The Lakes of Barron County

A report on their status in 1996

by

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Table of Contents

Foreword

Introduction - Some History

Chapter 1 - The Barron County Lakes Project
- The Project
  - The Office Inventory
  - The Field Inventory
  - Data Collection Forms
  - Data Analysis

Chapter 2 - Glaciers in Barron County
- Glacial lake types
- Hummocky Topography
- Tunnel Channel Lakes
- Ice-walled Lake Basins
- Kettle Lakes
- River Lakes

Chapter 3 - The Values of Our Lakes
- Recreation
- Fishing
- Boating
- Cabins and Homes
- Wildlife
- Endangered Resources
- Outstanding Water Resource
- Lake Access
- Boat Ramps

Chapter 4 - Limnology - The Science of Lakes
- Lake Aging - Eutrophication
- Lake Types
- Lake Zones
  - Littoral
  - Profundal
  - Limnetic
  - Riparian
  - Watershed

Importance of the Riparian Zone

Importance of the Watershed

Chapter 5 - Lake Information
Lake Names
Physical Characteristics
Size
Depth
Location
Lake Volumes
Shoreline Miles
Shoreline Development Factor
Fishery
Lake Access
Boat Ramps
Lake Maps
Chemical Characteristics
pH - Lake Acidity
Alkalinity
Specific Conductance
Mercury in Fish
Water Clarity
Water Clarity and Nutrients
Secchi Disc Measurements
Self Help Secchi Disc Monitors
Water Clarity Observations
Lake Types
Lake Location
Lake Location and Lake Type
Lakes with Livestock Grazing
An Examination of All Factors
Twin Lakes Example
The Overall Results
Biological Characteristics
Wildlife Observations
Loons
Bald Eagles
Osprey
Dwellings and Related Impacts
Dwellings
Lawns
Shoreline Proection Structures
Lakes without Dwellings

Foreword

Thousands of Barron County residents and visitors to this area enjoy the endless beauty and recreational opportunities offered by our lakes. We camp, swim, fish, water ski, canoe, or simply spend a quiet evening listening to a pair of loons with their wails, tremolos, and yodels as they set up housekeeping.

Today, demand for recreational lakeshore property in northern Wisconsin is at an all-time high. Property values are skyrocketing, and lakes that at one time would not have been considered for development are now being pursued for cabins and homes.

With present development already impacting our lakes, and with the added effects of a growing population threatening to create additional lake problems, it is imperative that we take better care of our lakes.

The Barron County Land Conservation Department initiated this inventory project to address some of these issues. Its main objective was to develop an up-to-date report on the status of the lakes of Barron County that can be used by land and water resource managers, the general public, and lakeshore property owners. This baseline identifies the existing conditions and values of our lakes in 1996 and will provide a foundation for land use decisions of the future.

Introduction - A Little History

The study of an area's history helps us to gain a better perspective of why things are the way they are today. Another value of the study of history is that it tells us where we have been and allows us to better plan for the future.

This introduction to our examination of the lakes of Barron County is intended to open a small window to the past and not a complete historical narrative.

As we will see, the lakes and waters of Barron County have played an integral part in the story of Barron County. Our discussion is divided into four periods or eras:

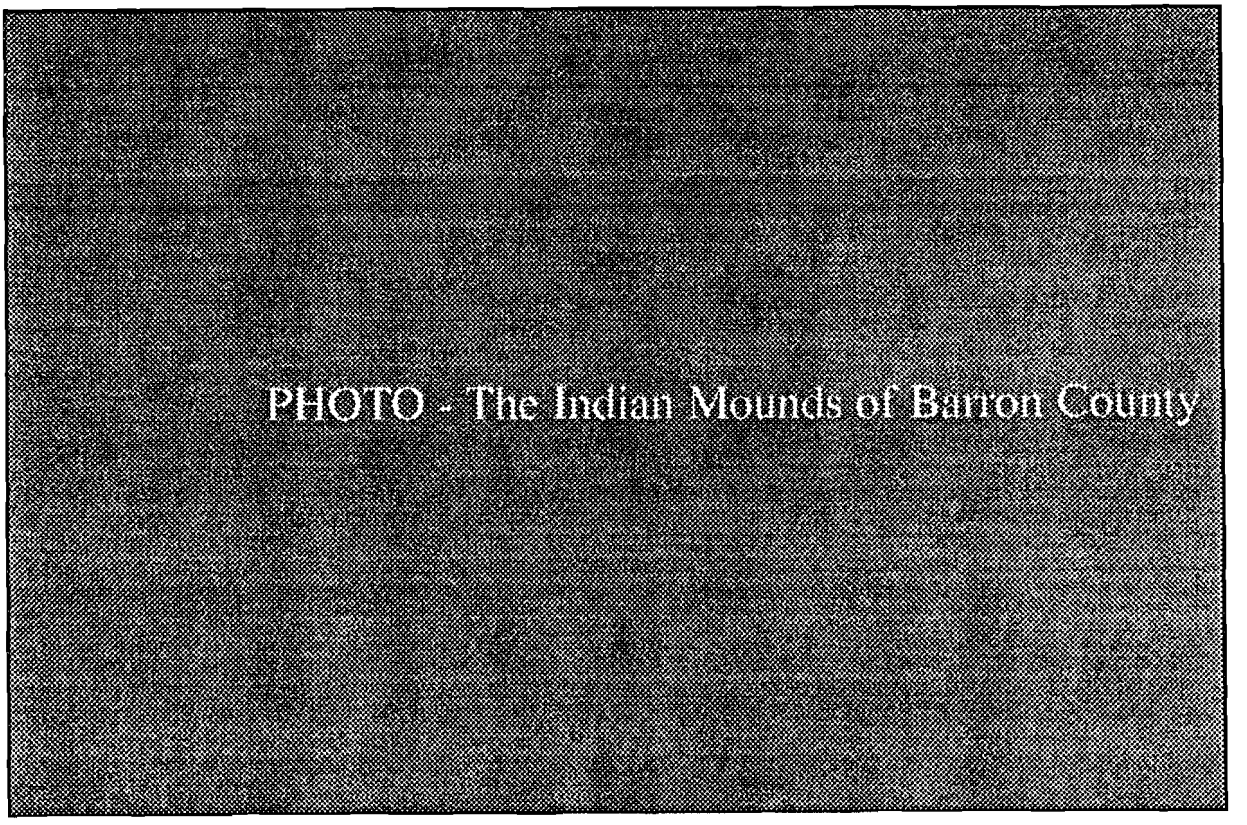
- Native Americans Era
- Fur Trade Era
- Logging and Settlement Era
- Recreation and Tourism Era

