIS from sand and gravel pits.

**Goal III. Protect, restore, and enhance wildlife habitat in the forest, lakes, and streams.**

**Objectives and Activities**

A. Implement wetland restoration and enhancement projects.

- 1. Identify, prioritize, and fund wetland habitat and restoration projects with partner organizations.**
2. Construct and establish nest boxes in support of the wetlands habitat effort with partner organizations.

B. Expand the installation of coarse woody habitat in lakes and streams.

- 1. Install coarse woody structure on shorelines in partnership with DNR, NGOs, USFWS, and landowners.**

C. Improve fish passage on rivers and streams.

- 1. Provide technical and cost share assistance to landowners and municipalities to mitigate fish passage concerns regarding culverts, beaver dams, weirs, dams, roads, fords, and other man-made impediments to fish passage.**
- 2. Complete a county-wide inventory of culverts and stream crossings.**

D. Enhance forest management to improve habitat and protect water quality on private lands.

1. Advocate the use of forestry BMPs for all logging activities.
2. Provide technical and cost share assistance for practices necessary to implement BMPs.
3. Provide technical and cost share assistance for tree planting.

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<sup>13</sup> Priority activities are listed in bold.

4. Provide an annual native tree and shrub sale (with Iron and Ashland County LWCDs).

#### **Goal IV. Increase natural resource education and LWCD outreach opportunities.**

##### **Objectives and Activities<sup>14</sup>**

###### A. Utilize information technology to promote conservation practices and LWCD programs.

- 1. Continually improve and promote the LWCD web site.** *The web site will be a source of LWCD information and a resource for landowners.*
- 2. Create a web-based guide showing project sites open to the public for viewing shoreland, forest, wetland, and habitat projects.**
- 3. Develop internal capacity to use technology by providing staff training opportunities.**
- 4. Update and create printed materials as needed to market LWCD programs and initiatives.**

###### B. Support and deliver natural resources education in the county.

- 1. Provide regular, one-on-one, on-site education and technical assistance to landowners.**
- 2. Contribute regular LWCD articles and news releases highlighting timely conservation projects, practices, and issues.**
- 3. Support youth conservation camps through scholarships and camp program development.**
  - a. Provide two scholarships to WLWCA Youth Conservation Camp.
  - b. Provide two scholarships to Woodland Leaders, Forest Advocates, or similar programs.
  - c. Assist partners in developing a Youth Lake Leaders Camp in Bayfield County.
4. Develop field tours of successful shoreland restorations and BMP implementation (with partners).
5. Provide presentations on topics related to LWRMP goals and objectives for project partners upon request if staff resources are available.
6. Provide special workshops and training where most efficient to explain LWCD programs (potential audiences: contractors, County Board members, Planning and Zoning staff and committee, Board of Appeals members, Town Plan Commissions, etc.).

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<sup>14</sup> Priority activities are listed in bold.

C. Enhance LWCD staff proficiency in individual and small group communications.

1. **Arrange training in group facilitation, effective communications, web development, and so forth, to improve skill levels.**
2. **Cross-train staff to improve general knowledge of all areas of work covered by the LWCD.**

D. Develop strong partnerships with resource management agencies, nongovernmental organizations (NGOs), and landowners.

1. **Support the activities of partner initiatives where there is common interest in science-based conservation.** *This support may come in the form of natural resource information, letters of support, descriptions of county programs and services, etc.*
  - a. Provide potential partners with clear information about the services provided by the LWCD.
  - b. Support the implementation of county and town comprehensive plans.
  - c. Assist lake organizations in project scoping for lake planning and protection grant projects.
  - d. Attend meetings of partner groups where the LWCD has a significant role.
  - e. Act as fiscal agent for grants obtained by NGOs where needed.

**Topics of LWCD outreach and education focus**

Restoration and creation of wetlands	Terrestrial invasive species
Benefits of coarse woody structure	Constructing nest boxes
Shoreland restoration	Forest management for water quality and habitat
Waterfront runoff reduction	Groundwater protection
Agricultural riparian buffers	Septic system maintenance
Minimizing coastal bluff erosion	LWCD programs and services
Drinking water testing	
Aquatic invasive species	

**Local media contacts**

Iron County Miner (Hurley)	WJMS-WIMI AM/FM (Ironwood)
Masinaigan (GLIFWC)	Spoooner Advocate
Glidden Enterprise	Ironwood Daily Globe
Park Falls Herald	County Journal (Washburn)
WEGZ Eagle (Washburn)	The Daily Telegram (Superior)
Duluth News Tribune	Mellen Weekly Record
Lakeland Times (Minoqua)	Sawyer County Record
The Daily Press (Ashland)	WOJB-FM Radio (Hayward)
The Country Today (Eau Claire)	CESA #12 (Ashland)
WATW/WJJH Radio (Ashland)	Lake org. newsletters and web sites.

