

Land and Water Resource
Management Plan
For
Douglas County, WI

Douglas County Land Conservation Committee and
Land and Water Conservation Department

Review Draft September 2009

For Implementation 2010 - 2020

ACKNOWLEDGEMENTS

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

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Special Thanks to Citizens and Agency Staff who gave input

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Plan Approvals

Douglas County Land Conservation Committee on October 20, 2009
Douglas County Board on December 17, 2009
Wisconsin Land & Water Conservation Board on December 1, 2009

Initial Implementation Period

January 1, 2010 – December 31, 2015

DRAFT RESOLUTION

A RESOLUTION APPROVING THE DOUGLAS 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 Douglas County Board of Supervisors previously approved spending for revising the Land and Water Resource Management Plan; and

WHEREAS, the Douglas County Land Conservation Committee sent out surveys, hosted one informational session, two meetings open to the public, and one public hearing to explain the plan process, solicit public opinion, and to solicit participants for the revision of the Land and Water Resource Management Plan; and

WHEREAS, the Douglas County Land Conservation Committee had previously formed a volunteer workgroup to draft a county-wide comprehensive plan including goals, objectives, and activities for the topic of aquatic invasive species control, education, and prevention; and

WHEREAS, the citizen input and information gathered through the formulation of the aquatic invasive species plan is included in the revision of the Land and Water Resource Management Plan; and

WHEREAS, the resulting plan identifies land and water resource management goals, objectives, and activities for implementation by the Douglas County Land Conservation Committee and their staff for the next ten years, with a work plan revision after 5 years; and

WHEREAS, at their October 20, 2009 meeting, the Douglas County Land Conservation Committee approved the Land and Water Resource Management Plan and forwarded the approved plan to the Douglas County Board for their review and action; and

WHEREAS, the Douglas county Land Conservation Committee staff presented the revised Land and Water Resource Management Plan to the Wisconsin Land and Water Conservation Board, at their meeting December 1, 2009; and

WHEREAS, the Wisconsin Land and Water Conservation Board approved the Douglas County Land and Water Resource Management Plan at their meeting December 1, 2009.

NOW THEREFORE BE IT RESOLVED that the Douglas County Board of Supervisors, does approve the Douglas County Land and Water Resource Management Plan to be implemented for the next ten years, with a work plan revision after the first 5 years; effective until December 31, 2020.

EXECUTIVE SUMMARY

Douglas County Land & Water Resource Management Plan

Introduction

The Douglas County Land and Water Resource Management Plan was developed to meet requirements in Chapter 92 of the Wisconsin Statutes. The intent of the plan is to foster local water quality planning and increase public participation in natural resource management. The plans are intended to provide counties, through their Land Conservation Committees, the tools, flexibility and funding to be able to address both statewide goals as well as priorities identified at the local level. The Douglas County Land & Water Resource Management Plan contains realistic objectives and activities intended to meet the goals established by a workgroup of volunteer citizens from throughout the county. The resulting work plan will guide the work of the Land Conservation Committee and their staff through 2020.

Plan Organization

The Douglas County Land and Water Resource Management (LWRM) Plan is divided into two main volumes of information. Volume I provides a general overview of the county and an assessment of the county's resources. Volume II identifies the goals, objectives, and activities along with an education strategy to address each goal. Volume II addresses the implementation of the agricultural performance standards for nonpoint pollution reduction and outlines plan implementation and. It includes a detailed work plan and discussion of ongoing monitoring efforts in the county. Maps and other supporting information are found in the appendices.

Public Participation

The LWRM plan was developed through public informational meetings and hearings, surveys and the efforts of the Land Conservation Committee (LCC). An Aquatic Invasive Species (AIS) Strategic Planning workgroup was established to create an AIS Strategic Plan and provide input particular to that subject. The LCC held a public input session September 9, 2009 following the distribution of a public input survey. A public radio broadcast was used to publicize the public input meeting. The Land Conservation Committee held a public meeting September 17, 2009 to gather more information and a held public hearing October 20, 2009 where citizens had a chance to learn more about the land and water resource management plan and to offer comments on the plan. Land and Water Conservation Department (LWCD) staff also forwarded plan information materials to the Douglas County Towns Association on September 15, 2009 and to the Douglas County Board at their December 2009 meeting. Public participation will continue throughout the life of the LWRM plan at annual planning meetings, annual reports to the county board and other groups, newsletters, and press releases to Douglas County citizens. Groups, organizations and individuals will also be asked by the LCC to participate in project planning and/or implementation as necessary.

Resource Assessment

A comprehensive look at past planning efforts, detailed water quality data, and general county information and land use trends provided the workgroup with information necessary to look at where the LWCD should target their time and effort. Land and water concerns identified include:

- *Drinking water protection*
- *Wetland protection*
- *Urban development and inadequate stormwater management*
- *Erosion and sedimentation resulting from construction and maintenance activities (especially roads)*
- *Loss of vegetative buffers along rivers, streams, lakes and wetlands*
- *Need to address invasive and exotic species throughout the county*
- *Inadequate water quality data*
- *Need for cooperation between managing entities*
- *Insufficient information transfer from agencies to the public*
- *Groundwater contamination issues*
- *Changing agricultural practices*
- *Protection of resource values*

Goals Objectives and Activities

The objectives and activities are organized under three main goals:

- 1) Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions, and recreational and scenic values.
- 2) Protect and understand groundwater quality to supply clean water for drinking and recharging surface waters and wetlands.
- 3) Prevent the introduction and spread of aquatic and terrestrial invasive species to protect aquatic habitat and resource values.

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 Douglas 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, evaluation and a detailed work plan for each goal, objective and activity. Volume II also outlines the Douglas County priority farm strategy and agricultural and non-agricultural standards and prohibitions implementation. Priority areas will be targeted for voluntary and educational efforts based on their potential impacts to natural resources. Criteria for priority for cost-share and technical assistance include geographic, resource, and other criteria. The NR 151 performance standards

strategy capitalizes on education and voluntary compliance. An educational strategy has been developed for each resource goal which includes: newsletter articles, news releases, workshops, distribution of material, formulation of a directory of land and water conservation experts for the website, and conducting an annual orientation to land and water conservation issues for local officials.

It should be noted, that work planning will determine the amount of funding needed annually for plan implementation. The county is the most important source of funding and support for implementation of the plan. County funding is also the most limiting factor as funds from other sources often require a match commitment. However, funding may not be available to implement all of the activities outlined in the work plan. Funding for the plan can come from various sources and therefore, a combination of private, local, state and federal sources will be sought to implement the plan priorities.

Progress Tracking and Plan Evaluation

Plan evaluation is important as it assesses whether goals, objectives and activities are being accomplished. At this time, the LCC does not have adequate funding to perform in-depth studies to determine whether educational events and activities were effective or not. As a result, measures will be made only to determine if the project was completed. Other activities such as technical assistance will also be evaluated on whether they were completed and the protection received from installation of the conservation practice (estimated soil saved, runoff reduced, wetland acres created, etc.) A written annual report will be provided to the public, the county and DATCP. This evaluation will also appear in the department's annual budget packet as performance indicators.

The Land and Water Conservation Department staff will review progress toward plan completion on a yearly basis and provide bi-monthly staff reports to the LCC. Progress tracking will be made a part of every LCC meeting. Work planning sessions will also provide an opportunity for the LCC, citizens and staff to meet together, discuss progress and determine the next fiscal year's projects.

Conclusion

Land and water resources are very important to Douglas County. Unique resources including the St. Croix National Scenic Riverway, the Bois Brule River State Forest, and Lake Superior are a few of the treasures found in the county. These treasures need to be protected. The land and water resource management plans are intended to reflect local needs and encourage local leadership in protecting these important resources. These plans empower Land Conservation Committees to provide that local leadership for other agencies, private groups, organizations and individuals. The plans also serve to set the path the county will follow for more long range planning.

The implementation of this plan will provide the basis for the future of land and water conservation in Douglas County.

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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 an 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 the change was to foster local water quality planning, termed *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 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

Douglas County provided several opportunities (identified below) to provide input into land and water resource management over the past several years.

Surveys and Questionnaires

In 1997, 2000, and 2004 the Land Conservation Committee (LCC) authorized two informal customer surveys asking citizens the types of activities the LCC should be focusing money and efforts on. The Douglas County Board also surveyed citizens when beginning their land use planning process in 1999. The LCC distributed questionnaires during the informational sessions outlining the land and water resource management planning process in 2004. The results were reviewed and the major natural resource themes identified were:

- *Drinking water protection*
- *Land use (forestry, agriculture and development)*
- *Wetland protection*
- *Lakeshore protection*
- *County and town road maintenance and construction*
- *Education*
- *Exotic and invasive species control*
- *Public beach closings*
- *Deer herd management*

The most recent survey sent out by the LCC to gather input in 2009 is included as Appendix E.

Other Management Plans

An extensive review of over twenty-eight past planning efforts and natural resource management documents provided a background for information about the county's natural resources. Those sources were also used to identify where information was not available. A synopsis of the major plans reviewed is found in Appendix A.

Work Group

Public participation in the Land & Water Plan development in 2004:

- ◆ Three public informational sessions held in Lakeside, Solon Springs, and Superior to outline the existing Land & Water Resource Management Plan goals, review current resource concerns, and solicit volunteers to participate in an advisory workgroup.
- ◆ One local workgroup was formed. Efforts were made to involve citizens from varied backgrounds including agriculture, town and county government, lake associations, environmental education, contractors, real estate and forestry. Workgroup membership included interested stakeholders and agency staff from DNR.
- ◆ The local workgroup held one meeting to identify and prioritize issues, define goals & objectives and formulate activities.

- ◆ Other interested individuals (not able to serve on the workgroup) were included in a citizen advisory group. Members of this group were relied upon for review and comment and were encouraged to participate in workgroup efforts.
- ◆ Advisory agency staff, including DNR staff, and municipal representatives provided plan review.
- ◆ Press releases informed the public about the plan development and an informational program and subsequent public hearing was conducted to receive comments on the final plan.

Plan Update in 2009:

- ◆ A public meeting was held in Solon Springs September 8, 2009. Survey results were shared and priority goals and objectives were established at this meeting. Those who received surveys for input were invited to the meeting along with the general public.
- ◆ An LCC meeting open to the public was held on September 17th. NR151 priorities and cost share priorities were established at this meeting. Suggestions for priority activities were also solicited.
- ◆ The plan will be made available for information public review beginning September 28 and for formal public review in preparation for a public hearing in mid October. The public hearing will be held October 20th.

Local Cooperation

Although Ashland, Bayfield, Douglas and Iron County Land Conservation Departments are no longer administered cooperatively, the counties still conduct some activities together.

Basin priorities were solicited through the partner survey and via review of the draft plan. Lake Superior and St. Croix Basin priorities were considered in the development of this land and water plan.

Plan Organization

The Douglas County Land and Water Resource Management Plan is divided into two main volumes of information. Volume I is a general overview of the county and an assessment of the county's resources. Volume II identifies the goals, objectives and activities along with an education strategy to address each goal. This volume also outlines plan implementation and addresses the 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 I. Plan Background

County Resource Information

General Description

Douglas County is located in northwestern Wisconsin and covers 1,309 square miles. It is the fourth largest county in Wisconsin. The county is bordered by Carlton County, Minnesota to the west, Burnett and Washburn Counties to the south, Bayfield County to the east and Lake Superior to the north.

Geology

Bedrock

Douglas County varies from Precambrian sandstone to igneous bedrock. The northern part of the county is underlain with Superior red sandstone over which is a thick mantle of clay and gravel forming an artesian slope. Crystalline igneous rock underlies the southern two-thirds of the county. Gabbro and basalt outcroppings are common along the Superior escarpment in northern Douglas County and Totagatic River of southeastern Douglas County. Figure 1 is a map of Douglas County bedrock.

Glacial Geology

The glacial geology of Douglas County is represented by four major units:
glacial lacustrine red clays or clay till

- glacial gravel, sand, boulders and clay
- large pitted outwash plain
- ground moraine

The first unit, made of glacial lacustrine red clays or clay tills, is found on an old lake plain adjoining Lake Superior. These clays were laid down under the waters of a much larger glacial lake that once occupied the Lake Superior Basin and surrounding areas. These calcareous red clay soils are finely textured, resulting in very poor drainage. These soils cover about one fourth of the total county area and deposits range from very thin portions near the Superior escarpment to over 600 feet in the St. Louis River Valley. Although these clays contain large quantities of ground water, the surface clay deposits effectively prevent the water from reaching the surface as springs and consequently create artesian conditions.

The second major unit is a noticeable end moraine extending northeast across the county from Patzau to Bayfield County. It lies just south of the Superior escarpment. It is a ridge-like accumulation of glacial gravel, sand, boulders and clay. The moraine consists of steep hills and short ridges interspersed with numerous kettle-like depressions.

The third major unit consists of large pitted outwash plain. This outwash plain lies south of the Brule River, south east of the St. Croix River and northwest of the Ounce River and is a flat, sandy plain resulting from the outwash of the melting glacier. There are many depressions in the

plain, and lakes are more numerous here than in the upland. This flat, sandy plain is locally known as the *Pine Barrens*.

The last major unit of Douglas County consists of ground moraine in the extreme southwest corner of the county and one small portion near the Superior escarpment. The ground moraine of Douglas County is characterized by elongated narrow watersheds separated by gravel eskers which lie in a northeast/southwest configuration.

Soil Associations

Whether you are a resource manager, elected official, developer, contractor, or naturalist, soil survey information is invaluable in making land use decisions. This information provides insight into landscape relationships that no other source of information can provide.

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

Table 1 describes the soil associations of the county.

Figure 2 is the soil associations map of Douglas County.

Table 1: Soil Associations of Douglas County

Sarwet-Metonga-Goodwit Association (13) - Moderately deep to very deep, gently sloping to moderately steep, moderately well and well drained, loamy and silty soil on glaciated bedrock (basalt and granite) controlled uplands.

Amnicon-Miskoaki-Rockmont Association (14) - Moderately deep to very deep, gently sloping to steep, well drained and moderately well drained, loamy and clayey soils on glaciated bedrock (basalt and granite) controlled uplands.

Sarona-Sarwet-Metonga Association (16) - Moderately deep to very deep, gently sloping to very steep, well drained and moderately well drained, loamy soils on glaciated bedrock (basalt and granite) controlled uplands.

Keweena-Pence Association (19) - Very deep, nearly level to steep, well drained and moderately well drained, sandy soils on disintegration moraines.

Vilas-Keweenaw-Sultz Association (20) - Very deep, nearly level to very steep, well drained to excessively drained, sandy soils on disintegration moraines.

Rubicon-Morganlake-Flink Association (26) - Very deep, nearly level to very steep, excessively drained to somewhat poorly drained, sandy and sandy over loamy soils on disintegration moraines and glacial thrust masses.

Sarona-Stambaugh-Moodig Association (35) - Very deep, nearly level to steep, well drained to somewhat poorly drained, loamy and silty soils on ground moraines.

Cuttre-Miskoaki-Amnicon Association (41) - Very deep, nearly level to steep, somewhat poorly drained to well drained, clayey soils on modified lacustrine moraines.

Anton-Borea-Bohemian Association (45) - Very deep, nearly level and gently sloping, somewhat poorly drained to well drained, clayey and silty soils on modified lacustrine moraines.

Grayling-Deerton-Brownstone Association (51) - Moderately deep to very deep, nearly level to steep, excessively drained, sandy soils on bedrock influenced stream terraces.

Vilas-Rubicon Association (52) - Very deep, nearly level to steep, excessively drained, sandy soils on collapsed outwash plains.

Vilas-Pence Association (53) - Very deep, nearly level to steep, excessively drained, to excessively drained, sandy soils on collapsed and uncollapsed outwash plains.

Menahga Association (55) - Very deep, nearly level to steep, excessively drained, sandy soils on collapsed outwash plains.

Mahtomedi-Menahga-Graycalm Association (56) - Very deep, nearly level to steep, well drained to excessively drained, sandy soils on collapsed outwash plains.

Grayling-Wurtsmith Association (66) - Very deep, nearly level to steep, excessively drained to moderately well drained, sandy soils on outwash plains and dunes.

Rubicon-Vilas Association (67) - Very deep, nearly level to steep, excessively drained to somewhat excessively drained, sandy soils on outwash plains.

Graycalm-Menahga-Mahtomedi Association (68) - Very deep, nearly level to steep, excessively drained to somewhat excessively drained, sandy soils on outwash plains.

Lupton-Tawas Association (87) - Very deep, nearly level, very poorly drained, organic soils on outwash plains, stream terraces, and moraines.

Grayling-Wurtsmith Association (66) - Very deep, nearly level to steep, excessively drained to moderately well drained, sandy soils on outwash plains and dunes.

Rubicon-Vilas Association (67) - Very deep, nearly level to steep, excessively drained to somewhat excessively drained, sandy soils on outwash plains.

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Lupton-Tawas Association (87) - Very deep, nearly level, very poorly drained, organic soils on outwash plains, stream terraces, and moraines.

Habitat Type Classifications

Habitat type classifications are important for resource management. They provide information about the vegetation, soils, climate and wildlife. This information can be used for shoreland vegetation restoration, forest plantings and wildlife habitat improvement plantings and in making land use decisions. Figure 3 is a map of the habitat types in Douglas County.

Township & Transportation System

Historically, road construction and maintenance has been a problem, especially in the Lake Superior Clay plain. Efforts such as the Red Clay Project and Nemadji River Basin project searched for answers on how to stabilize roads along the clayey till plain so that they wouldn't increase peak flows during snowmelt and storm events. The increased flows contribute a significant amount of sediment to waterways in the county. Figure 4 is a map of the Township & Transportation system in Douglas County.

Historical Vegetative Cover

Vegetative cover is an 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. Historical land use practices are especially important in understanding the Lake Superior Basin. Increased runoff results from the over-harvest of large stands of pine and the loss of the duff (organic) layer of the soil. Figure 5 is a map of Finley's Original Vegetation for Douglas County.