Each of these eras saw the uses and values of our lakes change. Each era has seen different impacts to our lakes and to our land.

So as you read these short historical vignettes, paint a picture in your mind of the roles our lakes played in the lives of the people living here. They have been very important in the past and will continue to be in the future.

Old photographs depicting the activities of these eras will, hopefully, help in painting your vision of the past.

And painting those pictures of the past will, also, hopefully, help paint our visions of the future.



Lakes and Our Native Americans

The Mound Builders

Archaeological findings and surveys clearly establish the importance and value of our lakes and rivers to the early inhabitants of Barron County. The earliest evidence of habitation and use are the many burial mounds found on the shores of many of our lakes, especially those along the Red Cedar River. We refer to these people as the Mound Builders.

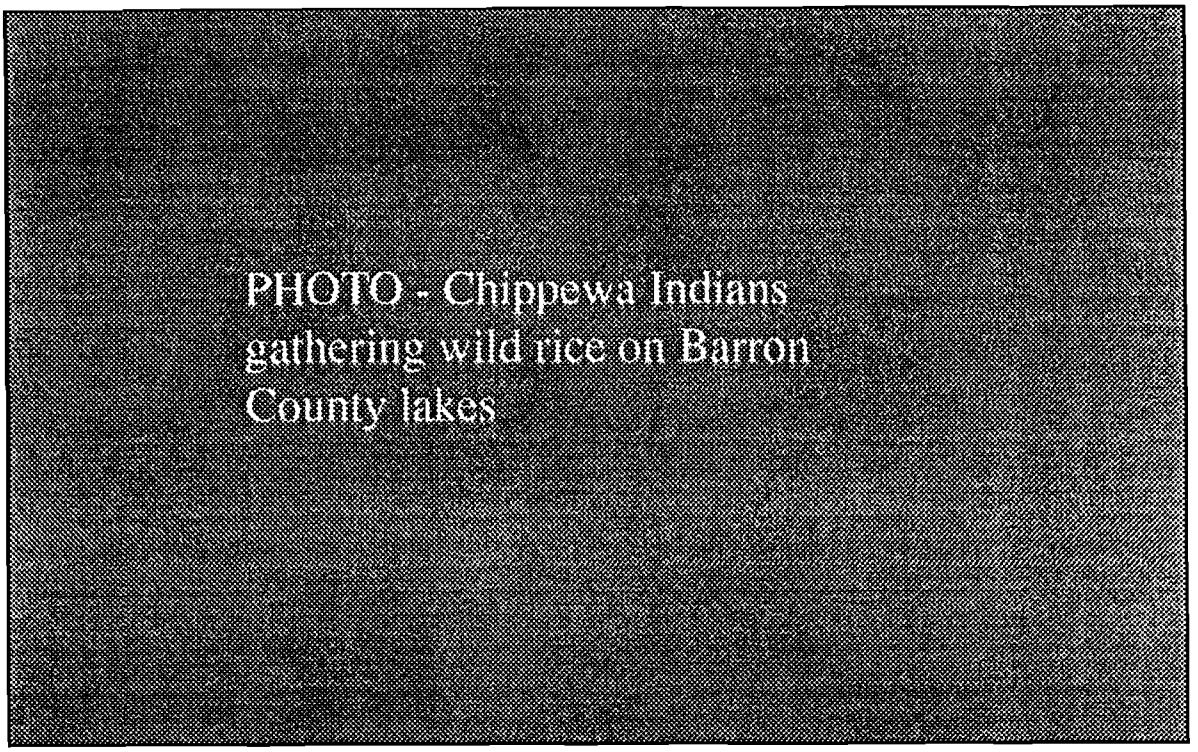
Surveys, completed around the turn of the century, found 152 burial mounds in thirteen locations on the Chetek Chain of Lakes (Chetek, Pokegama, and Prairie Lakes). Another 67 mounds were found on the shores of Rice Lake, with other mounds at Red Cedar Lake and other lakes of the area.