**Goal V. Ensure adequate supervisory, staff, and financial resources to effectively implement the LWRMP goals, objectives, and activities.**

**Objectives and Activities<sup>15</sup>**

A. Establish funding sources for project activities and staffing through local, state, federal and private funding sources.

- 1. Investigate and seek grant and foundation funding in cooperation with project partners.**
- 2. Attempt to maintain grant funding for a CREP Technician. *The LWCD will provide minimal assistance to CREP if a CREP technician is not available to shepherd the clients.***
- 3. Continue to fund the Bayfield County AIS Coordinator position.**
4. Establish a Water Resources Technician position to assist land owners with shoreline and waterfront issues, develop and review restoration and mitigation plans, support Planning and Zoning on shoreland issues, and to implement a monitoring and compliance program for shoreline restorations and mitigations.
- 5. Fund full time Administrative Assistant and Engineer Technician positions to support plan activities.**
- 6. Seek additional grant funding to support the AIS Strategic Plan.**
7. Seek funding to implement the Terrestrial Invasive Species Strategic Plan.

B. Continue to charge fees for appropriate permit-driven LWCD services.

1. Continue a fee-based system for shoreland mitigation plans and plan review.
2. Continue a fee-based system for non-metallic mining reclamation plans.
3. Continue a fee-based system for rip rap design and installation oversight.

C. Enhance supervisor and staff knowledge and skills to support plan activities.

- 1. Organize the Bayfield County LCC to include a lakes and rivers representative on the LCC as a citizen member at large.**
2. Provide opportunities for LWCD staff and LCC leadership development.

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<sup>15</sup> Priority activities are listed in bold.

## Role of County in Plan Implementation

The Land Conservation Committee is responsible for oversight of the LWRMP. Land and Water Conservation Department staff is responsible for implementation of the plan, based on annual review and prioritization by the LCC. The work plan identifies activities, hours, and funding for the LWCD only. Because of the difficulty of predicting future priorities and resources, the work plan covers the first two years of plan implementation only. The work plan will be updated annually to reflect new priority activities and address emerging issues.

## Role of other Agencies and Institutions in Plan Implementation

A list of potential partners for implementation of the Land and Water Management Plan is included on the following page. Other county departments are encouraged to work together with the LWCD as the department implements plan activities. Other agencies and organizations are also encouraged to use the plan when performing resource management activities in Bayfield County. Partnerships will be actively sought by the LWCD and LCC.

The Department of Agriculture, Trade and Consumer Protection (DATCP) has oversight authority for the land and water resource management plans. DATCP also provides funding for implementation of the plan based on annual grant applications from counties.

The Department of Natural Resources, USDA-NRCS, USDA-FSA, and other agencies will play a critical role in plan implementation. Although few DNR staff are located in the area, the nature of many of the planned activities require collaborative relationships between DNR and county staff. Funding for projects identified in the plan may also be needed from existing or emerging programs.

Examples include the following activities:

- Implementation of the agricultural and non-agricultural performance standards
- Permitting for stabilization of lake and river frontage
- Permitting for town road crossings and other stabilization methods (USGS research)
- Access Management Plan for county forestland
- Assistance/training with Conservation Reserve Enhancement Program
- Lake/River Planning and Protection Grants
- Funding for research to be conducted on new stabilization methods or geomorphic assessments proposed as part of an overall watershed study

The LWCD will in turn support the activities and plans of partner agencies by providing natural resource information and the program services outlined in the LWRD. For example, municipalities implementing their comprehensive land use plans may be able to take advantage of information and services offered by the LWCD. Lake and river organizations projects are frequently supported by LWCD technical assistance and cost sharing.