Land Ownership

Douglas County has very large blocks of county owned and industrial forest land, smaller blocks of state land, some municipal owned lands and the balance in privately owned lands. The key to implementation of this land and water resource management plan, will be to have all of the various landowners working together to manage their lands. This plan lays out common goals identified through this and many other planning processes. It also lays out direction for the Land Conservation Committee as to how to address the many land and water resource issues in Douglas County. Figure 6 is a map showing the distribution of land ownership in Douglas County.

Resource Assessment

Major Watershed Basins

Figure 7: Basin & Subwatershed Map

Figure 8: Hydrography map

Lake Superior Basin¹

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. Douglas County encompasses 753.5 square miles, nearly a quarter of the total Wisconsin portion of the Lake Superior Basin.

The original vegetation included huge tracts of forest made up 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. These landforms dominate the upper reaches of the Brule River in Douglas County. On the southern edge of the old lake plain between the Nemadji and Iron Rivers, are several waterfalls, including Big Manitou Falls on the Black River in Pattison State Park. At 165 feet, these are the highest falls in the state.

The Lake Superior shoreline, including its valuable 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 the drowned river mouths and estuaries on the Wisconsin shoreline. The presence of clay soils and lowland boreal forest also contribute to its biological diversity and are an important factor in shaping the coastal wetlands. Extensive peatlands have formed at the mouths of many of the streams entering Lake Superior, usually behind sand spits, providing habitat for many rare plant and animal species.

Four main subwatersheds make up the Lake Superior Basin in Douglas County.

- **St. Louis & Lower Nemadji Rivers Watershed.** 284 stream miles and 159 square miles. This watershed is located in the very northwestern corner of Douglas County and extends into Carlton County, Minnesota. Water quality data is available for the area in and around the city of Superior. Water quality data is not readily available in the upper

¹ Department of Natural Resources. *The Lake Superior Water Quality Management Plan*. PUBL-WT-278-99-REV. March 1999.

portions of the watershed. Because of the importance of the Great Lakes and especially Lake Superior, this watershed was selected as an Area of Concern (AOC) by the International Joint Commission. Increased dredging of contaminated sediments in the Duluth/Superior harbors led to its selection as an AOC. Phase 1 and 2 Remedial Action Plans and the Nemadji River Project were completed as part of the Area of Concern designation in order to determine steps to remediate water quality problems identified. Implementation of these plans has not yet begun on a major scale in Wisconsin. More detailed information can be found in the *Wisconsin DNR Lake Superior Basin Plan* (DNR, 2000) and the Nemadji River Basin project report *Erosion and Sedimentation in the Nemadji River Basin* (USDA-NRCS and FS, 1998.)

- **Black & Upper Nemadji Rivers Watershed.** This 125.6 square mile sub-watershed contains 179.5 stream miles, most of which run through red clayey till areas. Large wetlands divide the Lake Superior Basin from the St. Croix Basin in this watershed. Detailed water quality data is not readily available for this sub-watershed.
- **Amnicon & Middle Rivers Watershed.** This 288.9 square mile sub-watershed contains 384 stream miles. The upper portions of this watershed consist mainly of sand deposits before entering the red clayey tills of the Lake Superior clay plain. Many wetlands, that feed short streams draining to Lake Superior, dot the landscape. Detailed water quality data is not available for all of this sub-watershed.
- **Bois Brule Watershed.** This 180 square mile watershed is derived in sandy deposits and drains to Lake Superior through the clayey till plain. Most of this watershed is protected as part of the Bois Brule River State Forest.

St. Croix Basin²

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) (Henrich & Daniel, 1983.)

Four main subwatersheds make up the St. Croix Basin in Douglas County.

- **Upper Tamarack.** This watershed is located in the very southwestern corner of Douglas County and extends into a small part of Burnett County. Little water quality data is available on the waters within this area because lakes are small and public access is generally not allowed.
- **St. Croix & Eau Claire Rivers.** This narrow watershed includes all of the St. Croix River drainage below the Gordon Dam to Riverside in Burnett County. Much of the watershed contains poorly drained uplands with many wetlands. Little water quality data is available on the waters within this area because lakes are small and public access is generally not allowed.

² Department of Natural Resources. *The St. Croix River Water Quality Management Plan*. PUBL-WR-270-94-REV. February 1994. Pages 213-223, 229-235.

- **Upper St. Croix & Eau Claire Rivers.** This area is the headwaters of the St. Croix Basin. Intensive development threatens water quality in the lakes within this sub-watershed. Several lakes have been designated by the state under NR102 as *Outstanding Resource Waters*. Lakes are, however, exhibiting an increase in fertility and aquatic vegetation growth, along with a decrease in water clarity. The installation of the municipal waste collection system on Upper St. Croix Lake may reduce these levels over time. The Upper St. Croix & Eau Claire River subwatershed was designated as a priority watershed project in October 1994. A final management plan for the area was approved in October 1997, and implementation of the plan occurred from November 1997 through 2008.
- **Totogatic River.** This large watershed extends from Bayfield County, to Douglas, Sawyer and Washburn Counties. The landscape is dotted with lakes and wetlands. Intensive development on lakes in the watershed is causing increased turbidity, increases in fertility and aquatic vegetation, introduction of exotic species (Eurasian water milfoil) and changes in riparian habitats and shoreland communities.

Land in the St. Croix Basin is mostly forested, with small tracts of agricultural land interspersed. Overall, water quality in the basin is 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.

Surface Water

Water is a very important part of Douglas County's economy and quality of life. Inland surface waters comprise 22,165 acres of Douglas County. These acres are divided into rivers and streams, natural lakes, impoundments (flowages) and wetlands. Shorelands are important ecosystems surrounding surface waters.

Rivers and Natural Streams

There are about 101 streams and rivers in the county totaling 705.4 miles and covering 8,153 acres. About two hundred thirty-four miles are trout waters which provide many fishing opportunities for anglers. Threats to these waters occur when pollutants enter the system. Pollutants can enter rivers and streams through two different avenues called point and nonpoint pollution. Runoff from various activities can carry pollutants through watersheds and deposit them in rivers and streams. This is known as nonpoint pollution. Point sources of pollution also exist, such as a discharge pipe from a manufacturing plant or wastewater treatment facility or an uncontrolled spill.

Stream assessments throughout the basins in Douglas County 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 nonpoint pollution, runoff from construction sites, urban runoff and forestry. These pollutant sources affect swimming, aquatic life, and drinking water. Table 2 lists surface water rankings by subwatershed.

Water quality standards are set by states, territories and tribes. They identify the uses 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 (such as swimming, drinking water, fishing, etc.) 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. Douglas County Lake Superior Basin waters cited on the impaired waters list include Allouez Bay Area of Concern (AOC), St. Louis Bay AOC, St. Louis River AOC, Superior Bay AOC, Hog Island Inlet AOC, Crawford Creek, Crawford Creek Tributary and Newton Creek. These waters must be brought into compliance or Wisconsin faces the possibility of losing funding for water quality efforts. A detailed listing of cited areas can be found in Table 13 in Appendix A (H).

Table 2: Surface Water Rankings for Nonpoint Source Pollution Control³

<i>Basin</i>	<i>Watershed Name</i>	<i>Stream Rank</i>	<i>Lakes Rank</i>
Lake Superior	St. Louis & Lower Nemadji River	Not Ranked	Not Ranked
	Black & Upper Nemadji Rivers	Not Ranked	Not Ranked
	Amnicon & Middle Rivers	Not Ranked	Not Ranked
	Bois Brule	Not Ranked	Not Ranked
St. Croix Basin	Upper Tamarack	Not Ranked	Not Ranked
	St. Croix & Eau Claire Rivers	Not Ranked	Not Ranked
	Upper St. Croix & Eau Claire Rivers	Not Ranked	Not Ranked
	Totagatic River	Not Ranked	Not Ranked

*not ranked due to lack of water quality data.

Lakes

There are 431 lakes in Douglas County totaling about 14,012 acres. Eighty-two percent are natural lakes and eighteen percent are impounded waters. Douglas County lakes are very fragile, as 66% are less than 10 acres. Lakes are often categorized into four different types based on how water enters the lake and how water leaves the lake. Lake categories include seepage lakes, groundwater drainage lakes, drainage lakes and impoundments.

Lakes receive both point and nonpoint sources of pollution. Lakes are also deposition areas for pollutants from the atmosphere, such as mercury. Water quality studies from the 1970s and 80s found high levels of dissolved oxygen levels and overall good water quality. Mercury deposition, high nitrogen and increased suspended solids were found further downstream in the St. Croix Basin. It should be noted that little to no baseline information has been collected from the Douglas County portion of the St. Croix Basin.

Lakes were also considered for addition to the *impaired waters list*, under sec. 303(d) of the Clean Waters Act. Impaired waters identified in the St. Croix Basin include the Minong Flowage, Red Lake and the St. Croix Flowage, citing atmospheric deposition as the source for

³ Department of Natural Resources. *The State of the St. Croix Basin*. PUBL-WT-555-2002. March 2002.

the mercury contamination. Amnicon Lake in the Lake Superior basin was also included on the list for the same reasons. Since the development of the St. Croix Basin plan, fish advisories due to mercury have been placed on all lakes in Wisconsin.

Human influences have increased the rate at which nutrients and sediments are being deposited in lakes thereby degrading water quality and limiting uses. Sediments and pollutant sources include urban activities, construction site erosion, failing private septic systems, road salt, sand and gravel washing, forestry, and some agricultural activities.

Citizens concerned about the quality of lakes and streams in Douglas County joined together to form the *Douglas County Association of Lakes & Streams* (DCALS.) The mission for the group is *to protect and improve the water quality and shoreland of Douglas County lakes and streams by sharing knowledge, forming common goals and speaking with a unified voice to mutually benefit all Douglas County lakes and streams.* Many lake residents have formed lake associations in order to protect water quality near their homes. Douglas County lake associations, self help monitoring participants and special districts or associations are included in Table 3. Dedicated citizens devote their time and effort to collecting water quality information and educating their neighbors as well as themselves about water quality and lake management.

Table 3: Douglas County Lake Associations, Self-Help Monitoring Participants and Special Districts or Associations		
Lakes	Currently participating in Self Help Monitoring Programs (Y or N)	Sanitary District / Lake District or Lake Association
Beauregard Lake	N	None/ None
Crystal Lake	Y	None/ Association (shared)
Person Lake	Y	None/ Association (shared)
Red Lake	Y	None/ Association
Bond Lake	Y	None/ Association
Leader Lake	Y	None/ Association
Whitefish Lake	Y	None/ Association
Gordon - St. Croix Flowage	Y	District/ Association
Lower Eau Claire Lake	N	None/ Association
Upper St. Croix Lake	Y	District/ Association
Amnicon / Dowling Lake	Y	District / Association (shared)
Lake Nebagamon	Y	None / Association
Lake Minnesuing	Y	District / Association
Minong Flowage	N	None / Association

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. Figure 9 shows the wetland distribution in Douglas County.

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 both 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 (Appendix A(K)). 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, special protections and consideration. This document identifies 30 priority wetland sites and 18 priority aquatic sites within the Lake Superior Basin. Information for the St. Croix Watershed is not yet available.

All construction projects involving wetlands should be reviewed to ensure they meet local, state and federal wetland regulations 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, not on-site inspection, some wetlands may not appear on the inventory. Non-inventoried 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 NR115, Wisconsin Administrative Code, that regulates activities in wetlands that are within 1000 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 NR117, Wisconsin Administrative Code.

New wetland regulations were enacted for Wisconsin as of May 8, 2001 in response to a U.S. Supreme Court ruling that small isolated wetlands across the country were no longer protected by federal law. This new law covers some of the most productive wetlands in the state, including sedge meadows, shallow marshes and seasonally flooded lands. With the passage of 2001 Wisconsin Act 6, Wisconsin became the first state in the nation to establish state authority to protect these important wetlands from filling and dredging. Wisconsin has always provided water quality certification to the US Army Corps of Engineers for activities in these and other types of wetlands. The new law will allow the water quality certification to continue and will cover at least 1 million acres of wetland in the state.⁴

⁴ DNR website/DNR News at <http://www.dnr.state.wi.us/org/water/fhp/wetlands/index.htm>

In 2004, Wisconsin Act 118 created a system intended to speed permit decisions without reducing protection of habitat, navigation, water quality, and scenic beauty. A number of activities in or along lakes that previously required a DNR permit are currently exempt under Act 118. To administer Act 118, the Natural Resources Board adopted a temporary rule NR1 that names areas of special natural resource interest, including ORW and ERW waters, where exemptions are not available. WI Act 118, along with greatly reduced numbers of state regulatory staff in the region, may reduce protection for many vital resource waters.

Shorelands

Shorelands include lands near lakes, rivers or streams and certain wetlands. Douglas County has 1,410.8 miles of stream frontage, of which about 37% are in public ownership. Lake frontage in the county totals 365.11 miles, with about 27% in public ownership. Douglas County contains diverse coastal wetlands and 23.8 miles of Lake Superior shoreland.

Shorelands are popular for residential development because of their scenic beauty and access they provide to water. However, shorelands provide much more than scenic beauty and water access. They 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 the 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.

The county has an existing Shoreland Zoning Ordinance authorized by NR115, Wisconsin Administrative Code, that regulates activities within shoreland areas. Counties may impose standards more restrictive than the state standards. In 1998, the Douglas County Board approved a Lake Classification System increasing minimum setbacks on the majority of Douglas County lakes and streams. In 2004, the Douglas County Board amended the Shoreland Zoning Ordinance to change the way legal pre-existing structures may be enlarged or structurally altered. Restoring shoreland vegetation buffers is an important component of this amendment. The *Lake Classification, Zoning Schedule* – containing dimensional requirements for property within shorelands, and the *Dimensional Requirements for Lake Classes* is found in Appendix B of this document. The complete Douglas County Shoreland Zoning Ordinance can be viewed on-line at www.douglascountywi.org or obtained from the Douglas County Zoning Department.

Groundwater

Groundwater is the primary source of drinking water for most Douglas County residents, with the exception of the City of Superior. The city utilizes Lake Superior as their drinking water supply. Wells in the Lake Superior Basin are generally deep and may be artesian. Wells in the St. Croix Basin tend to be shallow and may consist of sand points. Because of the sandy soils, shallow water table depth and shallow well depths in the St Croix Basin, groundwater is very susceptible to some types of contamination problems. Sandy soils allow rapid infiltration and

tend to be poor filters of some chemical contaminants. Chemical contaminants that can be a problem include nitrates, pesticides and volatile organic compounds. The DNR ranks groundwater contamination susceptibility or occurrences by watershed. Table 4 lists DNR groundwater rankings for watersheds in Douglas County.

Table 4: Ground Water Rankings for Douglas County Watersheds⁵

<i>Basin</i>	<i>Watershed Name</i>	<i>Groundwater Rank</i>
Lake Superior	St. Louis & Lower Nemadji Rivers	Low
	Black & Upper Nemadji Rivers	Medium
	Amnicon & Middle Rivers	Medium
	Bois Brule	Medium
St. Croix Basin	Upper Tamarack	Low
	St. Croix & Eau Claire Rivers	Low
	Upper St. Croix & Eau Claire Rivers	Low
	Totagatic River	Low

**A high ranking means the watershed is susceptible to groundwater contamination and/or there were instances where groundwater nitrate concentrations exceeded the drinking water standards.*

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. Figure 10 is a map modeling contamination susceptibility of groundwater in Douglas County.

Unique Resources

Special Values and Designations

In 1968, the St. Croix River was designated a *National Scenic Riverway* under the National Wild and Scenic Rivers Act, from the St. Croix Flowage dam to the northern boundary of the St. Croix Falls city limits. This same stretch was named a Wisconsin *Outstanding Resource Water*. This special designation recognizes some of the highest quality waters of the state, and provides a level of protection beyond the water quality standards that apply to all other state waters. The Bois Brule River is listed as a *State Wild and Scenic River*.

The *Northern Rivers Initiative River Classification*, developed under the leadership of DNR in 1998, extends the work of lake classification to rivers. It provides officials with a new tool to help determine the amount of protection rivers and streams should be provided. The draft list can be found in Appendix A(G), Table 7 of this plan.

⁵ Department of Natural Resources. *The State of the St. Croix Basin*. PUBL-WT-555-2002. March 2002.

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. Special designations for Douglas County waters can be found in Appendix A (M), Table 10.

- **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.

Threatened and Endangered Resources

Every component of the ecosystem is important as an indicator of a healthy ecosystem. 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. Appendix A (L) Table 9 lists rare, threatened, endangered and special concern species and natural communities known to exist in Douglas County. The St. Croix Basin in Douglas County contains a high amount of rare, threatened and endangered species and plant communities.

Cultural Resources

Cultural resources are the physical remains of a people's way of life that provide researchers a picture or map of life during that time. These remains are important because they help us to understand other cultures and customs, and learn about past civilizations and communities.

Examples of cultural resources include a wide variety of man-made artifacts like prehistoric pottery, log cabins, logging camps or bridges. According the US Department of Agriculture, cultural resources can include both tangible artifacts and less tangible traces of our past such as dance forms, aspects of folk life, landscapes, vistas and cultural or religious practices.⁶

Ecologically Invasive Exotic Species

While rare or endangered species are those whose populations have decreased from a habitat, exotic species are plants and animals that are introduced (intentionally or accidentally) into habitats where they are not native. Exotics enter a habitat and destroy the balance by overpowering native species, out-competing them for food and habitat. Exotics are prone to rapid expansion when lake chemistry is out of balance (for example, a lake high in phosphorus allows Eurasian water milfoil to expand). Generally, an introduced species has no predators, pathogens and competitors to naturally control the populations allowing the exotics to become

⁶ USDA-NRCS, via <http://policy.nrcs.usda.gov/national/gm/title420/part401/subparta/index.htm.8/25/3000>

invasive - crowding out native plants and animals and affect the balance in native habitats.⁷ A listing of common aquatic invasive species can be found in Appendix A(N), Table 11.