Little is known about these Mound Builders, but one thing is certain, our lakes were very important to them.

The Dakota

The next group of native people to live in Barron County were the Dakota or Sioux. These woodland people may have descended from the mound builders, but this is uncertain. The Dakota lived on our lakes and rivers using them for travel during the summer season. Belongings could easily be moved from one location to another in their birch bark canoes as they searched for the resources they needed to survive.

Lakes also offered a more abundant supply of food as they could fish, hunt for waterfowl and other game associated with the lakes, and gather their most important winter staple, wild rice. Living on a lake or river provided a much better standard of living, than living in the forest.



The Ojibwa or Chippewa

The Ojibwa were originally from the eastern Great Lakes region. Over a 500 year period they had gradually migrated westward through the Great Lake, eventually settling along the south shore of Lake Superior at Chequamegon Bay of northern Wisconsin. As they began to explore and settle into the northern regions of Wisconsin, they followed the rivers and waterways southward, hunting, gathering, and establishing villages on several of our lakes.

Village sites were often selected because of the availability of wild rice or *manomin* as they called it. As early as the mid-1700s there were villages at Rice Lake and Prairie Lake, two important rice-gathering lakes. James Doty, the secretary of the Cass-Schoolcraft expedition, wrote in his journal in 1820, "*The Indians in the month of September repair to Rice Lake to gather their rice. In no place does it grow in such large quantities as there. The water is not over five feet deep and its surface is almost entirely covered with rice....*"

The lakes and rivers of the Red Cedar River travelway were important for the survival of these relative newcomers to Barron County area. The resources of the region were abundant. Game was readily available, fishing was good, and wild rice gathering became a way of life. Wild rice was so important to these people that they named the present-day Red Cedar River, Manominie - the wild rice river.

The wild rice was important to the Dakota people as well. One early explorer estimated that Prairie Rice Lake (Prairie Lake) could supply enough wild rice to feed 2,000 Indians. This impoatant resource led to war between the Ojibwa and the Dakota who both claimed the rice as belonging to them. Several battles were fought near Rice and Prairie Lakes, one famous skirmage being fought in 1798.

Another important resource in the region was the pipestone found and mined in the nearby Blue Hills. This stone could be easily carved into pipes and other valuable items. The pipestone upon exposure to the air would harden and take on a glossy polish. Pipestone was a valuable trade item and it has been found far and wide indicating a complex and far-reaching trading system among Indian people of years past.

The demand for and the desirability of the many resources of the Barron County area led to the feud between the Dakota and the Ojibwa that lasted from the early 1700s to the mid 1800s.

The Era of the French Fur Traders

The lakes and rivers of the region provided easy access for travel for Indian people for centuries. The Red Cedar River and its chain of lakes was a well traveled route. This route provided access between the Chippewa River and Mississippi River to the south as well as access to Lake Superior to the north. Two routes were famous "highways" of the past - the Red Cedar - Chippewa - Bad River route, and the Red Cedar - Chippewa - Namekagon - St. Croix. - Brule River route.

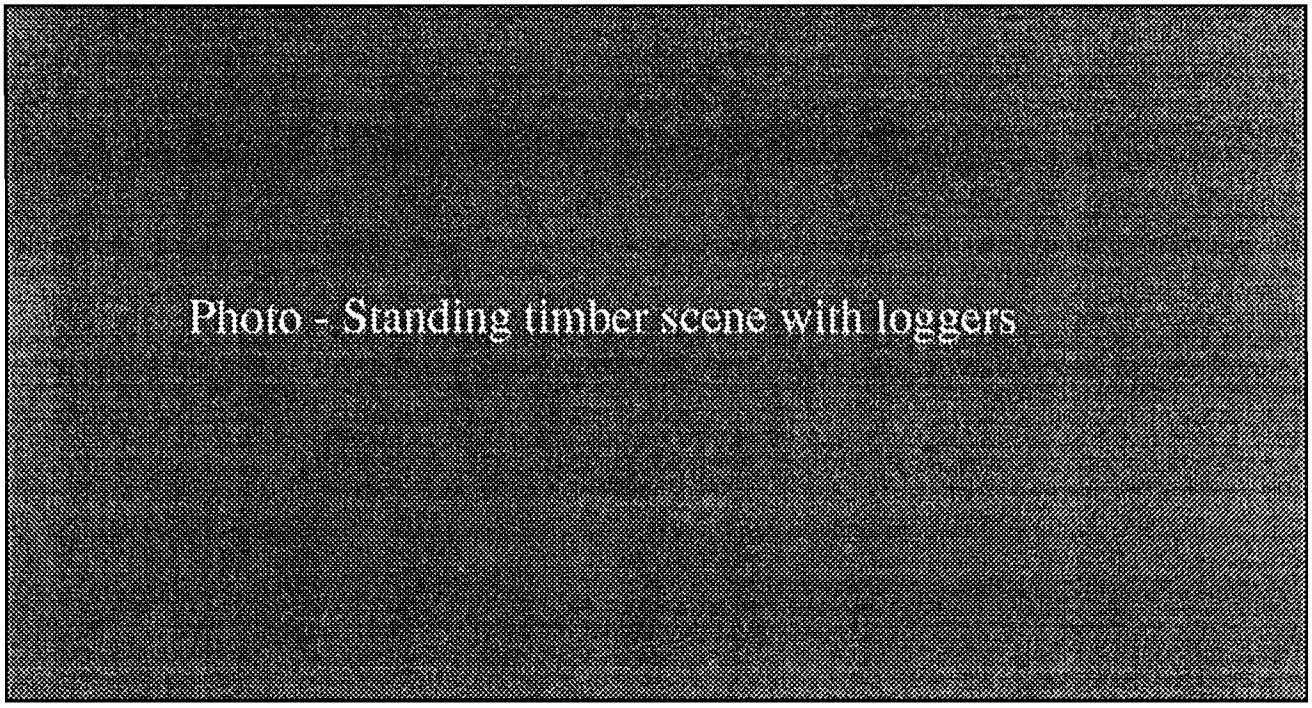
In 1634 Jean Nicollet set foot on Wisconsin soil near Green Bay, the first European in Wisconsin. Soon after in 1658 Radisson and Grossielliers explored the region just north of Barron County spending one miserable winter camped near Radisson in the Hayward Lakes region. Soon French fur traders were looking to the region for a source of valuable furs for the European market. Commerce was coming to northern Wisconsin.