## **List of LWMP Partners**

Apostle Islands National Park  
Ashland County Land and Water Conservation Department  
Barnes/Eau Claire Lakes Area Property Owners Association, Inc  
Bayfield County Board of Commissioners  
Bayfield County Forestry Department  
Bayfield County Fish & Game Organizations  
Bayfield County Health Department  
Bayfield County Highway Department  
Bayfield County Lake and River Organizations  
Bayfield County Lakes Forum  
Bayfield County Tourism Department  
Bayfield County Towns and Villages  
Bayfield County University of Wisconsin Extension  
Bayfield County Planning and Zoning Department  
Bayfield Regional Conservancy  
City of Bayfield  
City of Washburn  
Ducks Unlimited  
Friends of the St. Croix Headwaters  
Great Lakes Commission  
Iron County Land and Water Conservation Department  
Lake Superior Binational Program  
Lake Superior Living Forest Cooperative  
Lake Superior Research Institute  
National Oceanic & Atmospheric Agency  
Northland College  
Northwoods Weed Cooperative  
Pri-Ru-Ta Resource Conservation & Development  
Red Cliff Band of Chippewa  
River Alliance of Wisconsin  
Sigurd Olson Institute  
Trout Unlimited  
United States Army Corps of Engineers  
United States Environmental Protection Agency  
United States Fish & Wildlife Service  
University of Wisconsin Extension  
USDA Farm Service Agency  
USDA Natural Resources Conservation Service  
Wisconsin Coastal Management Program  
Wisconsin Department of Agriculture, Trade, & Consumer Protection  
Wisconsin Department of Natural Resources  
Wisconsin Land & Water Conservation Association  
Wisconsin Sea Grant  
Wisconsin Wetlands Association  
West Wisconsin Land Trust

## Funding Plan Implementation

Available staff and financial resources will determine Bayfield County's ability to implement the activities outlined in the LWRMP. Even activities that are identified as priorities will not be possible without funding that supplements Bayfield County and DATCP allocations. For example, the CREP and AIS programs in Bayfield County are entirely dependent upon grant support from state and federal sources. Maintaining basic staff allocations is absolutely critical to continue the success in seeking additional funding sources to support existing and expanded programming in Bayfield County. Grant funding is often enhanced by cooperating with county partners.

### Potential Funding Sources

Bayfield County

Department of Administration (DOA)

Coastal Management Program (CMP)

Department of Agriculture, Trade & Consumer Protection (DATCP)

Farmland Preservation Program

Land & Water Resource Management Implementation (LWRM)

Nutrient and Pest Management (NPM)

Sustainable Agriculture Program

Working Lands Initiative

Department of Natural Resources (DNR)

Aquatic Invasive Species (currently supports AIS coordinator and projects)

Basin Team Funding (Lake Superior, St. Croix)

Lake Planning Grant Program

Lake Protection Grant Program

River Protection Grant Program

Stewardship Grants

Targeted Runoff Management Program

Wildlife Sources – Segregated Funds (general license), Wisconsin Waterfowl Stamp, Trout Stamp

Wisconsin Forest Landowner Grants

Ducks Unlimited (DU)

Environmental Protection Agency (EPA)

Great Lakes Restoration Initiative (major grant proposal currently submitted)

Fish America Foundation (\$30,000 grant in 2009)

Forestry Education Grant Program

Forest Productivity Council (FPC)

Great Lakes Basin Program (GLBP)

Individual Contributions

Lake Organizations

National Farmers Organization (NFO)

North American Wetland Conservation Act (NAWCA)

Pri-Ru-Ta Resource Conservation & Development (RC & D)

Private Foundations

River Organizations

Sports Clubs

Trout Unlimited

University of Wisconsin Extension

US Fish & Wildlife Service (FWS)  
Private Lands Funding for Wetland Restoration  
Challenge Grants (wetlands/fisheries/habitat)  
US Geological Survey (USGS)  
USDA Natural Resources Conservation Service (NRCS)  
Conservation Reserve Program (CRP)  
Environmental Quality Incentive Program (EQIP)  
Land & Water Education Grant Program  
Wetland Reserve Program (WRP)  
Wisconsin Environmental Education Board (WEEB)  
Wisconsin Geologic & Natural History (WGNHS)  
Wisconsin Greens  
Wisconsin Tree Farm Commission  
Wisconsin Waterfowl Association  
Wisconsin Woodland Owners Association

## Monitoring and Assessment

Monitoring and assessment are important to assess the progress toward meeting plan goals and objectives. Without data and information, departments cannot characterize the condition of the environment, assess and solve problems, or evaluate the effectiveness of management and regulatory actions. The Clean Water Act and state of Wisconsin law and associated rules mandate monitoring of surface waters. The collection and dissemination of information is also essential in educating and increasing public awareness of the environment and environmental issues.