Land Use and Management

Figure 11: Douglas County Land Cover

Agriculture

Agriculture in Douglas County was once a main source of income for residents. Over the years, the number of farmers and farmland has gone down, following the statewide trend. According to the 2007-2008 Wisconsin Blue Book, Douglas County had 391 farms in 2002, totaling 85,000 acres. The average farm size was 217 acres. In comparison with all other Wisconsin counties, Douglas County ranks 62nd in total acres devoted to agriculture.

Most farms in the county are dairy and beef farms. Within the last 10 years, other activities have moved to the area including goat dairy operations, fruit production and hobby farming. Douglas County continues to produce corn and forages for hay such as grass, trefoil, alfalfa, wheat, oats and red clover. Manure is generally stockpiled or stored and spread on fields when conditions allow. Cattle are allowed unlimited access to streams in many cases, causing erosion and sedimentation problems, nutrient loading and shoreland degradation. Cropland soils erosion is not generally an issue due to long hay rotations and limited row crop production. Refer to the Douglas County soil erosion waiver in Appendix D.

Douglas County's Farmland Preservation Plan (FPP) includes goals and policies regarding land use and agricultural preservation. Updated Farmland Preservation Soil and Water Standards are incorporated into this LWRM Plan, according to 92.104, 92.105, Wis. Statue, ATCP 50.16, Wis. Adm. Code, and related guidelines. Conformance with these standards is necessary for landowners to remain eligible for farmland tax credits. The Douglas County Land Conservation Committee submitted, draft standards to the Department of Agriculture, Trade, and Consumer Protection (DATCP) for review in September of 2004. The Land and Water Conservation Board approved the Douglas County Soil and Water Conservation Standards on April 5, 2005.

Douglas County's Zoning Ordinances are intended to regulate land uses and prevent soil loss from erosion. They are consistent with state standards set forth in applicable WI Statutes and Administrative Rules.

Even with the decline in farm numbers, agriculture still plays a major role in the economy and environment of Douglas County. Most Douglas County farmers recognize the environmental and economic benefits of proper use and management of nutrients and pesticides. Funding through local, state and federal agencies has been available to producers on a limited basis, yet fixed farm cost remain the same or increase. The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) along with the DNR, have completed legislation that will require more of farmers for manure and nutrient management, protection of soil resources and additional measures for shoreland management. The Land Conservation Committees and their

⁷ Minnesota DNR. *A Field Guide to Aquatic Exotic Plants and Animals*. Exotic Species Program- Minnesota Sea Grant. 1995.

staff are charged with implementing these requirements for the two state agencies. A list of priority farms will be developed based on conditions of storage structures and feed lots, cattle accessibility to streams, and nutrient management and soil erosion control. A program will be implemented to address these issues as well as a way to fund these projects and direct priorities. The land conservation staff will assist in implementing this program as time permits.

Forestry

Forests provide many sustainable economic benefits, habitat for plants and animals and recreational opportunities for Douglas County. Forest management is a vital component of the county’s economy. A properly managed forest can provide wildlife habitat and forest products and contribute to watershed health. The majority of forest land is held privately. Table 5 lists public ownership of lands in Douglas County:

TABLE 5: Publicly Owned Conservation & Recreation Land In Wisconsin⁸	
<i>Land type</i>	<i>Acres</i>
County Parks & Forests	270,813
Total DNR	52,432
Federal Government	0
Total Publicly Owned Land	323,245

Poor forest management practices and unmanaged forests can contribute to sedimentation and increased peak flows in a watershed. Soil compaction, poorly designed stream crossings, harvesting on steep slopes and over-cutting all degrade a watershed. Studies on the Nemadji River watershed indicate that over-cutting a watershed leaves too many young aged stands (0-15 yr) that will not adequately hold snow cover in the spring. This causes increased peak flow events and contributes to instability of streams in the watershed.

Forestry best management practices have been developed for areas such as the Nemadji River watershed through the Nemadji River Basin Project. The recommended basin-wide guidelines are available through the LWCD. Recommendations for properly managed forests also include the use of Wisconsin’s Forestry Best Management Practices for Water Quality. The Douglas County Forestry Department updated their 15-year forest management plan in 2008.

Recreation

Recreation and tourism are important to Douglas County. 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 the natural scenic beauty, to name a few.

Abundant and clean water draw many visitors to the area. 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.⁹ Trails may experience erosion

⁸ Wisconsin Blue Book 2003-2004.

⁹ Wisconsin DNR. *Wisconsin’s Forestry Best Management Practices for Water Quality Field Manual*. Publication #FR093. 1995. Page 13.

resulting in situations where pristine resources may be affected. User conflicts may also arise. Specific examples of impacts from recreational activities include:

- Soil erosion on recreational trails, campsites, 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 Douglas County waters.

Urban

The 2000 population estimate for Douglas County is 43,287. About 63% of these people live in the City of Superior. Superior's population has remained fairly constant over the last ten years as it has throughout the rest of the county. However, increasing pressure to develop areas along shorelines has had an impact. The general trend of increasing seasonal residency continues, mostly in the St. Croix Basin around lakes and rivers. Much of what was once agricultural land in Douglas County has been converted to recreational land.

Urban areas pose many threats to water quality. Large scale development, addition of impervious surface, storm drains, and filling wetland areas all cause significant problems for the natural movement of water through a watershed. Additional pollutants from oil, petroleum, road salt, lawn fertilizers and herbicides, debris and industrial waste are carried down the storm drains and are generally untreated. These pollutants cause increased water temperatures, flooding, decreased oxygen levels, streambank erosion and increased sedimentation.

The City of Superior has special problems as most of the city is constructed on wetlands and because of its proximity to the mouth of the Nemadji River. Any development must go through extensive review. Efforts should be made to revitalize the downtown area of the city in order to reduce the acres of wetland that are filled in order to maintain as much of the wetlands in the watershed as possible. Both temporary and permanent erosion and sediment control best management practices must be installed and inspected during construction and maintenance of buildings and the city's infrastructure. Many of the impaired waters listed in Appendix A(I), are located within the city limits. Remediation of these waters must be addressed, both in the water and at the source of contamination.

Another urban issue of concern is the recent beach closings along portions of Lake Superior in and near the City of Superior. The beaches are closed when bacteria levels are found at concentrations that are unsafe for human contact. While the cause and effects of this problem are not yet known, this is an issue that concerns the residents of Douglas County. The term urban also refers to development around lakes, rivers and wetlands.

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

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 the construction site 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.

NR243

The NR243 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 LCC and LWCD are responsible for implementation of this program.

Cropland Soil Erosion Control Plan

Douglas County received a waiver from the requirement that they 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 Douglas County. The waiver was granted by the Wisconsin Land and Water Conservation Board and the Department of Agriculture, Trade & Consumer Protection January 29, 1998 and is found in Appendix D.

NR151 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 is part of 8 WDNR rules that address runoff pollution, the major cause of polluted waters in Wisconsin and the United States.

NR151 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 NR151, 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 Douglas County approach to NR151 was developed during the 2004/05 planning process. The LCC intends to maintain the same general approach developed in the 2004 planning process through the year 2020.

Additional State Regulations

A companion rule, NR 154 of Wisconsin's Runoff Management Program 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.

- NR 154: Best Management Practices, Conditions and Standards (mirrored in ATCP 50)

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

- NR 120 Priority Watershed and Priority Lake Program
- NR151 Runoff Management (Performance Standards and Prohibitions)
 - Subchapter II: Agriculture Performance Standards
 - Subchapter III: Non-Agricultural Standards
 - Subchapter IV: Transportation Performance Standards
- NR152 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

AGRICULTURAL PERFORMANCE STANDARDS AND PROHIBITIONS

Agricultural Standards

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 in 2005 for high priority areas such as impaired or ORW/ERW and 2008 for all other areas.

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 in 2005 for high priority areas such as impaired or ORW/ERW and 2008 for all other areas.

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 newly constructed or substantially-altered structure.
- 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 up-gradient 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 Douglas County. There are activities included in this plan to assist other agencies in implementing the Non-Agricultural Performance Standards. LWCD will continue to provide plan review and technical recommendations to partner agencies and departments as time allows.

Adopted 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 1000 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 nutrient 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.

County Regulations

Appendix A(B) details specific county ordinance requirements along with Figure 12 showing the zoning districts in Douglas County. Douglas 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 BMPs for the protection of soil and water resources. Local regulations/ordinances currently in place include:

- Douglas County Shoreland Zoning Ordinance including Lakes Classification (Zoning)
- Non-Metallic Ordinance (Zoning & LCC)
- Private On-site Waste Treatment Systems Ordinance (POWTS) (Zoning)

In 2004, the Douglas County Board amended the Shoreland Zoning Ordinance to change the way legal pre-existing structures may be enlarged or structurally altered. Restoring shoreland vegetation buffers is an important component of this amendment. The *Lake Classification, Zoning Schedule* – containing dimensional requirements for property within shorelands, and the *Dimensional Requirements for Lake Classes* are found in Appendix B of this document. The complete Douglas County Shoreland Zoning Ordinance can be viewed on-line at www.douglascountywi.org or obtained from the Douglas County Zoning Department.

Other Voluntary Conservation Initiatives

In addition to state and local regulations, Douglas 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 a recent reference, “*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 Table 6.

Access roads and cattle crossings	Nutrient management
Animal trails and walkways	Pasture & hayland management
Barnyard runoff control systems	Pesticide management
Contour farming	Prescribed grazing
Critical area stabilization	Relocating/abandoning animal feeding operations
Diversions	Riparian buffers
Field windbreaks	Roof runoff systems
Filter strips	Soil & water protection & improvement
Fisheries habitat enhancement	Streambank & shoreline protection
Grade stabilization structures	Timber stand improvement
Grassed waterway	Water & sediment control basins
Heavy use protection	Well decommissioning
Livestock fencing	Wetland development or restoration
Livestock watering facilities	Wildlife habitat enhancement
Manure storage systems	Windbreak/hedgerow establishment

Conclusion

Volume I provides readers with background information about Douglas County. More detailed information regarding past plans, studies, management guides and initiatives is found in Appendix A of this document.

Volume II outlines the goals, objectives and activities for the Douglas County Land Conservation Committee and LWCD. An educational strategy is developed for each resource goal. While some activities are required by state statute, priorities were determined by work group participants and the Land Conservation Committee. Volume II also includes an implementation plan that prioritizes activities, and lists the partners and resources needed to implement each activity, along with annual benchmarks.

Volume II. Plan Implementation

Volume II addresses implementation of the NR151 standards in detail, presents goals, objectives and activities for plan implementation, and includes a detailed plan of work. The work plan lists partners, hours and funding needed, and annual benchmarks. Priority activities are identified in both the list of activities and in the work plan.

NR151 Implementation in Douglas County

Aside from an agricultural facility siting ordinance, Douglas 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 NR151 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 NR243 program. *(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 and in return received an estimated 10% of the cost of conservation practice construction for their services.

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

Douglas 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

If needed, priority areas will be targeted for voluntary and educational efforts based on their potential impacts to natural resources. Landowners wishing to receive cost-sharing, compete for limited funds and technical support through the LWCD's annual ranking process. Ranking sheets are in place for agricultural projects, shoreland restoration projects, and miscellaneous projects. The ranking sheets will be updated to reflect the priorities shown in the implementation strategy below. The number of projects ranked in any given year is variable.

Implementation Strategy for NR 151 Agricultural Nonpoint Performance Standards

Implementation Considerations

The Douglas 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, 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;
- 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 to 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 (BMP)s

Additional funding sources available or committed

Project addresses more than one NR151 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

Douglas 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) NR151 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.¹⁰
- 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 county and or state. 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 Douglas County Corporation Counsel.

¹⁰Livestock 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 that 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, 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

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 NR151 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 an 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., or is in breach of a cost share contract under component 5.A., the LCC may choose to 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. *A breach of contractual agreement including failure to install, implement, or maintain BMPs according to the provisions of the agreement occurs OR 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 NR151.

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, (ideally measurable) 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 (e.g., 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)¹¹

Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions, and recreational and scenic values.

Goal 2. Protect and understand groundwater quality to supply clean water for drinking and recharging surface waters and wetlands.

Goal 3. Prevent the introduction and spread of aquatic and terrestrial invasive species to protect aquatic habitat and resource values.

Guiding Principles

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

¹¹ These goals are listed in order of priority.

Objectives¹²

Surface Waters and Wetland Objectives

Wetlands

- A. Protect wetlands from the impacts of development (agriculture, forestry, residential).
- B. Support the preservation of tracts of land where priority wetlands are present.
- C. Restore wetlands.

Lakes and Streams

- A. Protect surface water from the impacts of development (agricultural, forestry, residential).
- B. Watersheds are inventoried and well understood (land use, groundwater flow and nutrients, habitat, hydrology).
- C. Lakes and rivers water quality and critical habitat area information is available.

Priorities for surface water protection and enhancement.

- ORW/ERW waters
- 303(d) listed waters
- Designated critical habitat areas
- Priority watersheds
- Priority lakes

Mitigating Impacts of Development

(Objective A for wetland, lakes, and streams)

- A1. Shorelands are managed to limit impacts of residential development.
 - Shoreland buffers that meet county standards are in place.
 - Septic systems are maintained appropriately.
 - Zoning development standards to protect waterways are met or exceeded.
 - Stormwater runoff and erosion are minimized in shoreland areas.
- A2. Impacts from road construction, maintenance and other activities on public lands are minimized.
- A3. The NR 151 Non Agricultural Standards are supported.

¹² Objectives are listed in order of priority.

- A4. Agricultural owners meet the NR 151 Performance Standards.
- A5. Impacts from nonmetallic mining are minimized.
- A6. Private and public landowners follow forestry best management practices for water quality protection.
- A7. Open land is converted to conifer forest to minimize the impacts of snowmelt runoff in the Lake Superior Basin. (recommendation from Comparative Analysis Project)

Groundwater Objectives

- A. A baseline inventory of drinking water quality is available in Douglas County.
- B. Potential impacts to groundwater are minimized (road salt, herbicides, etc.).
- C. Private wells are properly sealed and closed when not in use.
- D. Manure storage systems follow standards to protect groundwater.

Aquatic Invasive Species

Goal 1: Aquatic invasive species (AIS) infestations already existing in the county are controlled or eradicated and prevented from spreading; new AIS infestations are prevented.

Goal 2: Communication between lake and river residents, watershed groups, visitors, and other waterway organizations is improved and education is provided for all users.

Goal 3: The county and towns participate in the protection of water resources and understand how critical the resource is to the County, northern Wisconsin and the region.

Goal 4: Funding for AIS research, monitoring, planning, restoration and education activities are adequately provided by private, local, county, state, federal, and tribal sources.

Implementation Activities¹³

Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions, and recreational and scenic values.

Wetland Objectives

- A. Protect wetlands from the impacts of development (agricultural, forestry, residential).
- B. Support the preservation of tracts of land where priority wetlands are present.
- C. Restore priority wetlands.

Wetland Specific Activities

- 1. Support efforts to preserve priority wetlands. This may come in the form of letters of support for grant projects or facilitating transfer of ownership for conservation set aside of priority wetlands. (OBJ A C)**
2. Provide suggestions to mitigate the potential impacts to wetlands as requested by the Zoning Department, DNR, or private citizens. (OBJ A)
3. Provide technical assistance and cost sharing to private and public landowners for wetland restoration. (OBJ C)

WETLAND EDUCATION STRATEGY

Audiences

School groups
Public officials
Agricultural community
Landowners and managers
General public
Elected officials
Zoning committee members
Nonprofit organizations (for potential wetland acquisition)

Messages

Importance of wetlands as components of watersheds/basins
Economic/intrinsic values of coastal wetlands
Different types of wetlands have different values
Encourage increased wetland setbacks
Technical assistance is available to restore wetlands
Proper wetland restoration techniques and best management practices
Incentive programs such as the Wetland Reserve Program are available for wetland protection
Tools such as conservation easements, grants for land purchase, etc. are available for land protection

¹³ Priority activities are indicated in bold.

Education Activities

Newsletter articles (newsletters available for all strategies are listed below)

- Lake Superior grazing newsletter
- 4-County FSA/NRCS newsletter to registered producers
- Douglas County Extension newsletter (internal to Douglas Co departments and county board members)
- Northwest Wisconsin Extension newsletter (from Spooner office)
- Douglas County 4-H newsletter

News releases to local media

- Deliver presentations
- Develop county fair displays
- Landowner contacts to promote wetland restoration in targeted areas
- Workshops for contractors and developers

Lakes and Streams Specific Objectives

- A. Protect surface water from the impacts of development (agriculture, forestry, residential).
- B. Watersheds are inventoried and well understood (land use, groundwater flow and nutrients, habitat, hydrology).
- C. Lakes and rivers water quality and critical habitat area information is available.

Activities¹⁴

1. Review recommended actions of partner organization plans and support where consistent with water quality objectives. (OBJ A, B, and C)
2. **Identify water quality monitoring needs for lakes and streams and support volunteer monitoring efforts. (OBJ B)**
3. **Coordinate watershed plans for priority water bodies. (OBJ B and C)**
 - a. **Identify and prioritize focus areas**
 - b. **Solicit partners and funding sources**
 - c. **Gather study information**
 - d. **Develop management plans**
 - e. **Update cost share priorities to reflect plan recommendations**
4. Participate in the state and federal listing process by nominating new waters to these lists and providing supporting information where helpful for meeting water quality objectives. Examples include ORW/ERW waters, 303(d) lists, critical habitat designations, and wild and scenic rivers. (OBJ B and C)
5. Interpret, evaluate, and distribute water quality information to the county board, interested groups, and to the public via news releases. (OBJ C)

¹⁴ Priority activities are indicated in bold.