The long-established waterways provided access to bring in the trade goods, and to haul away the packs of furs that were hunted and trapped by the natives. French fur trading posts were built along these waterways in prominent places that were easily accessible to the traders and the native people. The ricing lakes were popular locations where trade could be accomplished with ease.

One trading post was located between Lower Rice Lake and Montanis Lake. This place offered a great location for such a venture. Even today retailers stress the importance of "Location, Location, Location" when selecting a place for their business.

The lakes and rivers of Barron County were essential for commerce to occur during this era; yet, our lakes were unaffected from any significant impacts other than what was natural. Our lakes and rivers remained essentially unchanged in their pristine and natural condition.

The fur trading era lasted about 150 years in Wisconsin from the last half of the 17th century until the 1830s when the fur trade was over.



The Logging and Settlement Era: A Time of Change

In 1836 the first settlers entered the Barron County area. Here they found a wilderness of virgin forests of white and red pine that covered the entire region. Land access was limited to a few Indian trails. At this time the land was off limits, but entrepeneurs saw possibilities of wealth if they could just get their hands on the valuable timber resources covering the land.

In 1837 a treaty between the native Chippewa people (Ojibwa) and the United States government ceded a large portion of northern Wisconsin and Minnesota to the government. This treaty, known as the Pine Tree Treaty, provided legal access to the region's timber and opened up a period of dramatic change to the Barron County area.

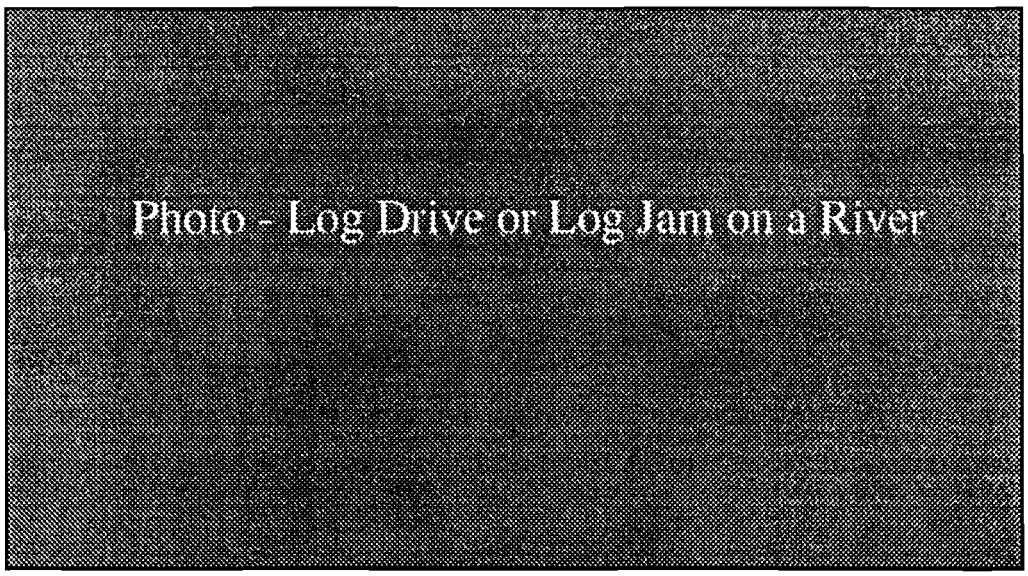
During this period the middle regions of the United States and the western plains were beginning to be settled creating a tremendous demand for timber products across the nation. Not only was there a need for building homes, and barns, and businesses, but the railroads created a demand for ties, and trestles, and other lumber products. The vast forests of the region could fulfill those needs. A new era was about to begin.