Wisconsin Department of Natural Resources monitoring programs are implemented to achieve a comprehensive understanding of the state of Wisconsin's surface waters. Monitoring may be to assess ambient or baseline conditions, special project results, long-term trends, and total maximum daily loads.

Bayfield County has relatively little data collected for its surface and groundwater.

Recommendations related to the availability of baseline data from which to recognize problems as they develop include the following:

1. DNR recommendations from the Water Quality Management Plans for Upper St. Croix and Lake Superior Basins should be followed. Additional resources should be invested in these efforts by the agency.
2. DNR and Bayfield County should continue to support lake and river groups in their efforts to pursue water quality management projects.
3. DNR and Bayfield County LWCD should continue to encourage and support citizen lake monitoring.

## Ongoing Monitoring

The following is a partial list of known monitoring programs in Bayfield County:

**Table 7. Resource Monitoring in Bayfield County**

<b>Resource</b>	<b>Program</b>	<b>Agency/group</b>
Fish	Mercury, Populations	GLIFWC <sup>16</sup>
Groundwater	Drinking Water Testing	UWEX, DNR, Zoning
Lakes	Citizen Lake Monitoring Network	Lake Volunteers, DNR
Lakes	Purple Loosestrife Monitoring	Lake Volunteers, DNR
Lakes	Zebra Mussel Monitoring	Lake Volunteers, DNR, UWS
Lakes	Clean Boats, Clean Waters	Lake Volunteers, UWEX
Lakes/Streams	Lake Planning & River Grants	DNR, Lake/River Groups
Lakes/Streams	Chemical Measurements	DNR
Lakes/Streams	Biological Assessments	DNR
Streams	Stream monitoring	UWEX
Lake Superior	Great Lakes Beach Testing	UWS, MN Sea Grant, Health Dept
Streams	Habitat Assessments	DNR
Wildlife	Loon Watch	Lake Volunteers, Sigurd Olson Inst.
Wildlife	Walleye Watch	Lake Volunteers

## Citizen Monitoring

The following table shows existing DNR-supported citizen monitoring efforts in Bayfield County. Volunteer citizen monitoring is encouraged to evaluate progress toward water quality goals and identification of aquatic invasive species. These efforts build awareness and appreciation for the quality of Bayfield County's resources in the resident and non-resident public.

The DNR Citizen Lake Monitoring Network and other programs are encouraged and used as tools to raise environmental awareness while monitoring lake and habitat quality to establish baseline information. Several lake groups throughout the county take part in additional citizen monitoring projects. These projects include exotic species monitoring for Eurasian water milfoil, purple loosestrife, and zebra mussels. Citizen stream monitoring is supported by University of Wisconsin Extension. More information is available at <http://watermonitoring.uwex.edu/index.html>.

Results from these programs will be used as feasible to monitor progress toward improving surface water quality and to help determine if land and water conservation efforts are successful. They are available at: <http://www.dnr.state.wi.us/lakes/CLMN/reportsanddata>. These and other benchmarks will be reported in the annual plan accomplishment report.

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<sup>16</sup> Great Lakes Indian Fish and Wildlife Commission.

<b>Table 8. Bayfield County Citizen WDNR Self Help Monitoring Program</b>	
<b>LAKE NAME</b>	<b>YEAR STARTED</b>
Atkins Lake	1973
Bass Lake	2004
Bony Lake	2000
Breakfast Lake	2007
Cranberry Lake	2001
Delta Lake	2003
Diamond Lake	1973
Eagle Lake	1991
Ellison Lake	2000
Everett Lake	2003
Flynn Lake	1991
George Lake	2000
Hammil Lake	2000
Hart Lake	1991
Hay Lake	2003
Island Lake	1998
Namekagon Lake (Jackson)	1998
Lake Owen	1992
Lake Wilipyro	2001
Long Lake (T47N R08W S03)	1995
Lower Eau Claire Lake	1988
Middle Eau Claire Lake	1987
Millicent Lake	1991
Muskellunge Lake	2009
Namekagon Lake	1990
Phantom Lake	2000
Pickerel Lake	1977
Pigeon Lake	1998
Robinson Lake	2001
Samoset Lake	2001
Sand Bar Lake	2000
Shunenberg Lake	2001
Siskiwit Lake	2001
Spider Lake	2003
Tahkodah Lake	1991
Tomahawk Lake	2000
Trapper Lake	2007
Twin Bear Lake	1973
Upper Eau Claire Lake	1973