MEETING OBJECTIVE A

- A1. Shorelands are managed to limit impacts of residential development.
 - Shoreland buffers that meet county standards are in place.
 - Septic systems are maintained appropriately.
 - Zoning development standards to protect waterways are met or exceeded.
 - Stormwater runoff and erosion are minimized in shoreland areas.
- A2. Impacts from road construction, maintenance and other activities on public lands are minimized.
- A3. The NR 151 Non Agricultural Standards are supported.
- A4. Agricultural owners meet the NR 151 Performance Standards.
- A5. Impacts from nonmetallic mining are minimized.
- A6. Private and public landowners follow forestry best management practices for water quality protection.
- A7. Open land is converted to conifer forest to minimize the impacts of snowmelt runoff in the Lake Superior Basin. (recommendation from Comparative Analysis Project)

Residential Shorelands

- 6. Provide technical review of, or develop site plans for, shoreland zoning land use permit applicants. Provide on-site technical assistance as requested. (OBJ A1)**
- 7. Plan, design, and cost share practices to reduce nonpoint pollution. (OBJ A1)**
- 8. Provide on-site technical assistance (potentially including site plans) for properties in violation of the shoreland zoning ordinance. (OBJ A1)
- 9. Inspect previously installed best management practices. (OBJ A1)

Public Land

- 10. Identify erosion problems in public right of way or public lands and provide erosion control design assistance as requested. (OBJ A2)**
- 11. Inventory culverts for erosion and fish passage concerns and provide information for watershed planning efforts and/or notify landowners of potential problems. (OBJ A2)**
- 12. Provide cost sharing to address erosion and culvert concerns. (OBJ A2)**

Urban Stormwater Runoff

- 13. Assist other county departments in meeting stormwater requirements. (OBJ A3)**

- 14. Review and provide input on stormwater management plans as requested by the Zoning Department, DNR or private landowners. (OBJ A3)**

Agriculture

- 15. Provide cost sharing and technical assistance to agricultural producers to implement the NR151 agricultural performance standards. (OBJ A4)**

Note: see NR 151 agricultural implementation strategy [elsewhere in the plan]

16. Administer the Farmland Preservation Program. (OBJ A4)

17. Inspect previously installed agricultural best management practices (OBJ A4)

Nonmetallic mining

- 18. Provide technical review of NR 135 reclamation plans submitted by applicants as requested. (OBJ A5)**

- 19. Provide on-site technical assistance for NR 135 sites. (OBJ A5)**

Forestry

20. Coordinate and cooperate with DNR foresters to address soil and water issues through Forest Stewardship Management plans for the Managed Forest Law program. (OBJ A6)

21. Encourage farmers to plant trees, manage marginal pastures using forest management best management practices and participate in forest management programs. (OBJ A6)

22. Provide technical assistance to public and private land managers to implement forestry best management practices for water quality. (OBJ A6)

- 23. Assist with county, state, private industrial and forest cooperative owner's forest management plans to encourage implementation of recommendations from Phase II & III Comparative Analysis Project in the Lake Superior Basin. The main recommendation is conversion of open (grassland, wetland, young forest) to mature conifer forest. This may be implemented through CREP, Stewardship for Buffers Program, and NAWCA, among other programs. (OBJ A7)**

- 24. Seek funding in addition to the sources listed above to support mature conifer forest land cover. (OBJ A7)**

SURFACE WATER EDUCATION STRATEGY

Audiences

Elected officials
General public
Douglas County Association of Lakes and Streams
Individual lake associations
Agricultural community
Shoreland property owners
Prospective property owners
Realtors
Resource managers
Recreational users (ATV, jet ski)

Messages

Technical assistance is available for shoreland restoration
Buffers provide increased protection from runoff and nutrients, and help slow the flow of runoff water
Explain values of natural shorelands
Responsibilities of shoreland property owners
Failing septic systems impact surface water. Explain appropriate maintenance for septic systems.
What is stormwater runoff – it’s an urban & rural problem
“Slow the flow” - red clay soils and transition areas are susceptible to runoff
Manage open landscape (plant conifers) for watershed health
Promote use of Best Management Practices (BMPs) (shoreland, agriculture, forestry and construction site erosion control)
Encourage agricultural producers to implement agricultural performance standards
Conservation easements can be used to protect surface water
Promote local, state, and federal incentive programs
Buffers between agricultural activities and streams and lakes protect water quality.
Pesticides and herbicides impact surface water, but their impacts can be minimized.
Stream crossing and remote watering BMPs protect surface water.
Expand knowledge and involvement in ongoing watershed projects
Lessons/information from the Nemadji River Project
Promote DNR self help monitoring

Education Activities

Conduct workshops on the following topics:

Shoreland restoration and lawn care

Forest BMP workshops for private landowners (with field tours) (OBJ A7)

Roadside erosion control: culvert replacement and effects on stream habitat improvement

Comparative Analysis Project (for resource managers, planners, government officials)

Rural landownership in Douglas County

Newsletter articles, press releases

Provide information in the form of brochures and handouts at local zoning, UW Extension, and register of deeds offices

Develop presentations for outreach to agricultural landowners

Develop directory of regulatory, technical and financial assistance experts, and water quality links for website

Conduct an annual orientation for local officials about zoning and land conservation programs

Develop packets of information for agricultural landowners and distribute at agriculturally-focused events.

Goal 2. Protect and understand groundwater quality to supply clean water for drinking and recharging surface waters and wetlands.

Objectives

- A. A baseline inventory of drinking water quality is available in Douglas County.
- B. Potential impacts to groundwater are minimized (road salt, herbicides, etc.).
- C. Private wells are properly sealed and closed when not in use.
- D. Manure storage systems follow standards to protect groundwater.

Activities

- 1. Develop and implement a home well sampling program - at a minimum test for nitrates and bacteria. Record the results in a data base and map in a GIS. (OBJ A)**
- 2. Provide cost sharing and technical assistance for well closures. (OBJ C)**
- 3. Provide technical assistance in the planning, design, and construction or closure of manure storage facilities. (OBJ D)

GROUNDWATER EDUCATION STRATEGY

Audiences

General public
School students/teachers
Realtors
Elected officials

Messages

Groundwater quality is directly related to land use
Where does your drinking water come from?
Drinking water quality and effects land-use can have
Maintain and improve groundwater in Douglas County
It is easy and cost-effective to protect groundwater quality
Technical assistance and cost sharing is available for proper well abandonment
BMPs for hobby farms

Educational Activities

Newsletter articles, press releases and direct mail
Utilize groundwater models during presentations
Provide information packets to realtors regarding well closure
Coordinate with DCALS to distribute informational packets to lake and stream property owners

Goal 3. Prevent the introduction and spread of aquatic and terrestrial invasive species to protect aquatic habitat and resource values.

- 1. Distribute information regarding identification, threats, and appropriate actions to prevent introduction and spread of terrestrial invasive species such as the Emerald Ash Borer.**
- 2. Utilize native species in cost share practices and technical assistance recommendations whenever feasible. Prohibit the use of invasive species in cost share installations.**

Activities regarding aquatic invasive species are covered in detail in the Douglas County Aquatic Plant Management Strategic Plan.

Additional required activities assigned to the Land Conservation Department

- 1. Mitigate the impacts of wildlife damage to crops by implementing the Wildlife Damage Program.**
- 2. Administer the Environmental Reserve Project Fund Allocation.**

Land and Water Management Plan Implementation

1. Use the LWMP implementation chart to report progress toward meeting plan goals to the LCC, the Douglas County Board, DATCP, and potential grantors.
2. Identify and seek the resources needed to implement the LWRM plan. These resources may be in the form of grant support, DATCP funding, county funding, and partnerships.
3. Encourage citizen participation in LWMP activities through newsletter articles, web site, and other outreach tools.

Role of County in Plan Implementation

The Land Conservation Committee is responsible for oversight of the land and water resource management plan. 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.

Role of other Agencies and Institutions in Plan Implementation

A list of potential partners for implementation of the Land and Water Management Plan are 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 Douglas 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, other stabilization methods (USGS research)
- Access Management Plan for County Forestland
- Assistance/training with Conservation Reserve Enhancement Program
- Funding for Lake/River Planning and Protection
- Funding for cooperative projects with Carlton County Soil and Water Conservation District
- Funding for research to be conducted on new stabilization methods or geomorphic assessments proposed as part of an overall watershed study

List of LWMP Partners

CITY	City of Superior
DATCP	Wisconsin Department of Agriculture, Trade, & Consumer Protection
DCALS	Douglas County Association of Lakes & Streams
DCB	Douglas County Board of Commissioners
DCFD	Douglas County Forestry Department
DCFGL	Douglas County Fish & Game League
DCHD	Douglas County Highway Department
DCLCC	Douglas County Land Conservation Committee
DCUWEX	Douglas County University of Wisconsin Extension Department
DCZD	Douglas County Zoning Department
DNR	Wisconsin Department of Natural Resources
FOTBS	Friends of the Bird Sanctuary
FOTSCH	Friends of the St. Croix Headwaters
FSA	Farm Service Agency
GLC	Great Lakes Commission
LFC	Lake Superior Living Forest Cooperative
LSBP	Lake Superior Binational Program
LSRI	Lake Superior Research Institute
NOAA	National Oceanic & Atmospheric Agency
NRCS	Natural Resources Conservation Service
NWC	Northwoods Weed Cooperative
Pri-Ru-Ta	Pri-Ru-Ta Resource Conservation & Development
SLRA	St. Louis River Alliance (formerly SLRCAC, St. Louis River Citizens Action Committee)
T&V	Douglas County Towns and Villages
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish & Wildlife Service
UWEX	University of Wisconsin Extension
UWS	University of Wisconsin Superior
WCMP	Wisconsin Coastal Management Program
WLWCA	Wisconsin Land & Water Conservation Association
WSG	Wisconsin Sea Grant
WWA	Wisconsin Wetlands Association
WWLT	West Wisconsin Land Trust

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. These types include ambient or baseline monitoring, special project monitoring, long-term trend monitoring, and total maximum daily load monitoring. The DNR assembled a monitoring strategy that describes the need for various chemical, physical, habitat, and biological monitoring data. This strategy placed special emphasis on the WDNR's use of the USEPA STORET system.

Douglas 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 (identified in Appendix A) should be followed. Additional resources should be invested in these efforts by the agency.
2. DNR and Douglas County should continue to support lake and river groups in their efforts to pursue water quality management projects.
3. DNR and Douglas County should initiate a joint coordinated monitoring program (surface water and groundwater) to begin building baseline information where it is needed.
4. DNR and Douglas County LWCD should continue to encourage and support Self-Help lake monitoring.
5. DNR and Douglas County LWCD should involve school groups in monitoring program efforts to the extent practicable to promote public understanding.

Activities which emphasize monitoring are highlighted in the Work Plan tables on following pages.

Ongoing Monitoring

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

Resource	Program	Agency/group
Groundwater	Drinking Water Testing	UWEX, DNR, Zoning
Lakes	Self-Help Lake Monitoring	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
Lake Superior	Great Lakes Beach Testing	UWS, MN Sea Grant, Health Dept
Streams	Habitat Assessments	DNR
Wildlife	Loon Watch	Lake Volunteers, SOEI
Wildlife	Walleye Watch	Lake Volunteers

Citizen Monitoring

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

The DNR Self-Help Lakes Monitoring Program 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.

Douglas County Citizen WDNR Self-Help Monitoring Program	
LAKE NAME	YEAR STARTED
Amnicon Lake	1973
Bond Lake	1991
Coffee Lake	2007
Crystal Lake	1986
Cranberry Lake	2007
Crystal Lake	1999
Dowling Lake	1976
Gander Lake	2007
Lake Minnesuing	1972
Minong Flowage	2009
Person Lake	1999
Red Lake	1993
St. Croix Flowage	1993
Upper St. Croix Lake	1995
Whitefish Lake	1989

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. These and other signs of success will be reported in the annual plan accomplishment report.

LWCD Work Plan for Implementation in 2010-2011

Table 6: Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions and recreational and scenic values.⁶					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools (Annual Benchmarks)
Wetland Activities					
A and C	1. Support preservation of priority wetlands	DATCP DCFD DCHD DNR FOTSCH NRCS USACE WWA WWLT	40	\$100	Wetlands preserved (1)
A	2. Provide suggestions to mitigate impacts to wetlands	DCFD DCHD DCZD DNR DCB	20	\$100	As requested
C	3. Provide technical assistance and cost sharing for wetland restoration	DATCP DNR NRCS USACE USFWS	80	\$200	As requested
Lake and Stream Activities					
A, B, C	1. Consider and support recommended actions in partner plans	ALL PARTNER S	20	-	-

⁶ Priority activities are shown in bold.

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 6: Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions and recreational and scenic values.⁶

Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools (Annual Benchmarks)
B	2. Identify and support water quality monitoring <i>MONITORING</i>	DCALS DNR SLRA LSRI UWS LSRI	50	\$375	Water quality monitoring projects supported (1)
OBJ B and C	3a. Identify and prioritize focus areas for watershed plans	DNR DCALS DCFGL FOTSCH LSRI NRCS USFWS UWS	75	\$100	Identify top three priority areas and choose one with partner input
OBJ B and C	3b. Identify partners and funding sources for watershed plan	DNR EPA GLC NOAA USFWS WCMP	15	\$100	List of partners created (1) Funding established for initial studies (\$ as need is identified)
OBJ B and C	3c. Identify studies needed, develop methodologies and gather study information <i>MONITORING</i>	DNR NRCS LSRI USFWS UWS	150	\$25,000	Studies identified (1) Methodologies established (1) Inventories/studies completed (1)
OBJ B and C	4. Participate in listing of water bodies	DNR DCALS DCFGL FOTSCH	10	\$100	List of recommended waterbodies created (1)

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A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 6: Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions and recreational and scenic values.⁶					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools (Annual Benchmarks)
OBJ C	5. Interpret, evaluate, and distribute water quality information	DNR DCALS DCUWEX DCZD FOTSCH UWEX	30	\$250	As needed
Residential Shorelands					
OBJ A1	6. Review or develop site plans for land use permits	DCZD DNR	100	\$400	Plans reviewed as requested Method for site plan development established (1)
OBJ A1	7. Plan, design and cost share BMPs	DATCP DNR	100	\$35,000	Prioritized BMPS installed as requested
OBJ A1	8. Review or develop site plans for zoning violations	DCZD DNR	30	\$400	Plans reviewed as requested Site plans developed (10)
OBJ A1	9. Inspect previously installed BMPs	DCZD DNR	200	\$3,000	Inspect 30% of BMPs installed from 2004-2009 (contingent on ability to obtain funding for intern)
Public Land					
OBJ A2	10. Erosion control assistance for public land	DCHD T&V DCFD	75	\$125	As requested
OBJ A2	11a. Culvert inventory	DCHD T&V FOTSCH DCFGL WCMP	250	\$2,250	Complete inventory of 20% of county (contingent on ability to obtain funding for intern and participation by volunteers)

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 6: Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions and recreational and scenic values.⁶					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools (Annual Benchmarks)
OBJ A2	11b. Share culvert inventory information	DCHD DNR DCFGL DCB FOTSCH T&V	15	\$125	Presentations to share culvert information (2)
OBJ A2	12. Provide cost sharing to replace culverts and address erosion concerns	DATCP DNR DCHD DCB USFWS T&V WCMP	75	\$10,000	Culverts installed (10 per year) Critical areas stabilized as requested
Urban Stormwater Runoff					
OBJ A3	13. Assist county departments in meeting stormwater requirements	DCHD DCFD CITY	50	\$125	Designs reviewed as requested Designs prepared as requested
OBJ A3	14. Review stormwater management plans	DCZD DNR	15	\$100	Plans reviewed as requested
Agriculture					
OBJ A4	15a. Provide on-site visits for the NR 151 implementation	DATCP DNR	75	\$200	On site visits (10)
OBJ A4	15b. Design and cost share BMPs	DATCP DNR NRCS	250	\$35,000	BMPs designed (5) BMPs installed (5)
OBJ A4	15c. Complete NR151 compliance reviews	DATCP DNR	30	\$200	Compliance reviews completed (10)
OBJ A4	16. Administer the Farmland Preservation Program	DATCP	30	\$125	Self-reporting forms completed (16)

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 6: Goal 1. Protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions and recreational and scenic values.⁶					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools (Annual Benchmarks)
OBJ A4	17. Inspect previously installed BMPs	DATCP NRCS	125	\$200	Inspections completed of 30% of BMPs installed from 2004 – 2009 per year
Non-metallic mining					
OBJ A5	18. Review NR135 reclamation plans	DCZD DNR	60	\$100	Plans reviewed as requested
OBJ A5	19. Provide on-site technical assistance for NR135 plans	DCZD DNR	50	\$125	Site visits completed as requested
Forestry					
OBJ A6	20. Support MFL plans	DNR	8	\$50	Provide assistance as requested
OBJ A6	21. Encourage farm tree planting	DNR UWEX NRCS	10	\$250	Provide newsletter article (1) Provide info to FPP participants Discuss during all farm visits
OBJ A6	22. Provide technical assistance for forestry WQ BMPs	DNR NRCS	80	\$125	Provide assistance as requested
OBJ A7	23. Encourage conifer tree planting (comparative analysis project) in forest plans	DNR LSRI NRCS LFC UWEX	120	\$125,000	Provide plan input as requested; Distribute info to landowners in targeted watershed; Provide cost sharing in targeted watershed to re-forest 500 acres
OBJ A7	24. Seek funding to support conifer tree planting	DNR LSRI NRCS UWEX USFWS	20	\$100	Funding secured (\$)
	TOTAL		2,258	\$214,125	

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 7: Goal 2. Protect and understand groundwater quality to supply clean water for drinking and recharging surface waters and wetlands.

Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools (Annual Benchmarks)
OBJ A	1. Develop home well sampling program <i>MONITORING</i>	UWEX DCB DNR DCB UWS	120	\$10,000	Number of wells sampled (100)
OBJ C	2. Provide cost sharing and technical assistance for well closures	DATCP NRCS DCZD	40	\$1,500	Number of wells closed (3)
OBJ D	3. Manure storage system installation or closure	DATCP NRCS	75	\$250	As needed
	TOTAL		235	\$10,175	

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 8: Goal 3. Prevent the introduction and spread of aquatic and terrestrial invasive species to protect aquatic habitat and resource values.					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools
	1. Distribute information regarding ID, threats, and actions to prevent terrestrial IS	UWEX DNR NWC	10	\$500	Brochures distributed (500) Locations of distribution (LWCD, DCZD, DCFD, DCUWEX, CITY)
	2. Utilize native species and not invasives in cost share practices	NRCS DNR DCB	-	-	All BMP installations will use native species
ADDITIONAL ACTIVITIES AND COSTS DETAILED IN AIS STRATEGIC PLAN					
Program to be funded through grant dollars to be identified in Strategic Plan.					

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 9: Implementing Educational Strategies				
Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools
Newsletter articles	DCUWEX UWEX DCALS	10	-	Articles submitted (4)
News releases to local media	DCUWEX UWEX DCALS	10	-	News releases submitted (4)
Workshops a) Shoreland BMPs b) Culvert Inventory	a) CITY DCALS LSRI DNR b) DCHD T&V FOTSCH DNR	a) 50 b) 30	a) \$1,000 b) \$1,000	Workshops completed (2)
Distribute handouts and brochures	All partners	10	\$1,500	Locations for distribution (CITY, DCZD, DCFD, DNR, DCUWEX, NRCS, UWEX)) Direct mail pieces distributed (250)
Presentations for agricultural landowners	NRCS Pri-Ru-Ta FSA UWEX	10	\$250	Presentations completed (1)
Directory of experts and web links	All partners	10	-	Directory completed (date)
Conduct annual orientation of local officials	DCLCC DCB LSRI T&V	24	\$500	Orientation completed (1)
TOTAL		154	\$4,250	

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 10: Additional required LWCD Activities					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools
	1. Administer the Wildlife Damage Program	DNR	0	\$35,000 (Contract costs)	Farmers assisted as requested
	2. Administer the Environmental Reserve Project Fund Allocation	DCLCC DCB	30	\$250	Highest ranking projects supported
	3. Administration of LWCD	DCLCC	830	\$12,500	
	TOTAL		860	\$47,750	

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 11: Land and Water Management Plan Implementation					
Objective	Activity	Partners	Staff Hours Needed (annually)	Additional Costs (Annual \$)	Evaluation Tools
	1. Use the LWMP implementation plan to track and report progress	DCB DCLCC	20		
	2. Identify and seek resources needed for the plan	DATCP DNR DCB DCLCC	40		
	3. Encourage citizen participation in plan activities		20		
	TOTAL		60		

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

LWCD Work Plan for Implementation in 2010-2011

Table 12: Summary of Land and Water and General LWCD Work Plan.

Goal	LWCD Hours Needed (annually)	Funding Needed Annually (not including staff)	Funds Available	Unmet Funding Needs (not including staff)
<i>Wetland and Surface Water</i>	2,258	\$214,125		
<i>Groundwater</i>	235	\$10,175		
<i>Invasive Species</i>	10	\$500		
<i>Education Strategies</i>	154	\$4,250		
<i>Other Priorities and Admin.</i>	860	\$47,750		
<i>LWMP Implementation</i>	60	\$0		
<i>TOTAL</i>	3,577	\$276,800		

Objectives are listed in Volume II along with more detailed description of each action. Hours are estimated for Douglas County Land and Water Conservation Department only. Staff costs are not reported here. They may range from \$10 - \$40 per hour depending upon how needs are met.

A list of partners is found on page 45.

Appendix A: Other Resource Management Plans

Every effort was made to include strategies outlined in other resource management plans to determine the goals and objectives of the Douglas County Land & Water Resource Management Plan. Past efforts reviewed during the planning process include:

- A. Water Quality Management Plans
 - 1. Lake Superior Basin WQM
 - 2. St. Croix Basin WQM
- B. Nonpoint Source Control Plan - Upper St. Croix & Eau Claire Rivers
- C. Plan for the Resources of Douglas County Soil & Water Conservation District
- D. County Farmland Preservation Plan for Douglas County
- E. Red Clay Project
- F. Northern Initiatives
- G. Northern Rivers Initiative
- H. Wisconsin's Section 303(d) Waterbody Program
- I. Nemadji River Basin Plan
- J. Priority Wetland Sites of Wisconsin's Lake Superior Basin
- K. Northwest Sands Landscape Level Management Plan
- L. Rare Threatened and Endangered Species and Natural Communities in Douglas County
- M. Special Designations for Douglas County Waters (NR102)
- N. Common Aquatic Exotic Invasive Species
- O. Douglas County Draft Land Use Plan
- P. Douglas County Forest Comprehensive Land Use Plan
- Q. Douglas County Land Access Management Plan
- R. Douglas County Draft Aquatic Invasive Species Strategic Plan
- S. Lake Superior Management Plan (LaMP)
- T. Great Lakes Strategy
- U. Hog Island/Newton Creek Draft Ecological Restoration Master Plan
- V. Nemadji River Basin Management Plan
- W. Brule Forest Restoration Plan
- X. Whitefish Lake Management Plan
- Y. Minong Flowage Management Plan
- Z. St. Croix Headwaters Management Plan

A brief discussion of each water quality effort and resulting recommendations are listed in the following text:

A. Water Quality Management Plans (WQM Plans)

Water Quality Management Plans (WQM Plans) outline recommendations for actions that agencies (state, local and federal), organizations, communities, counties, and industries need to take to improve, protect, and enhance water resources in a given basin. WQM Plans are required by Section 208 of the Federal Clean Water Act.

The recommended actions outlined in each WQM Plan are a result of an analysis of available water quality data and other information by the Wisconsin Department of Natural Resources (WDNR). Since many areas of each basin lacked current data, one of the major goals for each plan is to conduct water quality monitoring.

Portions of the Lake Superior Basin and St. Croix River Basin lie within Douglas County. A brief summary of the WQM Plans basin-wide recommendations and goals that relate to or complement the goals of the Douglas County Land & Water Resource Management Plan are summarized below.

1. WQM Plan - Lake Superior Basin, WDNR, March 1999

Wisconsin's Lake Superior Basin area includes all the shoreline to Lake Superior and all tributary watersheds that drain to the lake from Wisconsin. Water quality in this region is generally very good. Localized impacts from municipal and industrial wastewater discharges have had a significant affect on water quality. 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, sedimentation from logging sites, and construction-site erosion.

Basin-wide Resource Management Issues:

- point source pollution management
- lake management
- toxic pollution management
- nonpoint source pollution management
- surface water monitoring and assessment needs

Basin-wide Recommendations:

- water quality monitoring
- 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

St. Louis & Lower Nemadji Rivers Watershed Recommendation:

- reduce streambank pasturing by enacting a county agricultural shoreland ordinance

Information & Education Recommendation:

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

2. WQM Plan - St. Croix River Basin, WDNR, February 1994

The St. Croix River originates at Upper St. Croix Lake near Solon springs in Douglas County, Wisconsin and flows approximately 160 miles to join the Mississippi River at Prescott, Wisconsin. The St. Croix River basin drains 4,828 square miles in Wisconsin.

Basin-wide Issues:

- control agricultural nonpoint source water pollution
- reduce or eliminating the impacts of urban development on lake water quality
- identify sources of metals and other toxic substances
- protect endangered resources
- achieve compliance with all Wisconsin Pollutant Discharge Elimination System (WPDES) permits

Basin-wide Recommendations:

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

Lakes Report

All lakes are important as valuable natural resources, but because of the large number of lakes in the St. Croix drainage basin, the number of lakes were limited in this plan to named lakes 10 acres or larger and unnamed lakes 25 acres or larger.

Lake issues and recommendations include:

- lack of water quality monitoring and water quality data *(All lakes 100 acres or more with a public access and a game fish fishery, have been designated as high priority for fish tissue monitoring for mercury contamination. Water quality assessment monitoring is recommended as a high-priority activity for 160 lakes in the St. Croix Basin. This monitoring could be conducted by the Bureau of Water Resources Management staff or by lake groups under a Lake Planning Grant study.)*
- need to organize lake management programs throughout the basin *(The lake management program shares responsibility for taking lake protections action with the University of Wisconsin-Extension, local units of government, lake districts and associations, and lake-specific conservation and community groups. There are seven subprograms administered by the lakes management program that directly affect lakes which include: Self-Help Monitoring, Long-Term Trend Monitoring, Aquatic Plant Management Program, NR 119-Lake Planning Grants, NR 191-Lake Protection Grants, Priority Lake Projects, and EPA Clean Lake Grant)*

B Nonpoint Source Control Plan for the Upper St. Croix - Eau Claire Rivers

Douglas County, DNR and DATCP, 1997 (publication WT489-97)

The 180.5 square mile Upper St. Croix - Eau Claire Rivers Watershed was designated a “priority watershed” in 1994 and is part of the St. Croix River Basin. The plan was approved by Douglas County, the Land and Water Conservation Board and WDNR in 1997. The Project’s Partnership Group, along with Douglas County Forestry and Land Conservation, DNR staff, and UW Extension identified priority issues for nonpoint pollution reduction in the watershed.

The most important issues identified were:

- Develop watershed related education programs and promotional activities.
- Development pressures and improved riparian area management.
- Road maintenance and construction activities.
- Development of strong watershed management activities.

Watershed management recommendations:

- Educational programs & promotion
- Development and riparian management
- Road maintenance and construction
- Development of strong watershed management activities
- Forest management strategies – use and promote Forestry BMPs
- Designation of aquatic plant community “sensitive areas”
- Agriculture management strategies - agriculture shoreland management, nutrient and pest management, and manure storage

C A Plan for the Resources of Douglas County Soil & Water Conservation

District

Douglas County, 1981

Authorized under Chapter 92, Wis. Stats., Soil and Water Conservation Districts (SWCD) had the responsibility for developing resource conservation programs for the county. The plans served as the basis for developing the SWCD’s annual plan of work and gave direction to SWCD operations. The Douglas County plan identified the following issues in their 1981 Resource Conservation Plan:

The most important issues identified were:

- Agriculture
 - protect soil resources
 - preserve and protect prime agriculture lands
 - protect water resources
- Forestry
- Protect resource base for fiber production
- Provide growth opportunities
- Protection of public lands
- Multiple use opportunities
- Roadside erosion control
- Identification and protection of sensitive/critical habitats
- Recreation

Plan Goals:

All items identified as plan issues were to be addressed. However, no staff were available to implement the plans. Many of the issues identified in these plans continue to be priority concerns.

D County Farmland Preservation Program

Douglas County, 1982

The Douglas County Board adopted a resolution in 1980 requesting state funds to prepare county-wide Farmland Preservation Plans under the Wisconsin Farmland Preservation Act. The intent of each plan is to protect each county’s farmland from potential development and to help guide future development. Producers enrolled in this state program are eligible for tax relief in return for developing a soil and water conservation plan for their farm. Issues leading to the development of the County Farmland Preservation Plans include:

The most important issues identified were:

- Maintain and preserve agricultural land
- Promote urban and nonurban growth

- Development improvements
- Preserve critical environmental and significant physical & cultural areas

Plan Goals:

All issues identified were to be addressed, however, staff will need appropriate training to provide support to implement the program.

FPP updated policy – Douglas County requires that owners with new agreements certify meeting the new soil and water conservation standards including agricultural performance standards identified as priorities in that county’s approved Land and Water Resource Management Plan. New agreements will be reviewed at least every six years based upon the priorities established in that county’s approved Land and Water Resource Management Plan.

E Red Clay Project Report

EPA, 1980

The Red Clay Project in the Lake Superior Basin was a research and demonstration project sponsored by five Soil & Water Conservation Districts (SWCDs) from two states during the period from 1974-1980. The SWCDs were charged with the task of seeking practical solutions to the many forms of red clay erosion and the resulting water quality problems.

NPS pollution, especially in the red clay region, has historically degraded water quality and fisheries habitat. Much of this naturally occurring bank erosion is difficult to control on a wide scale. However, efforts to better plan upland land uses and management objectives can have a significant impact on the hydrology of the area. Issues identified during the project planning include:

The most important issues identified were:

- shoreline and stream bank stability
- general slope stability
- roadside erosion control
- nonpoint source pollution
- contaminated sediments
- loss of fish habitat
- land use
- forest management

Plan Goals:

- streambank and roadside erosion control
- shoreline stabilization
- water quality monitoring
- rainfall and temperature monitoring

F Northern Initiatives: A Strategic Plan for the Next Decade

Department of Natural Resources, 1995

The *Northern Initiatives Project* began in 1993 when Secretary George Meyer asked the three northern districts to study the DNR’s impact on this region. An internal review of DNR regulations and policies revealed that the DNR plays a larger role in the economic well-being of northern Wisconsin than it does in other regions of the state. Staff concluded this was due to so much of the north’s economy being based on tourism and recreation, forestry, and the area’s national reputation for clean air, water and soil.

As a result of these findings, DNR held 20 town meetings across northern Wisconsin with more than a thousand people attending. They also surveyed youth in the region and a focus group in southern Wisconsin. The theme was “You talk, we’ll listen.” The major issues emerging from these open houses included:

The most important issues identified were:

- the quickening pace of change in the north
- impacts of shoreline development
- concerns about mining
- forest management practices
- the DNR’s role in the north
- land use

Plan Goals:

- Involve citizens in DNR decision-making.
- Foster greater understanding between the public and the DNR.
- Long-range resource planning.
- Recognize the important role of the DNR in the north.
- Reshape the DNR’s programs and decision-making for northern Wisconsin.

Update: Northern Initiatives Mid-Term Report Card 1996-2000, August 2000

The mid term report provides a look at the Northern Initiatives Lakes & Shoreland s accomplishments over the past five years. Accomplishments include:

* Education: workshops, forums, conferences, videos, educational CD presentations, slide shows, pamphlets, and web sites.

* Voluntary Conservation: The Wild Lakes list was updated and the Northern Rivers list created. Burnett County initiated a program of property tax credit incentives in exchange for landowners protecting and restoring shoreland habitat.

* Technical Assistance: DNR, UWEX, and WAL have increased staff to assist local governments with lake classification efforts, amend shoreland zoning ordinances, secure funding for land use planning grants, and provide educational programs.

G Northern Rivers Initiative

DNR, etal, 2000

The Department of Natural Resources spearheaded the *Northern Rivers Initiative* in order to develop a classification system for northern Wisconsin rivers and streams. This system used known information relative to “values” associated with streams, including *natural resource values*, *recreational values*, and *cultural values*.

Table 14: Listing of Douglas County’s major rivers and streams and their ranking throughout the *Northern Rivers Initiative* project. This list is still in draft format.

Table 14: Douglas County River Classification (<i>Northern Rivers Initiative Draft Listing</i>)		
<i>river</i>	<i>segment</i>	<i>county rank</i>
St. Croix River	Seg. 1: origin to St. Croix Flowage	1
E Fk Bois Brule River	All	2
W. Fk Bois Brule River	All	3
Bois Brule River	All	4
St. Louis River	All	5
Angel Creek	All	6
Totogatic River	Seg 2: Colton Flowage dam to Minong flowage	7
Little Bois Brule River	All	8
Black River	All	9
Jerseth Creek	All	10
St. Croix River	Seg 6: St. Croix Flowage to county line	11
Spruce River	All	12
<i>river</i>	<i>segment</i>	<i>county rank</i>
Wilson Creek	All	13
Red River	All	14
Upper Ox Creek	All	15
Moose River	All	16
Percival Creek	All	17
Amnicon River	All	18
Blueberry Creek	All	19
Rocky Run	All	20
Arnold Creek	All	21
Un Creek (T48NR10W,S35 NE NW)	All	22
Cranberry Creek	All	23
Nebagamon Creek	Seg 1: down from CTH B	24
Casey Creek	All	25
St Croix Creek	All	26
Potter Creek	All	27
Nemadji River	All	28
Bacon Creek	All	29
Eau Claire River	All	30
Crotte Creek	All	31
Lower Ox Creek	All	32
Catlin Creek	Seg 2: mouth to Porcupine Creek	33

Little Amnicon River	All	34
Sandy Run	All	35
Poplar River	All	36
Smith Creek	All	37
Trask Creek	All	38
Kasper Creek	All	39
Balsam Creek	Seg 1: headwater to falls at T46N R15W S29 NE	40
Pokegama River	All	41
Copper Creek	All	42
Chases Brook	All	43
Bear Creek T 49N R 13W S34 NE	All	44
Upper Tamarack River	All	45
Nebagamon Creek	Seg 2: above CTH B	46
Little Balsam Creek	All	47
Balsam Creek	Seg 2: falls at T46N R15W S29 NE to Nemadji R.	48
Un Creek (T47N R15W,S23 SE NE)	All	49
Hansen Creek	All	50
Un Creek (T47N R10W,S3)	All	51
Bluff Creek	All	52
Catlin Creek	Seg 1: headwater downstream to Porcupine Cr.	53
Un Creek (T47N R10W,S18 SE SE)	All	54
Beebe Creek	All	55
Un Creek (T47N R10W,S34 SWNE)	All	56
Middle River	All	57
Rock Creek	Seg 2: mouth to Town Rd Middle S20	58
<i>river</i>	<i>segment</i>	<i>county rank</i>
Un Creek (T47N R10W,S14 SWNE)	All	59
Un Creek (T47N R10W,S29)	All	60
Miller Creek	All	61
Un Creek (T47N R10W,S4 NW SE)	All	62
Minnesuing Creek	All	63
Un Creek (T47N R11W,S34 NE NE)	All	64
Empire Creek	All	65
Ounce River	All	66
Un Creek (T47N R10W,S4)	All	67
Un Creek (T46N R15W,S7 NE SE)	All	68
Un Creek (T47N R10W,S5)	All	69
Silver Creek	All	70
Un Creek (T47N R10W,S11 NESW)	All	71
Un Creek (T47N R10W,S17)	All	72
Un Creek (T48N R10W,S35)	All	73
Un Creek (T47N R10W,S17)	All	74

Un Creek (T47N R10W,S21)	All	75
Un Creek (T47N R14W,S22 NE NE)	All	76
Un Creek (T48N R12W,S4 SW NE)	All	77
Un Creek (T47N R11W,S35 NWSE)	All	78
Un Creek (T47N R11W,S35 NWSE)	All	79
Bear Creek T46N R14W,S23 SW	All	80
Un Creek (T47N R10W,S21 SWSW)	All	81
Hay Creek	Seg 2: headwaters to T42N R14W,S11 SE	82
Rock Creek	Seg 1: Town Rd Middle S20 upstream to headwaters	83
Bardon Creek	All	84
Un Creek (T47N R10W,S21)	All	85
Anderson Creek	All	86
Un Creek (T47N R11W,S35 NE SE)	All	87
Un Creek (T47N R11W,S36)	All	88

H Wisconsin's Section 303(d) Waterbody Program

DNR, 1998 (year 2000 update not available)

The US Environmental Protection Agency (EPA), under the Clean Water Act (s. 303(d)), requires states to list those waters which are not meeting water quality standards. Both water quality criteria for specific substances and the designated uses are used as the basis for development of *total maximum daily loads (TMDLs)*. This list is known as the *impaired waters list*. Table 15 is a comprehensive listing of Douglas County waters included on the Wisconsin 303(d) list.