In 1848, the year that Wisconsin became a state, logging started in what was to become Barron County. The major participant in this new industry was a Menomonie logging firm of Knapp Stout & Co. Without highways or railroads, the lakes and rivers provided a means of moving the timber. Rivers, streams, and lakes were dammed to store water for the spring log drives to move the raw logs from the woods to the mills, and on to markets downriver.

Logging operations followed the Red Cedar and its tributaries, harvesting the bounties of the Hay River, Yellow River, Brill River, Bear Creek, and Chetek River watersheds. Without these rivers and associated lakes, this never could have occurred at the time it did.

Mills were built near the dams on the Chetek River, on the Red Cedar at Rice Lake, on the Red Cedar at Mikana, as well as at Prairie Farm, Dallas, Bear Lake, Barron, and Cameron on Cranberry Creek.

Communities soon followed at several lakeside locations; i.e. Cumberland, Rice Lake, and Chetek. A source of water was essential for operation of these mills for log storage and the movement. Dams allowed the mills to operate, created or deepened several lakes, and provided valuable recreational opportunities for the growing population.



The same dams, however, flooded and ruined the wild rice beds, much to the dismay of the native people who had been ricing these lakes for centuries. Their source of food and their traditions of gathering and processing the rice changed, and so did their lives. (See **Note**)

Note: According to Article 5 of the 1837 Chippewa Treaty: "*The privilege of hunting, fishing, and gathering wild rice, upon the lands, the rivers, and the lakes included in the territory ceded, is guaranteed to the Indians, during the Pleasure of the President of the United States.*" (29 July, 1837, at St. Peter's, Minnesota Territory)

The events of logging and settlement caused the first major impacts to the lakes and streams of Barron County:

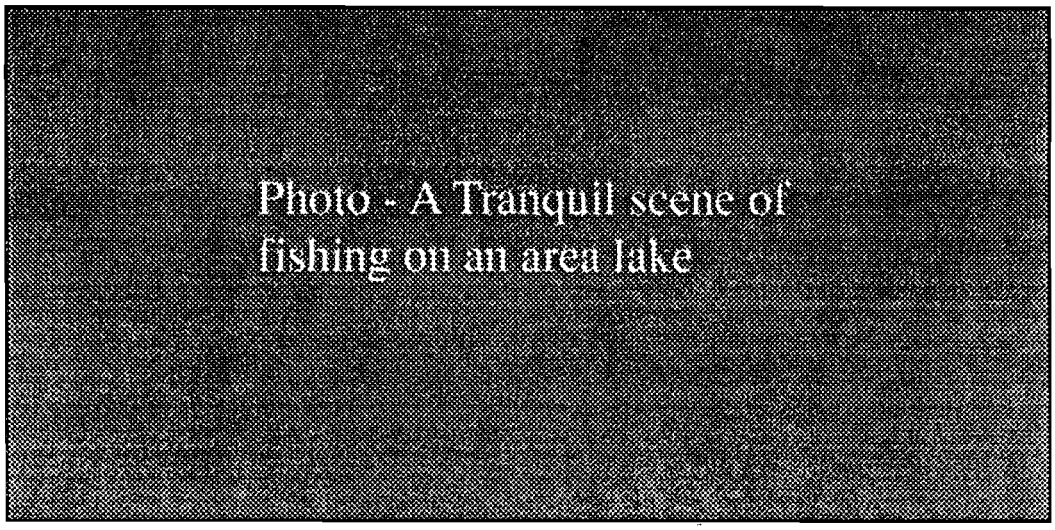
Logging debris, such as bark, slabs, and sawdust, was often dumped directly into the waters adjacent to the mill. Floating logs in the lake or mill pond resulted in great quantities of bark being deposited in the lake, and many logs sunk to the bottom of our lakes.

Streams were dammed and periodically flooded to move logs downstream during the spring log drives, changing the natural character of the stream and rivers. Also, obstacles, such as natural woody debris or bouders were removed from the streams and rivers, often with the use of explosives. Further, the flooding of both small and large streams resulted in tremendous scour of the stream bank, the stream bed, and the adjacent flood plain, causing erosion throughout the watershed. These eroded soils moved downstream with the flood and were deposited on the bottoms of many of our lakes. The effect of these events greatly influenced our lakes, and the impacts are most probably still being felt over a century later.

Vast changes came to Barron County during the logging era. As forests were cleared of the valuable timber, a wasteland of stumps remained. At first clearings were utilized for growing crops and hay to feed the loggers and the livestock of the lumber camps, but soon hard-working, far-sighted people began to establish homesteads. Many of these people were the very people who had worked in the lumbering trade. They saw opportunities to develop the land for growing food and for raising livestock. A new era was beginning to take hold in Barron County.

The activities of the logging era lasted for about 50 years in Barron County, essentially the last half of the nineteenth century. While many people today view the logging of our virgin forests and clearing of the land as raping the land of its values for profit, others, then and now, see it as opening up the area for settlement, growth, opportunities for employment and agriculture, creating or producing other values from the land.

Whatever the views, the history of the area cannot be reversed. These consequences both negative and positive, leave their mark on the people, the land, and lakes and rivers of any area.



The Modern Era: Recreation and Tourism

As Barron County became more settled, the lakes continued to play an important role in the lives of residents and visitors alike, mainly for recreational purposes, and its beauty and desirability as a place to live or visit was spread far and wide.