## LWCD Work Plan for Implementation in 2010-2011

The LWCD staff that are available and needed to fully implement the activities outlined in the work plan are listed below.

### **LWCD Permanent Staff**

County Conservationist	1.0 FTE	\$70,000
Administrative Assistant	0.50 FTE	\$22,000
<u>Engineering Technician</u>	<u>1.0 FTE</u>	<u>\$70,000</u>
2.5 FTEs Total Staffing Cost		\$162,000

### **LWCD Current Limited Term Employees**

AIS Coordinator	.75 LTE	\$30,000	Available through December 2011
<u>CREP Technician</u>	<u>1.0 LTE</u>	<u>\$50,000</u>	<u>Available through March 2010</u>
1.6 FTEs Current LTE Cost		\$80,000	

### **Additional Staff Needed for Full Implementation**

.50 Permanent Administrative Assistant		\$22,000
1.0 LTE Engineering Technician		\$70,000
.25 LTE AIS Coordinator		\$10,000
<u>1.0 LTE Water Resource Technician</u>		<u>\$60,000</u>
2.9 LTEs Additional Staff Cost		\$162,000

### **Total LWCD Staff needed for LWRMP Implementation: 7 FTEs**

Additional LWCD staff resources are necessary to fully implement the activities outlined in the work plan. Goal V outlines the support needed for these positions. Grant funding will be sought where available.

**Without adequate staffing, the LWCD lacks the resources necessary to access and leverage multi-source implementation grants.**

Priority activities in the work plan are shown in bold. A list of partners for plan implementation is found on page 47. Partners will be selected as activities are planned and implemented.

**Table 9. Goal I. Protect and enhance surface waters, wetlands, and groundwater to maintain water quality, ecologic function, and recreational and aesthetic values.**

Objective	Activity <sup>17</sup>	Annual Costs	Evaluation Tools (Annual Benchmarks)
A. Assist waterfront landowners	<b>1. Provide technical and cost share assistance for shoreland restoration and waterfront runoff reduction.</b>	<b>Cost share \$50,000</b>	<b>Shoreland restorations (10) Waterfront runoff reduction projects – rain gardens, infiltration, diversions (5)</b>
	<b>2. Advocate shoreland restoration property tax rebate.</b>		<b>Tax rebate successfully established</b>
B. Reduce stormwater runoff volume and velocity	<b>1. Provide technical and cost share assistance for wetland restoration and creation.</b>	<b>Cost share \$30,000</b>	<b>Projects completed (5) Acres restored/created (20)</b>
	<b>2. Promote riparian buffers through CREP.</b>		<b>CREP enrollments (4)</b>
	3. Initiate community stormwater projects.	Cost share \$15,000	Projects completed (10)
	4. Support “slow the flow research.”	Cost share \$10,000	Projects completed (2)
C. Reduce impacts in watersheds	<b>1. Provide technical assistance for forestry, and construction site erosion control, etc.</b>	<b>Support and supplies \$10,000</b>	<b>Landowners assisted (#)</b>
	2. Address environmental concerns for county trails and parks.	Cost share \$20,000	Problem areas mitigated (#)
D. Assist Planning and Zoning	<b>1. Provide shoreland restoration mitigation plans.</b>	<b>Fees collected \$8,000</b>	<b>Plans completed (25)</b>
	2. Review consultant mitigation plans.	Fees collected \$600	Plans reviewed (4)
	3. Provide technical assistance regarding coastal erosion.	\$600	Site visits completed (8) Landowners assisted (4)
	4. Review nonmetallic mining reclamation plans.	\$1,000	Plans reviewed (4)
	5. Provide technical assistance to revise county shoreland ordinance. a. rip rap requirements b. NR 115 updates		Ordinance adopted
	6. Advocate for requiring shoreland restoration of all shorelands.		Ordinance adopted

<sup>17</sup> Priority activities are shown in bold text.