Table 15: Wisconsin 303(d) List

<i>Water Body Name</i>	<i>Water Body Code</i>	<i>Basin</i>	<i>Impact</i>	<i>Priority Rank</i>	<i>Source of Impact</i>
Allouez Bay AOC	2751400	LS01	Hg,pcb FCA	med	CS, Other
St Louis Bay AOC		LS01	Hg,pcb FCA	med	CS, Other
St Louis River AOC	2843800	LS01	Hg,pcb FCA	med	CS, Other
Superior Bay AOC	2751300	LS01	Hg,pcb FCA	med	CS, Other
<i>Water Body Name</i>	<i>Water Body Code</i>	<i>Basin</i>	<i>Impact</i>	<i>Priority Rank</i>	<i>Source of Impact</i>
Hog Island Inlet AOC		LS01	pah, petroleum	high	CS, Pt. Source
Amnicon Lk		LS03	Hg, FA	low	Atm Dep
Crawford Creek	2835500	LS01	pah, petroleum	med	CS,
Crawford Creek Trib.		LS01	Aq. Toxicity	med	Koppers Site, CS
Minong Flowage		SC20	Hg, FA	low	Atm Dep
Newton Creek	2843650	LS01	Hg,pcb FCA	med	CS
Red Lake		SC20	Hg, FA	low	Atm Dep
St. Croix Flowage		SC18	Hg, FA	low	Atm Dep

CS (contaminated sediments), Atm Dep (Atmospheric Deposition), Pt Source (point source of pollution), Other (several sources of contamination), Names of known point sources of pollution may be listed.

I Nemadji River Basin Project

Erosion and Sedimentation in the Nemadji River Basin NRCS, USFS, Jan. 1998

Due to concern over accelerated pollution of the Great Lakes, the U.S. and Canada entered into the Great Lakes Water Quality Agreement (WQA) in 1972. Subsequent amendments to the agreement resulted in the designation of 43 “Areas of Concern.” The St. Louis River System as one of these areas, and the Nemadji River is a subwatershed of this system.

Remedial Action Plans (RAPs) for these “Areas of Concern” were formulated to implement provisions of the WQA and restore beneficial uses to those areas. The RAP committee enlisted the assistance of Carlton County Soil and Water Conservation District, the Douglas County Land Conservation Committee, and the Onanegozie Resource Conservation and Development Council. The result was the *Nemadji River Basin Project*.

The ultimate long-term goal of the recommendations is to restore beneficial uses to the Nemadji River system. It is recognized that the watershed has accelerated erosion due mainly to an alteration in the hydrologic processes of the watershed. Specific hydrologic processes requiring restoration include:

- decreased runoff volumes and peak discharges through increased infiltration
- “de-channelizing” runoff paths from uplands to main channels
- re-establishing healthy riparian corridors, and
- maintaining diverse land cover conditions.

Some short-term goals include for the watershed include:

- prevent further degradation of hydrologic condition,
- maintain economic viability for the current land users, and
- formulate partnerships that can coordinate land use decisions.

Objectives and action strategies devised to meet the short-term goals:

1. **Coordinate Forestry Management** - Coordinate logging activities that would benefit the hydrology of the watershed include the following:
 - a. On a small hydrologic basis, ensure that no more than 40 percent of the area is in open land and young forest.
 - b. Develop a coordinated, watershed-wide logging transpiration plan.
 - c. Coordinate activities within the defined riparian zone to maintain physical continuity of that zone throughout a hydrologic unit.
 - d. Develop forest harvesting research proposals and seek funding for proposals.
2. **Agriculture Waste Management Systems and Nutrient Management** - A livestock concentration inventory was completed in early 1995 which showed 85 sites in Minnesota and 42 sites in Wisconsin. Of the 127 total sites, 51 were rated as high hazard for surface or groundwater pollution potential. Agriculture waste management usually involves on-site animal waste storage or filtering whereas nutrient management includes the proper management and planned application of one or both inorganic (commercial) and organic (animal waste) fertilizers and nutrients. Recommendations for implementation of agricultural objectives include:
 - a. Increase planning and monetary assistance to implement the nutrient management and waste management objectives.
 - b. Potentially high hazard livestock concentration areas should receive priority technical assistance.

- c. Implement a first level awareness nutrient management education effort
 - d. Inform local agribusiness of the efforts of the Nemadji River Basin Project.
 - e. Reduce impacts of livestock grazing by using rotational or controlled grazing and other pasture management techniques. This will reduce compaction and produce healthier vegetation to reduce water yield from pastures.
 - f. Eliminate or control livestock access to riparian zone and stream channels.
3. **Engineering Techniques** - Conventional engineering techniques reduce erosion and prevent downstream transport of sediments and could involve the following:
- a. Implement grade controls using drop structures to reduce downcutting.
 - b. Perform streambank and stream toe protection.
 - c. Improve drainage of slopes which are unstable due to high soil water content.
4. **Wetland Enhancement and Creation** - Wetland enhancement and creation can improve water quantity and quality and wildlife conditions within a watershed. Water quantity benefits include reduction of peak flows by virtue of the storage properties of the wetland and maintaining base flows by acting as a groundwater recharge areas.
5. **Erosion Control with Soil Bioengineering/Geotechnical Construction Techniques** - Soil bioengineering/geotechnical construction offers a promising alternative to traditional riparian engineering techniques. These techniques combine mechanical, biological, and ecological concepts and treatments to reduce slope failures and erosion. Recommendation:
- a. Where possible use soil bioengineering/geotechnical construction to incorporate large woody debris, such as root wads, into streams. It is highly recommended that a person with considerable experience in soil bioengineering techniques be consulted prior to planning these systems. Rosgen's stream classification, or a similar system should be used.
6. **Open Land Management** - Open land management is maintaining a small percentage of the area of a subwatershed in a condition devoid of large overstory trees and usually vegetated by healthy growth of native grasses, forbs, and shrubs. These open lands are not generally grazed by livestock, but are left unmanaged. Recommendations include:
- a. Work with state and local wildlife managers and conservationists to create an inventory of current/planned open areas. Maintain this inventory on a GIS System.
 - b. Encourage all resource managers to consider benefits of maintaining open area.
 - c. Encourage landowners to include input from wildlife managers, foresters, and conservationists when deciding on options for land use conversion.
 - d. Open and young forest area should not exceed 40 percent of the area by watershed planning unit. Discourage tree planting initiatives in subwatersheds where the percent open and young forest area is less than 20 percent.
7. **Riparian Zone Management** – Recommendations include:
- a. Continue forestry coordination in the watershed that was begun by the Nemadji River Basin Project.
 - b. Provide financial incentives, educational opportunities, and technical assistance to landowners to enable them to manage their riparian zones for stream ecosystem improvement.
 - c. Create a riparian management zone for streams in the Nemadji River Basin.
 - d. Manage the riparian zone for large woody debris.

- e. Livestock use of the riparian zone should be managed to prevent the loss of benefits from other uses.
 - f. Take precautions to avoid blocking floodplain when building a road across a stream.
 - g. Where roadbeds cross floodplain, use long bridges, multiple elevation culverts, or rock fords rather than single culverts in the streambed.
8. **Roadside Erosion Management** - One percent of all watershed erosion in the Nemadji River Basin is estimated to be from roadside erosion, which represents over 3,000 tons per year. Also roads and ditches increase peak flows and streambank erosion. Recommendations include:
- a. Continue coordination of the transpiration committee and meet annually to discuss progress on practices and recommendations.
 - b. Utilize statewide Best Management Practice Standards and Specifications and modify practices to address unique soil, runoff, and vegetation establishment problems.
 - c. Research measures that have been used in other areas dealing with same soil.
 - d. More frequent use of traverse drains, ditch blocks, etc. to reduce road ditch flow.
 - e. Develop a prioritization system using the roadside erosion inventory.
 - f. Work with township road supervisors to inventory and prioritize existing erosion problems on minimum maintenance roads.
 - g. Complete work on two or more problem sites each summer in each county.
 - h. Try bioengineering in select locations for erosion control.
 - i. Minimize road building in the red-clay area of the watershed.
 - j. Conduct workshops for road construction contractors to discuss special problems of working with red-clay soil in the watershed.
 - k. Gate and close “problem” minimum maintenance roads and other travel ways during wet times of year.
 - l. Coordinate construction of logging roads among different logging companies to minimize total miles of roads.
 - m. Work the Department of Tourism to educate people on the hydrologic impacts from rutting and soil compaction due to careless use of recreational vehicles.
9. **Upland Forest Management** – Recommendations include:
- a. Continue forestry coordination in the watershed that began with the Nemadji River Basin Project by forming Forestry Coordination Committee.
 - b. Open area percent within a subwatershed unit not exceed 40 percent.
 - c. Manage forest land for species and land cover diversity.
 - d. Encourage the Wisconsin BMP Committees to accelerate the BMP monitoring process on red-clay soils.
 - e. Increase the amount of forestry technical assistance available to non-industrial private forest landowners.
 - f. Encourage non-industrial private forest landowners to manage their forest land.
 - g. Encourage the use of a logging contract on all timber sales.
 - h. Ongoing research on forest hydrology, causes slumping in clay soils, logging BMP’s and soil compaction caused by logging equipment should be monitored.

10. **Inventory and Data Needs** - The following items were identified as important to the ultimate success of completing the goals and objectives of this plan:
- Stream system should be classified using a geomorphic approach as outlined by Rosgen (1994).
 - A watershed-wide Geographic Information System (GIS) database would be extremely useful in future implementation efforts.
 - complete soil survey for Douglas County
 - Geographic Information System (GIS) data layers including soils, cover type, habitat type, ownership, zoning, etc.
 - method for integrating land records with offices working with landowners
 - complete surface and groundwater surveys
 - evaluate and prioritize water bodies for eligibility in DNR's nonpoint pollution program and for generally addressing nonpoint pollution through various other federal, state, and private funding sources

J Priority Wetland Sites of Wisconsin's Lake Superior Basin

Bureau of Endangered Resources, WDNR, 1997

This field manual identifies 30 priority wetland sites and 18 priority aquatic sites within the Lake Superior Basin. The DNR Lake Superior Basin Water Quality Management Plan also lists these priority wetland sites.

K Northwest Sands Landscape Level Management Plan

NWRPC and WDNR, December 2000

This report presents the result of a landscape level management planning effort for the northwest sands area. The area is 1 of 17 ecological landscapes identified in the National Hierarchical Framework of Ecological Units. The purpose of the plan was to produce a comprehensive database of information for the area and to identify opportunities that individual jurisdictions could consider acting on within their individual areas of responsibility.

L Rare, Threatened and Endangered Species and Natural Communities in Douglas County

DNR Natural Heritage Inventory, Wisconsin DNR, <http://www.dnr.state.wi.us>. July 1998.

Table 16: Rare, Threatened and Endangered Species and Natural Communities in Douglas County

PLANTS		
Common Name	Species Name	Wisconsin Status*
Adder's Tongue	<i>Ophioglossum vulgatum var pseudopodum</i>	Special Concern
American Shore-Grass	<i>Littorella Americana</i>	Special Concern
Arrow-Leaved Sweet Coltsfoot	<i>Petasites sagittatus</i>	Threatened
Autumnal Water-Starwort	<i>Callitriche hermaphroditica</i>	Special Concern
Brown Beakrush	<i>Rhynchospora fusca</i>	Special Concern
Canada Gooseberry	<i>Ribes oxycanthoides</i>	Threatened
Common Bog Arrow-Grass	<i>Triglochin maritimum</i>	Special Concern
Crawe Sedge	<i>Carex crawei</i>	Special Concern

*** Wisconsin Status:**

Endangered – continued existence in Wisconsin is in jeopardy

Threatened – appears likely, within the foreseeable future, to become endangered

Special Concern – species for which some problem of abundance or distribution is suspected but not yet proven.

Rule: protected or regulated by state or federal legislation or policy; neither endangered nor threatened.

* indicates a candidate for federal listing

** indicates federally endangered or threatened

PLANTS		
Common Name	Species Name	Wisconsin Status*
Crinkled Hairgrass	<i>Deschampsia flexuosa</i>	Special Concern
Dwarf Milkweed	<i>Asclepias ovalifolia</i>	Threatened
Fairy Slipper	<i>Calypso bulbosa</i>	Threatened
Fir Clubmoss	<i>Lycopodium selago</i>	Special Concern
Floating Marsh-Marigold	<i>Caltha natans</i>	Endangered
Flodman Thistle	<i>Cirsium flodmanii</i>	Special Concern
Fragrant Fern	<i>Dryopteris fragrans remotiuscula</i>	Special Concern
Ground-Fir	<i>Lycopodium sabinifolium</i>	Special Concern
Hill's Thistle	<i>Cirsium hillii</i>	Threatened*
Hooker Orchis	<i>Platanthera hookeri</i>	Special Concern
Lapland Buttercup	<i>Ranunculus lapponicus</i>	Endangered
Large-Flowered Ground-Cherry	<i>Leucophysalis grandiflora</i>	Special Concern
Large Roundleaf Orchid	<i>Platanthera orbiculata</i>	Special Concern
Large Water-Starwort	<i>Callitriche heterophylla</i>	Threatened
Leafy White Orchis	<i>Platanthera dilatata</i>	Special Concern
Lesser Wintergreen	<i>Pyrola minor</i>	Endangered
Marsh Grass-Of-Parnassus	<i>Parnassia palustris</i>	Threatened
Marsh Horsetail	<i>Equisetum palustre</i>	Special Concern
Marsh Ragwort	<i>Senecio congestus</i>	Special Concern
Marsh Willow-Herb	<i>Epilobium palustre</i>	Special Concern
Mingan's Moonwort	<i>Botrychium minganense</i>	Special Concern
Mountain Cranberry	<i>Vaccinium vitis-idaea ssp minus</i>	Endangered
Northeastern Bladderwort	<i>Utricularia resupinata</i>	Special Concern
Northern Black Currant	<i>Ribes hudsonianum</i>	Special Concern
Northern Bur-Reed	<i>Sparganium glomeratum</i>	Threatened
Oregon Woodsia (Tetraploid)	<i>Woodsia oregana var cathcartiana</i>	Special Concern
Purple Clematis	<i>Clematis occidentalis</i>	Special Concern
Richardson Sedge	<i>Carex richardsonii</i>	Special Concern
Rugulose Grape-Fern	<i>Botrychium rugulosum</i>	Special Concern
Russet Cotton-Grass	<i>Eriophorum chamissonis</i>	Special Concern
Seaside Crowfoot	<i>Ranunculus cymbalaria</i>	Threatened
Sheathed Sedge	<i>Carex vaginata</i>	Special Concern
Showy Lady's -Slipper	<i>Cypripedium reginae</i>	Special Concern
Slender Spike-Rush	<i>Eleocharis nitida</i>	Special Concern
Slim-Stem Small Reedgrass	<i>Calamagrotis stricta</i>	Special Concern
Small Yellow Lady's-Slipper	<i>Cypripedium parviflorum</i>	Special Concern
Small Yellow Water Crowfoot	<i>Ranunculus gmelinii var hookeri</i>	Endangered
Sparse-Flowered Sedge	<i>Carex tenuiflora</i>	Special Concern
Swamp-Pink	<i>Arethusa bulbosa</i>	Special Concern
Tea-Leaved Willow	<i>Salix planifolia</i>	Threatened
Torrey's Bulrush	<i>Scirpus torreyi</i>	Special Concern
Variiegated Horsetail	<i>Equisetum variegatum</i>	Special Concern
Vasey Rush	<i>Juncus vaseyi</i>	Special Concern
Veined Meadowrue	<i>Thalictrum venulosum</i>	Special Concern