"It was as a summer resort that Chetek first came into widespread notice. The pleasing scenery and excellent opportunities for boating and fishing attracted the attention of casual visitors and sportsmen, and soon people from Menomonie, Eau Claire, and Chippewa Falls began building clubhouses and summer homes on the north and east shores of the lake.... Advertising booklets widely distributed also brought visitors from distant parts of the country, including Illinois, Louisiana, Texas, and other states...."

History of Barron Co.
Newton S, Gordon - 1922

"... the calm beauty of the lake, like a mirror of molten silver set in a frame of living green, reflecting in its placid depths the charms of forest, field, and sky, needs be seen to be appreciated."

A description of Beaver Dam Lake
in The New Wisconsin

"Most of the lakes furnish excellent fishing and boating, and along the shores of many of them may be found secluded nooks where one may pitch a tent and live close to nature."

History of Barron County
Newton S Gordon - 1922

"A source of considerable income in late years has been the growth of the summer tourist business and the sale of hundreds of desirable lots on the shores of our beautiful lakes for the building of summer homes and cottages. There are over 400 cottages around Chetek, and many more on the lakes around Cumberland, Rice Lake, Mikana, Haugen, Turtle Lake, and the Cedar Lake country.... Tourist business has encouraged the building of golf courses at Chetek, Rice Lake, Barron, and Cumberland, as well as the platting of lakeshore property, which is rapidly increasing in value."

Lakes - A Summer Playground
1927 Barron County Platbook

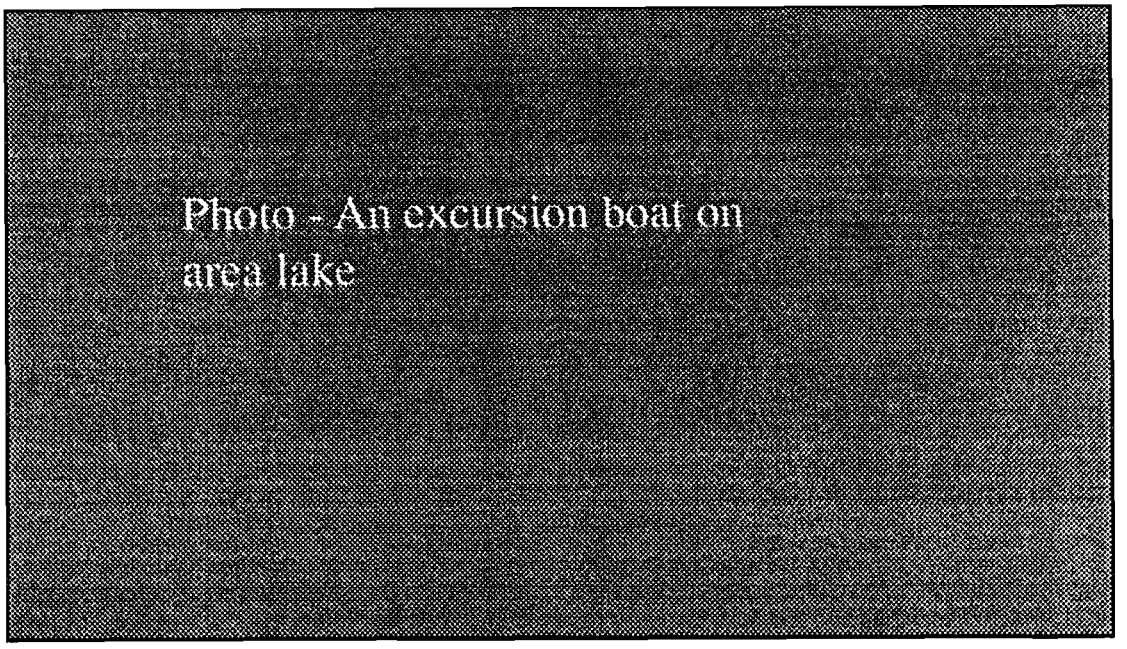
"In recent years much attention has been paid to the growing tourist business. Many lovely lakes abound in and about the city, which attract summer visitors, with the result that many new summer homes have been built, lakeshore additions platted out, and much attention given to beautifying the lakes and improving the fishing in nearby waters."

Barron County Platbook - 1927

"In 1927 the new county fish hatchery in the (Haugen) village limits was completed and is expected to be a valuable aid in stocking the lakes with pike and bass fry."

Barron County Platbook - 1927

From the above quotations, one can see the coming era of tourism and the development of our lakes for recreation and as a place to live.



Past and Present Efforts to Protect Our Lakes

Concern for our lakes was an issue in the earliest days of tourism and recreation. In 1932 a group of Methodist ministers purchased some land on Pipe Lake (renamed Sylvan Lake in 1932) to be used as a retreat for its members. Concerned about protecting the natural conditions of the lake, they established some lake use rules, one being *"No motor boats between 1 and 3 in the afternoon."* [Actually, the purpose of this rule was so the sound of boat motors would not disturb the after-lunch naps for those on vacation.]