**Table 9. Goal I. Protect and enhance surface waters, wetlands, and groundwater to maintain water quality, ecologic function, and recreational and aesthetic values.**

Objective	Activity <sup>17</sup>	Annual Costs	Evaluation Tools (Annual Benchmarks)
	7. Develop monitoring and compliance program for mitigation and cost shared projects.	Support \$10,000	Projects checked (100)
E. Monitor and protect ground-water	1. Identify areas of known contamination (date).		Sites identified
	2. Support testing of drinking water wells.		Wells tested
	<b>3. Cost share well abandonment.</b>	<b>Cost share \$5,000</b>	<b>Wells properly abandoned (4)</b>
F. Reduce impacts from agriculture.	<b>1. Implement NR 151 Strategy.</b> <b>a. provide on-site visits</b> <b>b. complete compliance reviews</b>		<b>Site visits completed (10)</b> <b>Compliance reviews completed (5)</b>
	<b>2. Provide technical assistance and cost sharing.</b>	<b>Cost share \$100,000</b>	<b>Projects completed (10)</b> <b>To be tracked by project type.</b>
	3. Administer Wildlife Damage Program.	Contract staff & claims \$80,000	Producers assisted, damage, and abatement paid
	4. Administer Farmland Preservation Program.	\$5,000	Producers assisted Compliance checks (5)
<b>Total FTEs needed to support Goal 1: 3 FTEs</b>			

**Table 10. Goal II. Reduce environmental damage from invasive species to aquatic and terrestrial habitats.**

Objective	Activity <sup>18</sup>	Annual Costs	Evaluation Tools (Annual Benchmarks)
A. Implement AIS Strategic Plan	<b>1. Carry out activities in the plan.</b>	<b>\$150,000</b>	<b>Goals, objectives, and activities met</b>
B. Support TIS Program	1. Develop and implement a TIS strategic plan.	\$5,000	Complete and adopt TIS strategic plan
	2. Assist in creating a rapid response control crew.	\$80,000	Acres treated, sites ID'd, acres monitored
	3. Prevent establishment and spread of TIS from sand and gravel pits.	\$200,000	Pits treated (60) Acres treated (600)
<b>Total FTEs needed to support Goal 2: 1.25 FTEs</b>			

**Table 11. Goal III. Protect, restore, and enhance wildlife habitat in the forest, lakes, and streams.**

Objective	Activity	Annual Costs	Evaluation Tools (Annual Benchmarks)
A. Restore and enhance wetlands	<b>1. Identify, prioritize, and fund wetland habitat projects.</b>	<b>\$30,000</b>	<b>Acres restored and enhanced (20)</b>
	2. Construct nest boxes in wetlands.	\$5,000	Nest boxes established (100)
B. Install coarse woody habitat	<b>1. Install coarse woody habitat structure on shorelines.</b>	<b>\$10,000</b>	<b>Number of trees installed (500) Feet of shoreline enhanced (1,500)</b>
C. Improve fish passage	<b>1. Provide technical and cost share assistance.</b>	<b>\$50,000</b>	<b>Barriers removed (10)</b>
	<b>2. Inventory culverts.</b>	<b>\$50,000</b>	<b>Culverts assessed (1,200)</b>
D. Enhance forest management	1. Advocate use of forestry BMPs for logging.		
	2. Provide technical and cost share assistance for forestry BMPs.	\$5,000	BMP projects (5)
	3. Provide technical and cost sharing assistance for tree planting.	\$20,000	Acres planted (40)
	4. Provide tree and shrub sale.		Trees provided (#)
<b>Total FTEs needed to support Goal 3: 1.5 FTEs</b>			

<sup>18</sup> Priority activities are shown in bold text.