ANIMALS			
Common Name	Species Name	Wisconsin Status*	Taxa
American Bittern	<i>Botaurus lentiginosus</i>	Special Concern	Bird
American Wigeon	<i>Anas Americana</i>	Special Concern	Bird
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Special Concern**	Bird
Black Tern	<i>Chlidonias niger</i>	Special Concern*	Bird
Black-Throated Blue Warbler	<i>Dendroica caerulescens</i>	Special Concern	Bird
Cape May Warbler	<i>Dendroica tigrina</i>	Special Concern	Bird
Caspian Tern	<i>Sterna caspia</i>	Endangered	Bird
Cerulean Warbler	<i>Dendroica cersdea</i>	Threatened*	Bird
Common Tern	<i>Sterna hirundo</i>	Endangered*	Bird
Connecticut Warbler	<i>Oporornis agilis</i>	Special Concern	Bird
Evening Grosbeak	<i>Coccothrausters vespertinus</i>	Special Concern	Bird
Gray Jay	<i>Perisoreus Canadensis</i>	Special Concern	Bird
Great Blue Heron	<i>Ardea herodias</i>	Special Concern	Bird
Kirtland's Warbler	<i>Dendroica kirtlandii</i>	Special Concern**	Bird
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	Special Concern	Bird
Least Bittern	<i>Ixobrychus exilis</i>	Special Concern	Bird
Merlin	<i>Falco columbarius</i>	Special Concern	Bird
Northern Goshawk	<i>Accipter gentiles</i>	Special Concern	Bird
Northern Harrier	<i>Circus cyaneaus</i>	Special Concern	Bird
Osprey	<i>Pandion haliaetus</i>	Threatened	Bird
Pine Siskin	<i>Carduelis pinus</i>	Special Concern	Bird
Piping Plover	<i>Charadrius melodus</i>	Endangered**	Bird
Sharp-Tailed Grouse	<i>Pedioecetes phasianellus</i>	Special Concern	Bird
Upland Sandpiper	<i>Bartramia longicauda</i>	Special Concern	Bird
Yellow-Bellied flycatcher	<i>Empidonax flaviventris</i>	Special Concern	Bird
A Predaceous Diving Beetle	<i>Hydroporus pseudovilis</i>	Special Concern	Beetle
A Tiger Beetle	<i>Cicindela patruela patruela</i>	Special Concern	Beetle
Bog Cooper	<i>Lycaena epixanthe</i>	Special Concern	Butterfly
Bog Fritillary	<i>Boloria eunomia</i>	Special Concern	Butterfly
Brown Arctic	<i>Oeneis chryxus</i>	Special Concern	Butterfly
Cobweb Skipper	<i>Hesperia metea</i>	Special Concern	Butterfly
Dorcas Copper	<i>Lycaena dorcas</i>	Special Concern	Butterfly
Dusted Skipper	<i>Atrytonopsis hianna</i>	Special Concern	Butterfly
Common Bog Arrow-Grass	<i>Triglochis maritimum</i>	Special Concern	
Freija Fritillary	<i>Boloria Freija</i>	Special Concern	Butterfly
Frigga Fritillary	<i>Boloria frigga</i>	Special Concern	Butterfly
Jutta Arctic	<i>Oeneis jutta ascerta</i>	Special Concern	Butterfly
Little Glassy Wing	<i>Pompeius verna</i>	Special Concern	Butterfly
Mottled Dusky Wing	<i>Erynnis martialis</i>	Special Concern	Butterfly
Purple Lesser Fritillary	<i>Boloria titania</i>	Special Concern	Butterfly
Red-Disked Alpine	<i>Erebia discoidalis</i>	Special Concern	Butterfly
Amber-Winged Spreadwing	<i>Lesters eurinus</i>	Special Concern	Dragonfly
Aurara Damselfly	<i>Chromagrion conditum</i>	Special Concern	Dragonfly
Black Meadowhawk	<i>Sympet rum danae</i>	Special Concern	Dragonfly
Black-Tipped Darner	<i>Aeshna tuberculifera</i>	Special Concern	Dragonfly

*** Wisconsin Status:**

Endangered – continued existence in Wisconsin is in jeopardy

Threatened – appears likely, within the foreseeable future, to become endangered

Special Concern – species for which some problem of abundance or distribution is suspected but not yet proven.

Rule: protected or regulated by state or federal legislation or policy; neither endangered nor threatened.

* indicates a candidate for federal listing

** indicates federally endangered or threatened

ANIMALS			
Common Name	Species Name	Wisconsin Status*	Taxa
Ebony Bog Haunter	<i>Williamsonia fletcheri</i>	Special Concern	Dragonfly
Forcinate Emerald	<i>Somatochlora forcipata</i>	Special Concern	Dragonfly
Gloyd's Bluet	<i>Enallagma vernale</i>	Special Concern	Dragonfly
Green-Striped Darner	<i>Aeshna verticalis</i>	Special Concern	Dragonfly
Kennedy's Emerald	<i>Somatochlora kennedyi</i>	Special Concern	Dragonfly
Lake Darner	<i>Aeshna eremita</i>	Special Concern	Dragonfly
Pronghorned Clubtail	<i>Gomphus graslinellus</i>	Special Concern	Dragonfly
Pygmy Snaketail	<i>Ophiogomphus howei</i>	Threatened	Dragonfly
Riffle Snaketail	<i>Ophiogomphus carolus</i>	Special Concern	Dragonfly
Ski-Tailed Emerald	<i>Somatochlora elongata</i>	Special Concern	Dragonfly
Zebra Clubtail	<i>Stylurus scudderi</i>	Special Concern	Dragonfly
American Eel	<i>Anguilla rostrata</i>	Special Concern	Fish
Banded Killifish	<i>Fundulus diaphanous</i>	Special Concern	Fish
Gilt Darter	<i>Percina evides</i>	Threatened	Fish
Greater Redhorse	<i>Moxostoma valenciennesi</i>	Threatened*	Fish
Lake Herring	<i>Coregonus artedi</i>	Special Concern	Fish
Lake Sturgeon	<i>Acipenser fulverscens</i>	Special Concern*	Fish
Least Darter	<i>Etheostoma microperca</i>	Special Concern	Fish
Southern Brook Lamprey	<i>Ichthyomyzon gagei</i>	Special Concern	Fish
Weed Shiner	<i>Notropis texanus</i>	Special Concern	Fish
A Bizarre Caddisfly	<i>Lepidostoma libum</i>	Special Concern	Insect
Franklin's Ground Squirrel	<i>Spermophilus franklinii</i>	Special Concern	Mammal
Lynx	<i>Lynx Canadensis</i>	Special Concern*	Mammal
A Caenid Mayfly	<i>Caenis youngi</i>	Special Concern	Mayfly
Buck Moth	<i>Hemileuca maia</i>	Special Concern	Moth
Newman's Brocade	<i>Meropleon ambifusca</i>	Special Concern	Moth
Elktoe	<i>Alasmidonta marginata</i>	Special Concern*	Mussel
Purple Wartyback	<i>Cyclonaias tuberculata</i>	Endangered	Mussel
Round Pigtoe	<i>Pleurobema sintoxia</i>	Special Concern	Mussel
Four-Toed Salamander	<i>Hemidactylium scutatum</i>	Special Concern	Salamander
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened*	Turtle
Wood Turtle	<i>Clemmys insculpta</i>	Threatened	Turtle

*** Wisconsin Status:**

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NATURAL COMMUNITIES		
Important examples of the following natural community types have been found in this county. Although communities are not legally protected, they are critical components of Wisconsin's biodiversity and may provide the habitat for rare, threatened and endangered species.		
Alder Thicket	Lake-Deep, Soft, Seepage	Northern Wet Forest
Bird Rookery	Lake Dune	Northern Wet-Mesic Forest
Black Spruce Swamp	Lake—Oxbow	Open Bog
Boreal forest	Lake—Shallow; Soft; Drainage	Pine Barrens
Dry Cliff	Lake—Soft Bog	Poor Fen
Emergent Aquatic	Mesic Floodplain Terrace	Shrub-Carr
Floodplain Forest	Migratory Bird Site	Spring Pond
Great Lakes Beach	Northern Dry Forest	Springs and Spring Runs; Hard
Hardwood Swamp	Northern Dry-Mesic Forest	Springs and Spring Runs; Soft
Interdunal Wetland	Northern Mesic Forest	Stream—Fast; Soft; Cold
Interior Beach	Northern Sedge Meadow	Tamarack Swamp

*** Wisconsin Status:**

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M Special Designations for Douglas County Waters (NR102 WI Admin. Code)

Table 17: Special Designations for Douglas County Waters				
Name of Water Body	Outstanding Resource Waters (OWR)	Exceptional Resource Waters (EWR)	National Wild & Scenic River	State Wild & Scenic River
St. Croix River	✓		✓	
Bois Brule River and its tributaries	✓			✓
Bond Lake	✓			
Lower Eau Claire Lake	✓			
Nebagamon Lake	✓			
St. Croix (Gordon) Flowage	✓			
Upper St. Croix Lake	✓			
Whitefish (Bardon) Lake	✓			

N Common Aquatic Exotic Species*

<i>Species</i>	<i>Type</i>	<i>Habitat</i>	<i>threat</i>
Ruffe	Fish	Rivers, bays around Lake Superior	Threatens yellow perch, emerald shiners and other forage fish
Zebra Mussel	bivalve	Great Lakes & inland lakes	Clog intake pipes, severely reduce or eliminate native mussels
Spiny Water Flea	Tiny crustacean	Great Lakes & inland lakes	May out compete native perch for food
Eurasian watermilfoil	Aquatic plant	Lakes	Forms dense mats, crowds out native vegetation
Purple loosestrife	Wetland plant	Marshes, lakeshores, drainage ditches, canals	Overruns native wetland species, forms impenetrable stands unsuitable for wildlife food and nesting cover
Round goby	Bottom-dwelling fish	Great Lakes & inland lakes	Compete with sculpins and log perch
Sea Lamprey	Eel-like fish	Great Lakes and tributaries	Threatens whitefish and trout populations
Rusty crayfish	Crustacean	Inland lakes and streams	Severely reduces native aquatic plant populations
White perch	Fish	Great Lakes	Threatens walleye populations
Flowering rush	Aquatic plant	Lakes	Crowds out native bulrush
Curly-leaf pondweed	Aquatic plant	Lakes	Forms dense surface mats

*Additional information regarding exotic species found in Wisconsin can be found on DNR's website at <http://www.dnr.state.wi.us/org/land/er/invasive/index.htm>.

O Douglas County Draft Comprehensive Land Use Plan

Douglas County is in the process of completing a county wide comprehensive land use plan coordinated by the North West Regional Planning Commission (NWRPC). Steps have been taken to include all county plans in the draft Comprehensive Land Use Plan. Approval of the draft plan by the County Board is expected in December 2009. The final draft Comprehensive Land Use Plan can be found on the Douglas County website at the following address:
www.douglascountywi.org

P Douglas County Forest Comprehensive Land-Use Plan 2006-2020

The Douglas County Forestry Department takes great pleasure in announcing that the Douglas County Forest Comprehensive Land-Use Plan 2006-2020 with its supporting Access Management Plan and Appendixes, has been completed after years of planning and development.

The plan was approved by the Douglas County Forest, Parks, and Recreation Committee on February 25, 2008 and formally presented to and approved by the full County Board of Supervisors on March 20, 2008. Final approval by the WDNR Division of Forestry was received on May 13, 2008.

The Plan reflects the uniqueness of the Douglas County Forest and presents how it will be managed, used and developed, how it will look, and the benefits it will provide over the course of the 2006 - 2020 planning period. It is intended to inform both the public and resource managers of the many planned uses and management activities of the forest. The department is committed to sustainable management; an approach that incorporates ecological, economic, and social benefits for current and future generations.

<http://www.douglascountywi.org/countydepartments/forestry/Forest%20Comprehensive%20Land-Use%20Plan%202006-2020/Forestry%20Comp%20Plan.htm>

Q Douglas County Land Access Management Plan

In 2008, the Douglas County Forest Access Management Plan was adopted as the Forestry Department's comprehensive approach to access management on the Douglas County Forest. The plan was developed to provide users of the forest a wide array of experiences, including those for both motorized and non-motorized pursuits. Objectives of the plan development were as follows:

- Ensure sustainability of natural resources
- Provide a range of opportunities for all users
- Minimize conflict between users
- Ensure public safety for all users

Additional information and the entire plan may be found on the Douglas County website at the following address:

www.douglascountywi.org

R Douglas County Aquatic Invasive Species Strategic Plan

The Douglas County Aquatic Invasive Species Strategic Plan (AIS Plan) (expected to be completed at the end of 2009) addresses control and containment of new and existing populations of AIS in county waterways. It was funded by a one-year grant from the Wisconsin DNR Aquatic Invasive Species Grant Program. Additional funding will be pursued in 2010 to implement the AIS Plan. Major plan elements include contracting with an AIS coordinator over three years to direct inspection, education, volunteer monitoring, and cooperation and collaboration with local waterway groups, municipalities and other county departments. It also provides initial funding for a research contract to begin developing a long-range research and monitoring plan for the county.

The plan may be accessed via the Douglas County website or by contacting the Douglas County Land & Water Conservation Department.

<http://www.douglascountywi.org/countydepartments/landconservation/landconservation.htm>

S Lake Superior Management Plan (LaMP)

One of the most significant environmental agreements in the history of the Great Lakes was put in place with the signing of the Great Lakes Water Quality Agreement of 1978 (GLWQA), between the United States and Canada. This historic agreement committed the U.S. and Canada (the Parties) to address the water quality issues of the Great Lakes in a coordinated, joint fashion. The purpose of the agreement was to "restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem" (IJC 1993). The 1987 amendment to the GLWQA required the development of Lakewide Management Plans (LaMPs) which "shall embody a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses...they are to serve as an important step toward virtual elimination of persistent toxic substances..." This document represents the current LaMP for Lake Superior.

The Great Lakes Water Quality Agreement specifies that the LaMPs are to be completed in four stages. However, under a streamlined LaMP review and approval process, the LaMPs now treat problem identification, selection of remedial and regulatory measures, and implementation as a concurrent, integrated process rather than a sequential or staged one. In the Lake Superior LaMP,

Stages 1 and 2 for critical chemicals were completed before the decision was made to integrate. Stage 3 was merged into LaMP 2000 as the critical chemicals chapter. To date, no other LaMP has a load reduction schedule for critical pollutants as required by the agreement.

In addition, the LaMPs go beyond the requirement of a LaMP for critical pollutants and use an ecosystem approach, which integrates environmental protection and natural resource management. LaMP progress is now reported every two years. Adaptive management is used to allow the process to change as needed by building upon successes, accepting new information and drawing from public involvement and input. The LaMP therefore, can be adjusted over time to respond to the most pertinent issues facing the lake ecosystem. Additional details on this can be found in Chapter 1. The Lake Superior LaMP is unique because of an additional agreement between the federal governments, states and province surrounding Lake Superior. Announced in 1991, the agreement, called the “Binational Program to Restore and Protect the Lake Superior Basin,” established a Zero Discharge Demonstration Program and a broader ecosystem approach.

The LaMP/Lake Superior Binational Program contains appropriate funded and proposed (nonfunded) actions for restoration and protection to bring about actual improvement in the ecosystem. Actions include commitments by the Parties, governments and regulatory programs, as well as suggested voluntary actions that could be taken by non-governmental partners. LaMP 2000 identified these actions in six ecosystem themes: critical pollutants, aquatic communities, terrestrial wildlife communities, habitat, human health, and developing sustainability. A LaMP update in 2002 reported on the success of those actions, and identified challenges remaining to achieve established goals and ecosystem objectives.

More information can be found at:

<http://epa.gov/greatlakes/lamp>

T Great Lakes Strategy

In 2006, the Wisconsin Department of Natural Resources’ (WDNR) Office of the Great Lakes, with the help of countless individuals and organizations, began developing a Wisconsin specific strategy to parallel the Great Lakes Regional Collaboration Strategy. Called the **Wisconsin’s Great Lakes Strategy** (Strategy), it brought together information from the various past planning efforts to build a comprehensive state action agenda. The strategy will serve as the vehicle for coordinating and allocating resources and will better position Wisconsin to begin program and project implementation in the event that significant funding comes from the US Congress for the restoration of the Great Lakes.

The strategy is, and rightfully needs to be, a dynamic document. The Office of the Great Lakes began seeking input for an update in the fall of 2008 relying on both internal and external partners to provide input on new issues and priorities. The updated strategy reflects these changes and recommended actions since 2006, including recognition of the potential impacts from a changing climate.

<http://dnr.wi.gov/org/water/greatlakes/wistrategy/wigreatlakesstrategydraft3.pdf>

U Hog Island/Newton Creek Ecological Restoration Master Plan

The Hog Island and Newton Creek Ecological Restoration Master Plan provides a “blueprint” for the restoration of natural communities and ecosystem processes for Newton Creek, the Hog Island Inlet, and Hog Island in Superior, Wisconsin. Historically, this area has been contaminated by industrial discharges and a former municipal combined sewer overflow. From 1997 to 2005, multiple partners remediated the contaminated sediments in Newton Creek and Hog Island Inlet. Through a process of stakeholder engagement and collaboration, this Ecological Restoration Master Plan intends to build upon the success of these remediation efforts by proposing a guiding “vision” as well as specific goals, objectives, and actions that will help to restore terrestrial, riparian, wetlands, and aquatic habitats; increase ecosystem biodiversity and resilience; and reduce threats to the natural communities in the area. It also intends to increase environmental awareness, community enjoyment, and economic vitality through passive recreational, educational, and stewardship opportunities. The Ecological Restoration Master Plan incorporates specific recommendations of the existing St. Louis River Habitat Plan, and attempts to address a suite of beneficial use impairments within the St. Louis River watershed. Hog Island, Hog Island Inlet, and Newton Creek lie within the St. Louis River watershed that drains into Superior harbor, at the westernmost tip of Lake Superior. Newton Creek is a 1.5 mile long perennial stream that originates from a large wetland complex and the discharge of the Murphy Oil refinery. It meanders through open wetland, grassland, and woodland areas before the channel straightens into the residential areas of the City of Superior and drains into Hog Island Inlet. The 17-acre inlet supports shallow water habitats including wetlands and mudflats. Hog Island itself is an artificial island, created in the 1920s and 1930s from dredge spoils from Superior harbor. It has developed a diverse array of vegetation and wildlife communities and remains under the management of Douglas County.