During the next few decades there was substantial growth of resorts, summer homes, and cottages on our lakes. Many lakes were completely in private hands and access to these public waters was being lost. Also during this period of increasing lake use, there were no rules or regulations about building on lakes.

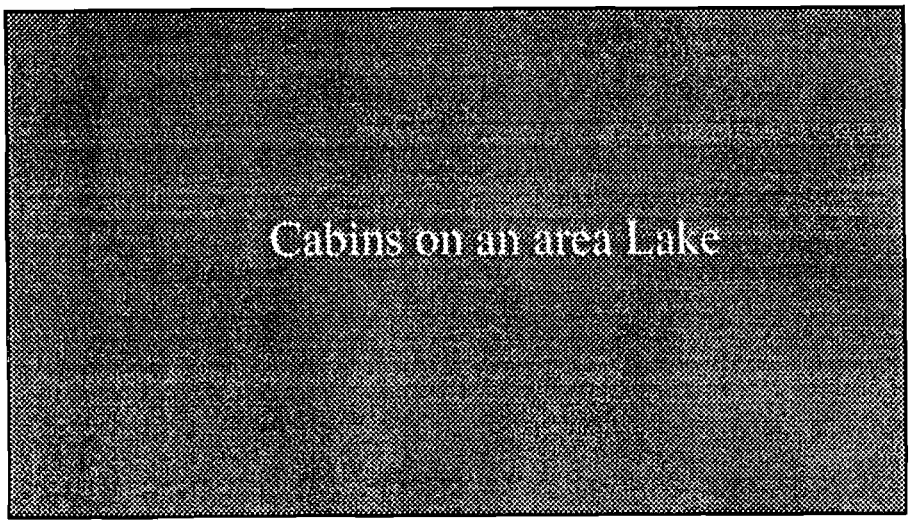
Many lakes were becoming overcrowded, or had buildings on undersized lots. Some cabins and summer homes were built right at the edges of the lakes, and there are even some examples of structures built over the lake itself. And way too much shoreline vegetation was removed to "improve the view from the front deck." Those concerns by the Methodist ministers at Sylvan Lake for lake degradation were being realized.

The Wisconsin Department of Natural Resources saw the results of haphazard building on our lakes and of increasing use on the lake resource. Something needed to be done to reverse the negative impacts to our shores and our waters or lake values were going to be lost. In 1966 Wisconsin Statute ____ established a minimum setback of 75 feet from our lakes and also included in guidelines for lot sizes, septic system design and location, and allowable vegetative removal.

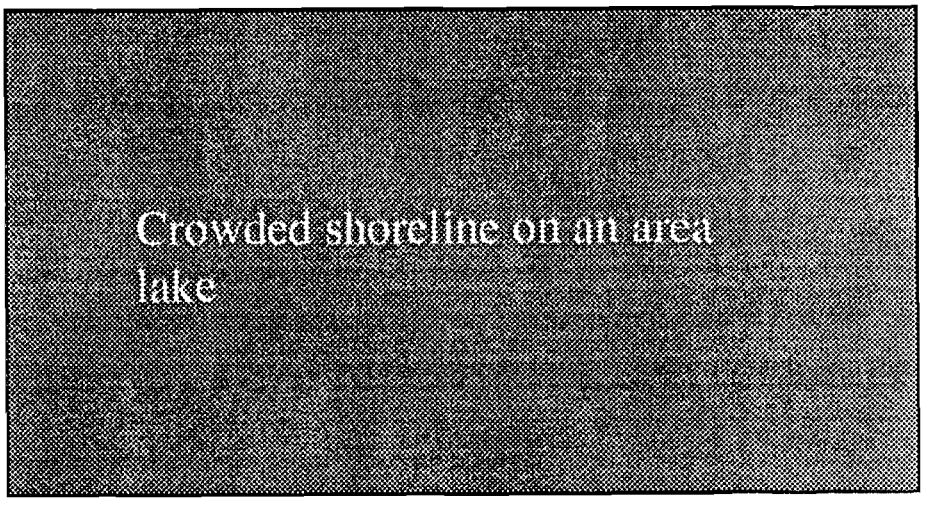
These regulations were a tremendous step in the right direction for lake protection, but for many lakes it was too little too late - the damage had been done.

Other Negative Impacts to Our Waters

Couple these past and present shoreline practices with improper land uses in the lake's watershed, urban runoff problems, agricultural chemicals and fertilizers, antiquated septic systems, increased population, wastewater treatment problems, and a myriad of other practices, one understands why our lakes are having added negative impacts.



Cabins on an area Lake



Crowded shoreline on an area lake

What Is Being Done to Protect Our Lakes?

As we have seen, our lakes, their uses, and their values have changed over the past century and a half in Barron County, and change will continue to be an influence on our lakes in the future. Public awareness of our lakes and their problems has led to positive trends from both the private and public sector. More concern for protecting the quality of our waters has led to lake districts and associations and property owners working toward better lake protection and improvement. And state and local agencies are working toward better lake management decisions.

With that in mind, we, as the stewards of our lakes, our lands, and our waters, can make choices as to the direction we want to take. For the sake of our lakes, for the sake of the lake-dependent fish and wildlife resources, for the sake of better water quality, and for the sake of those that inherit these beautiful and valuable resources in the future, let us choose to make wise decisions that will lead us in a positive direction regarding lakes and their management.