**Table 12. Goal IV. Increase natural resource education and LWCD outreach opportunities.**

<b>Objective</b>	<b>Activity<sup>19</sup></b>	<b>Annual Costs</b>	<b>Evaluation Tools (Annual Benchmarks)</b>
A. Promote conservation practices and LWCD programs with information technology.	<b>1. Improve and promote the LWCD web site.</b>	\$1,200	Web site updates (12)
	<b>2. Create web guide for conservation project sites open to the public.</b>	Costs included in staffing	Web guide created (1)
	<b>3. Provide staff technology training opportunities.</b>	\$500	Staff training provided (2)
	<b>4. Update and create printed materials.</b>	\$2,500	Print materials created (2,000)
B. Support and deliver natural resources education.	<b>1. Provide one-on-one education and assistance to landowners.</b>	Costs included in staffing	Technical assistance visits and contacts (100)
	<b>2. Contribute articles and news releases.</b>	Costs included in staffing	Articles and news releases distributed (12)
	<b>3. Support youth conservation camps.</b> a. 2 scholarships for WLWCA b. 2 scholarships for forestry camps c. <b>Develop youth lake leaders camp</b>	\$1,000	Scholarships awarded (4)
	4. Develop field tours of shoreland restoration and other BMP sites.	\$1,000	Tours conducted (2)
	5. Provide presentations.	\$1,000	Presentations made (4)
	6. Provide workshops.	\$1,000	Workshops conducted (2)
C. Enhance LWCD staff communications proficiency.	<b>1. Arrange training.</b>	\$2,000	Staff training provided (20)
	<b>2. Cross train staff.</b>	\$1,000	Staff training provided (10)
D. Develop strong partnerships	<b>1. Support partner initiatives.</b>	Costs included in staffing	Projects supported (#) Grants sponsored (#) Information requests filled (#)
<b>Total FTEs needed to support Goal 4: 1.0 FTEs</b>			

<sup>19</sup> Priority activities are shown in bold text.

**Table 13. Goal V. Ensure adequate supervisory, staff, and financial resources to effectively implement the LWRMP goals, objectives, and activities.**

Objective	Activity <sup>20</sup>	Annual Costs	Evaluation Tools (Annual Benchmarks)
A. Establish project funding sources.	<b>1. Investigate and seek grant and foundation funding with project partners.</b>	\$2,000	Grants applied for (1) Grants received (1)
	<b>2. Maintain grant funding for CREP technician.</b>	\$50,000	CREP position funded
	<b>3. Fund AIS Coordinator position (position is currently funded through 12/31/11).</b>	\$50,000	AIS Coordinator will be funded through 12/31/14
	4. Fund water resources technician position.	\$75,000	Position funded
	<b>5. Fund Administrative Assistant and Engineer Technician.</b>	\$100,000	Positions funded (2)
	<b>6. Seek funding for the AIS Strategic Plan (plan implementation is funded through 12/31/2011).</b>	\$150,000	AIS plan will be funded through 12/31/14
B. Continue to charge fees for permit services.	1. Continue fee based system for shoreland mitigation.	\$8,000	
	2. Continue fee based system for nonmetallic mining.	\$2,000	
	3. Continue fee based system for rip rap.		
C. Enhance supervisor and staff knowledge.	<b>1. Include lakes and rivers representative on the LCC.</b>	\$600	Citizen lake representative on LCC
	2. Provide staff with leadership development opportunities.	\$2,000	
<b>Total FTEs needed to support Goal 5: .25 FTE</b>			

<sup>20</sup> Priority activities are shown in bold text.

## Partner Web Sites

Bayfield Regional Conservancy

<http://brcland.org>

Bayfield County Lakes Forum:

<http://www.bayfieldcountylakes.org>

Department of Agriculture, Trade & Consumer Protection:

<http://www.datcp.state.wi.us/index.asp>

Farm Services Agency:

<http://www.fsa.usda.gov/FSA/stateoffapp?mystate=wi&area=home&subject=landing&topic=landing>

Natural Resources Conservation Services:

<http://www.wi.nrcs.usda.gov/>

The Nature Conservancy:

<http://www.nature.org/>

Trout Unlimited:

<http://www.tu.org/site/c.kkLRJ7MSKtH/b.3022897/k.BF82/Home.htm>

Ducks Unlimited:

<http://www.ducks.org/>

University of WI Extension:

<http://www.uwex.edu/>

US Fish & Wildlife Service:

<http://www.fws.gov/>

Wisconsin Department of Natural Resources:

<http://www.dnr.state.wi.us/>

## Associations /Affiliations

Wisconsin Land & Water Conservation Association (WLWCA):

<http://www.wlwca.org/>

## Volume III. Figures