V Nemadji River Basin Management Plan

The Nemadji River is part of the St. Louis River Area of Concern (AOC), which was designated by the Great Lakes Water Quality Agreement (WQA) between the United States and Canada in 1972. Nine beneficial use impairments have been recognized:

- 1) Restrictions on fish and wildlife consumption;
- 2) Degradation of fish and wildlife populations;
- 3) Fish tumors or other deformities;
- 4) Degradation of benthos;
- 5) Restrictions on dredging activities;
- 6) Eutrophication or undesirable algae;
- 7) Beach closings;
- 8) Degradation of aesthetics; and
- 9) Loss of fish and wildlife habitat.

The Remedial Action Plan (RAP) was developed in 1987 to restore beneficial uses of this area. The goal of the RAP is to define problems and their causes, and then recommend actions and timetables to restore all beneficial uses of the AOCs. Restoring uses are to be achieved through implementation of programs and measures to control pollution sources and remediate environmental problems (St. Louis River Citizens Action Committee).

In 1993, the Citizen’s Advisory Committee of the RAP requested the Natural Resources Conservation Service identify methods for reducing sedimentation in the Nemadji River (Nemadji River Basin

Project, Phase II). The Nemadji River Basin Project (NRBP) began in October 1993. The effort is led by the Natural Resources Conservation Service, which applied for the funds with local sponsors (Carlton County Board, Douglas County Board, Carlton County Soil & Water Conservation District, and Duluth/Superior Metropolitan Interstate Committee).

The RAP advised that agencies secure funding to implement recommendations generated by the NRBP. These recommendations will forward the goal of reducing sediment input from the Nemadji River watershed. The RAP calls for a basin project to reduce erosion and sedimentation, with a watershed-wide focus, determinations of the extent and causes of runoff problems, and strategies to implement practices that would reduce erosion and sedimentation. The NRBS builds on previous work of the Red Clay Project, which focused on engineering solutions to streambank erosion – they concluded that 90 percent of the sediment discharged to Lake Superior originated in 2 percent of the area, namely streambanks, channels, and gullies (WDNR Basin Plan). As part of the NRBP, the WDNR has been involved in developing practices for land use, soil management, and forestry that will help protect and improve water quality condition. A detailed sediment budget was also developed for the watershed. Data provided by the project will be used to rank the basin for priority watershed selection, with the knowledge that the watershed could benefit from priority watershed status (Nemadji River Basin Project, Phase II).

Though the lower Nemadji system has suffered many abuses, it has retained significant natural features and should be a prime candidate for remedial attention. Protecting and rehabilitating the Nemadji River corridor is a priority, because it harbors ecologically unusual rich mesic hardwood forests, floodplain forests, and marshes. The marshes are representatively diverse, dominated by native species, appear reasonably functional, and support uncommon resident birds. Exotic plants are still quite localized, associated mostly with the disturbed levees and formerly dredged areas near U.S. Highway 2. The Nemadji River Bottoms are also identified as a Lake Superior Basin Priority Site due to its high quality floodplain wetlands and the erodability of the soils in this area.

W Brule Forest Restoration Plan

In this plan the Friends of the Brule River declare the Brule River State Forest to be a “unique and much-treasured sanctuary which, although it will be managed by several use categories, must still be considered as an integral whole.” The plan strives to restore the original forest ecology, thus protecting the Brule River watershed. The area includes historically significant sites, trout streams, and high biodiversity.

<http://www.friendsofthebrule.com/>

X Whitefish Lake Management Plan

Recent studies have found that riparian property values are highest on lakes that have clear water and undisturbed shorelines. Whitefish Lake is a stand-out among Wisconsin's many lakes because it retains its wild character along most of its shoreline; contains deep, clear waters; cultivates a complex fishery that may result in trophy fish; and provides important habitat for many species of wildlife. The Sensitive Area Designation is a first step in the process to protect the ecological and economic resources of Whitefish Lake.

In August 2003 Wisconsin Department of Natural Resources staff designated five sites on Whitefish Lake, Douglas County as sensitive areas that contain important habitat for aquatic plants, fish, and/or

wildlife. In addition to these five sites, staff recommended that Deborah Lake along the southern shore and the wetland complex and wild lake along the northeastern shore be surveyed and included as sensitive area sites in the future. There are general and specific management recommendations to protect these sites and the entire lake as a whole.

These recommendations generally fall into two categories:

- 1) habitat retains its native and wild character, leave it alone; and
- 2) habitat has been degraded or removed, restore it to its native and historic character.

As shoreline development continues to increase, decision-makers and the general public must find ways to ensure that fish and wildlife habitat is not degraded. Sensitive area designations and reports provide detailed data that describe specific sites as well as the means to protect those sites. Designated sensitive area sites are defined in administrative codes and have legal precedence as a tool for DNR management decisions. All the data used to compile this report are available at the Department's Superior Service Center.

Y Minong Flowage Management Plan

The Minong Flowage Association is currently implementing its Aquatic Plant Management Plan, among other programs.

More information can be found at the association's website at the following address:

<http://minongflowage.org>

Z St. Croix Headwaters Management Plan

This plan is still in draft format. Updates and additional information concerning other programs can be found at the Friends of the St. Croix Headwaters website at the following address:

www.fotsch.org

Appendix B: County Ordinances¹

Ordinances

Shoreland Zoning Ordinance, including Lakes Classification

Non-Metallic Mining Reclamation Ordinance

Private Sewage System Ordinance

Livestock Facilities Licensing Ordinance

Pesticide Ordinance

Flood Plain Zoning Ordinance

These ordinances appear in detail on the Douglas County website at the following address:

<http://www.douglascountywi.org/ordinances/ordinances.htm>

¹ A full listing of all county ordinances is available from the Douglas County Zoning Department.

Appendix C: Potential Funding Sources¹

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

Department of Natural Resources (DNR)
Basin Team Funding (Lake Superior, St. Croix)
Lake Protection Grant Program
Notice of Discharge Program
Priority Watershed Program (Upper St. Croix & Eau Claire Rivers Project)
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

Douglas County
Ducks Unlimited (DU)
Environmental Protection Agency (EPA)
Forestry Education Grant Program
Forest Productivity Council (FPC)
Great Lakes Basin Program (GLBP)
Individual Contributions
Lake Organizations
National Farmers Organization (NFO)
Nemadji River Citizens Action Committee
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

¹ Partial Listing

**Appendix D: Waiver from Requirement to Complete a
Cropland Soil Erosion Control Plan**

STATE OF WISCONSIN
DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION
2811 Agriculture Drive, P.O. Box 8911
Madison, WI 53708-8911

IN THE MATTER OF COUNTY SOIL)	DATCP DOCKET NO. 98-G-1
EROSION CONTROL PLANS FOR)	LWCB DOCKET NO. 98-02-02-000-W-1.
ASHLAND, BAYFIELD, DOUGLAS)	
AND IRON COUNTIES)	WAIVER

The State of Wisconsin Department of Agriculture, Trade and Consumer Protection ("department"), having consulted the State of Wisconsin Land and Water Conservation Board ("LWCB"), makes the following findings and conclusions and enters the following order under s. ATCP 50.12(2)(b), Wis. Adm. Code:

FINDINGS

(1) Under s. 92.10, Stats., and s. ATCP 50.12(1), Wis. Adm. Code, counties are required to prepare county soil erosion control plans for department approval by January 1, 1999. A county must comply with this requirement in order to continue receiving soil and water resource management grants from the department. The department must review and approve county plans in consultation with the LWCB.

(2) Under s. ATCP 50.12(1)(b), Wis. Adm. Code, the department may waive the filing of a county soil erosion plan if the department, after consulting the LWCB, finds that cropland soil erosion is not a high priority problem in that county. The department's finding may be based on a county board finding that cropland soil erosion is not a high priority problem, or on other information which the department considers relevant.

(3) The county boards of Ashland, Bayfield, Douglas and Iron Counties have adopted resolutions finding that cropland soil erosion is not a high priority problem in those counties

(see resolutions attached).

(4) The Northern Wisconsin Cropland Survey, dated February 1995, surveyed cropland in Ashland, Bayfield, Douglas and Iron Counties, and found no acreage exceeding the tolerable soil loss level.

(5) Based on findings (3) and (4), it does not appear that cropland soil erosion is a high priority problem in Ashland, Bayfield, Douglas or Iron Counties. Those counties are not priority soil erosion control counties under s. 92.10(3), Stats.

(6) There is no compelling need for Ashland, Bayfield, Douglas or Iron County to prepare a soil erosion control plan under s. 92.10(6)(a)1. to 5., Stats., or s. ATCP 50.12, Wis. Adm. Code. However, those counties should comply with ss. 92.10(6)6. and 7., which are newly created by 1997 Wis. Act 27.

(7) The LWCB reviewed this matter at its meeting on January 27, 1998, and endorsed the department's proposed findings, conclusions and order as contained in this document.

CONCLUSIONS

(1) Under s. ATCP 50.12(1)(b), the department may waive the filing of county soil erosion control plans by Ashland, Bayfield, Douglas and Iron Counties.

(2) Based on the findings above, the department should issue a waiver that exempts Ashland, Bayfield, Douglas and Iron Counties from filing cropland soil erosion control plans under s. 92.10(6)(a)1. to 5., Stats., and s. ATCP 50.12, but does not exempt them from their other responsibilities under s. 92.10(6), Stats.

ORDER

NOW, THEREFORE, IT IS ORDERED, pursuant to s. ATCP 50.10(1)(b), Wis. Adm.

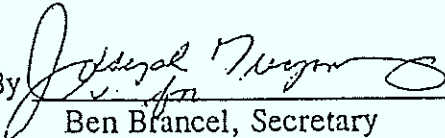
Code, that:

(1) The department waives the filing of cropland soil erosion control plans under s. 92.10(6)(a)1. to 5., Stats., and s. ATCP 50.12, Wis. Adm. Code, by Ashland, Bayfield, Douglas and Iron Counties.

(2) The waiver under sub. (1) does not exempt the counties from the requirements under s. 92.10(6)(a)6. or 7. Nor does it exempt them from any other requirements which have been imposed or may be imposed under ch. 92, Stats., or ch. ATCP 50, Wis. Adm. Code.

Dated this 22nd day of January, 19 78.

STATE OF WISCONSIN
DEPARTMENT OF AGRICULTURE,
TRADE AND CONSUMER PROTECTION

By 
Ben Brancel, Secretary

Roll Call		
District Number	Yes	No
1. Olson		
2. Hanson		
3. Allen		
4. Hillie		
5. Conley		
6. Brown, H.		
7. Shepard		
8. Nystrom		
9. Runser		
10. Conner		
11. Martin		
12. Andersen		
13. Baker		
14. Vreeland		
15. Geeagan		
16. Zukowski		
17. O'Brien		
18. Glenn		
Finn		
Browne, R.		
19. Longanecker		
Kallstrom		
20. Hooper		
Johnson, K.		
Krvinchuk		
21. Coletta		
Berg		
22. Johnson, C.		
Cosgrove		
Ballev		

RESOLUTION #106-97
RESOLUTION BY SUPERVISORS ON THE
LAND CONSERVATION COMMITTEE

Subject: County Cropland Soil Erosion Control Plan

WHEREAS, Section 92.10(3) of the Wisconsin Statutes, requests identified priority Wisconsin counties to prepare county-wide cropland soil erosion control plans, and

WHEREAS, Section 92.025(1) of the Wisconsin Statutes, requires that soil erosion on each cropland field in the state should not exceed the tolerable level established for that county by the year 2000, and

WHEREAS, no soil survey has yet been completed for Douglas County, and

WHEREAS, the Northern Wisconsin Cropland Study dated February, 1995, surveyed 3,400 acres of cropland in Douglas County and found no acreage exceeding the tolerable soil loss level, and

WHEREAS, soil erosion as a result of cropland farming practices is negligible in Douglas County, and

WHEREAS, Section ATCP 50.30(4) of the Wisconsin Administrative Code, prohibits the Department of Agriculture, Trade and Consumer Protection from awarding basic annual staffing grants to counties who do not have an approved county cropland soil erosion control plan by December 31, 1999, and

WHEREAS, Section ATCP 50.12(1)(b) of the Wisconsin Administrative Code, allows the Department of Agriculture, Trade and Consumer protection to grant a waiver from the requirement to develop a county-wide cropland soil erosion control plan based on a county board's finding that cropland soil erosion is not a high priority problem in that county.

NOW, THEREFORE, BE IT RESOLVED that the Douglas County Board of Supervisors finds that cropland soil erosion is not a high priority problem in Douglas County, and this Board respectfully requests a waiver from the requirement to prepare a county-wide cropland soil erosion control plan from the Wisconsin Department of Agriculture, Trade and Consumer Protection.

11:
 Yes _____
 Abs _____
 Absent _____

Roll Call		
District Number	Yes	No
1. Olson		
2. Hanson		
3. Allen		
4. Willie		
5. Conley		
6. Brown, H.		
7. Shepard		
8. Nyström		
9. Runser		
10. Conner		
11. Martin		
12. Andersen		
13. Baker		
14. Vreeland		
15. Gangan		
16. Zukowski		
17. O'Brien		
18. Glenn		
19. Finn		
20. Browne, R.		
21. Longenecker		
22. Kallstrom		
23. Hooper		
24. Johnson, K.		
25. Krivinchuk		
26. Coletta		
27. Berg		
28. Johnson, C.		
29. Cosgrove		
30. Bailey		

Roll:	
Ayes	_____
Noes	_____
Absent	_____
Passed	_____
Lost	_____
Refer	_____
Amend	_____
Other	_____

BE IT FURTHER RESOLVED that receipt of this waiver is in no way intended to affect or harm Douglas County's ability to obtain soil and water resource management grant funds from the Wisconsin Department of Agriculture, Trade and Consumer Protection in future years, since Douglas County remains committed to maintaining a sound and effective county soil and water resource management program.

BE IT FURTHER RESOLVED that copies of this resolution be distributed to the County Conservationist, Secretary of the Wisconsin Department of Agriculture, Trade and Consumer Protection, the President of the Wisconsin Association of Land Conservation Employees, and the Executive Director of the Wisconsin Land and Water Conservation Association.

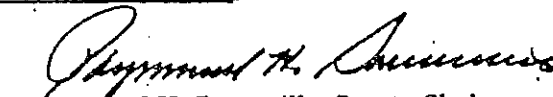
Dated this 21st day of August, 1997.

ACTION:

Motion was made by Supervisor H. Brown, seconded by Supervisor Hooper, to adopt. Motion to adopt the resolution was carried by voice vote.

STATE OF WISCONSIN)
) SS:
COUNTY OF DOUGLAS)

I hereby certify that this resolution is a true and correct copy of a resolution adopted by the Douglas County Board of Supervisors on 8-21-97.


Raymond H. Somerville, County Clerk

Appendix E: Douglas County LWRM Plan Revision Survey Responses

Question 1: What concerns, if any, do you have related to the structure of the 2005 Douglas County Land and Water Resource Management Plan?

Consider separation by land use

Need measurable and achievable goals

Should complement existing plans

Needs to be simplified

Plan must be realistic and based on available staff and resources

Question 2: Do you have suggestions for 4-7 main areas of resource focus for the land and water plan? Said differently, if you were re-writing the plan, would you change the goals? If so, what would they include?

Watershed protection – understanding, managing threats

- Point source pollution of surface water

- Nonpoint source pollution of surface water

- Agriculture

Groundwater

Invasive species

Agriculture sustainment

Question 3: Can you recommend any specific water quality objectives by basin, watershed, or lake? Any specific groundwater quality objectives?

Add Amnicon Lake to “special designations”

Question 4: What are the important current and emerging issues for Douglas County – especially those related to water quality and soil erosion – for the LWCD to concentrate on going into the next decade?

Stormwater runoff and erosion control (promoting conservation development – rain gardens, cluster dev.)

Dense development around lakes

Development of red clay areas

Fragmentation of land ownership

Invasive species (aquatic and terrestrial?)

Groundwater protection (road salt, herbicides)

NR 151(agricultural standards) implementation component required)

Question 5: Do you have any specific recommendations on how the LWCD should address these issues?

LWCD staff and funding limits

Need to focus

Understand the limitations of the department

Seek lakes specialist for Douglas Co./Northern Wisconsin and support with staff time

Establish an AIS specialist position for Douglas County

Use of county funds

Provide grant resources for AIS projects

Funding sources

Target funding from DATCP

Seek grant funding from state/DNR/feds/etc.

Help identify financial resources for watershed and lake-related projects

Coastal management

Education

Improve public stewardship of land and water resources

Promote sustainable economic development (eco-tourism)

Distribute shoreland information through county zoning

Promote the development of conservation farm plans

Cooperation

Work with lakes associations

Integrate LWCD plans with county/town/village comprehensive plans

Establish county AIS Committee

Partner with non-profit foundations and conservation organizations

Facilitate voluntary alliances of conservation organizations within a given watershed

Share a “model” watershed plan (including funding resources) to facilitate other watershed groups in Douglas County

Support Lake Superior Day and Lake Superior Binational Forum

Support efforts of eradication and control of invasive species (by lake organizations)

UW-Stevens Point Center for Watershed Science and Education

US Army Corps of Engineers

River Alliance of Wisconsin

Technical

Use NR151 to achieve and maintain agricultural compliance

Collect and distribute watershed information

Develop long-term watershed plans – Upper St. Croix – Eau Claire River suggested with specifics
Address stormwater runoff
Prevent aquatic invasive species
Develop conservation farm plans (or promote)
Work with pipeline and transmission company to insure quality of groundwater county-wide
Complete a well survey to form a baseline of groundwater quality
Develop a tax incentive program to support shoreline buffers
Inspect structures previously installed with cost sharing