Chapter 1

The Barron County Lakes Project

- The Office Inventory
- The Field Inventory
- Data Forms
- Data Analysis
- Lake Classification
- Unique Features
- Shoreline Character
- "Red Flag" Warnings
- Zoning Ordinances

The Barron County Lakes Data Collection Project was initiated to gather information about the status of Barron County Lakes in 1996. Although information has been collected by various agencies, primarily the Wisconsin Department of Natural Resources,, no full-scale data had been collected and published since 1962-63. The results of that inventory were published in the Surface Water Resources of Barron County, (1964).

While much of the information is still valid, our lakes have seen many changes since then, primarily in the amount of development. Our larger lakes are almost completely developed, and our smaller lakes are seeing more and more impacts - thus, the project.

In choosing which of the 370 lakes and ponds in the county to inventory, decisions had to be made within the funding, staffing, and time limitations of the project. It was decided to conduct the inventory on the 176 named lakes. In the end, approximately 200 lakes were visited and inventoried.

This report is a summary of the findings. A lake folder was developed for each of the named lakes and can be found in the Barron County Land Conservation Department files. Most of that information is available to the public. Some sensitive information about endangered species, both plants and animals, however, is off-limits to the general public, as defined in Wisconsin Statute ____.

Note: The purpose of withholding this information is to protect endangered species from disturbance or loss by unscrupulous intruders. Land and water managers, however, need this information while making land use decisions so that these valuable endangered species are protected.

The Office Inventory

Prior to the field inventory, an office inventory of known information was gathered or measured from maps and aerial photos. That information included

- lake name
- size
- depth (maximum and mean)
- location (township, range, section, forty)
- lake volume
- length
- width
- shoreline miles (measured from maps and air photos)
- shoreline development factor (calculated)
- % of lake area less than 3 feet in depth
- % of lake area greater than 20 feet in depth
- bottom materials
- past secchi disc readings from other studies or from volunteers
- watershed and sub-watershed names
- watershed size
- fishery information
- public access information
- lake map (if available)
- water chemistry information (pH, alkalinity, specific conductance from 1964 report)
- lake management organizations (associations and districts)
- endangered resources from WDNR Natural Heritage Program

The Field Inventory

The field portion of the inventory examined 200 lakes in the county during the 1996 field season (June 26 to September 19). Lakes that had access were examined from a boat or canoe while those without access were inventoried from shore.

The following information was collected during the field exam:

- lake character
- lake attribute values
- shoreline vegetation (wetlands, upland hardwoods, etc.)
- shoreline slopes
- soil moisture of upper bank
- unique features or values
- secchi disc reading for water clarity
- lake depth if not known and boat accessible
- boat ramp information
- special boating regulations
- dwellings
- lawns (with no buffer strip)
- shoreline protection structures
- obvious problems, (grazing, barnyards, soil erosion)
- wildlife observations (esp. endangered species)
- water quality problems
- unique aquatic vegetation or noxious weeds

Field and Office Data Collections Forms

Data collection forms were developed to record the information for both the office and field inventories. (Appendix __ and __) These completed forms can be found in the lake file folders developed for the project in the Barron County Land Conservation Department office in Barron.

Each lake file folder contains the following:

- field and office data forms
- USGS topo map of lake
- photocopy of 1992 aerial photos
- field sketch of lake outline with shoreline slopes, shoreline vegetation, general location and number of dwellings, problem areas, wildlife observations
- DNR lake survey maps (if available)

Data Analysis

Upon completion of both the office and field inventory, the data was analyzed in several ways:

Dwellings: Dwellings, for the purpose of this project, included all types of structures designed for human habitation (year-round homes, seasonal cabins, resort cabins, business buildlings, mobile homes and trailers).

Calculations were made to determine:

- total dwellings
- dwellings per mile of shoreline
- lake acres per dwelling

The above calculations give an indication of the

- amount of development
- density of development
- "crowding index" for each lake.

Ranking Data: In addition to the raw data, a ranking list was developed for a variety of information. Ranking and sorting data (Best to Worst, Largest to Smallest, or Most-Impacted to Least-Impacted) was completed for each of the following:

- depths
- volumes
- dwellings
- dwelling densities
- lake acres per dwelling
- total shoreline miles
- shoreline development factor
- pH
- alkalinity
- specific conductance
- water clarity

(see Chapter __)

Ranking the data as above helps to determine

- present state of a particular lake
- range of impacts or conditions
- degrees of impact
- "How does my lake compare to others?"
- "What impacts are acceptable or unaccept able?"
- Best to Worst case scenarios
- lakes of similar characteristics.

Ranking the data may also help land managers in establishing limits or other land management prescriptions to better protect our lakes.

Lake Classification System

Lakes can be classified according to size, depths, volumes, shoreline miles, water clarity, access, fisheries, water quality, water chemistry, and lake types, to mention a few.

For the purpose of the Barron County Lakes Project, a two-step classification system was developed. This system is based on

1. the overall character of the lake, and
2. the values or attributes of each lake.

Definitions of lake character classes and lake attribute ratings were first developed and field-tested to see if the process was suitable for Barron County lakes. The rating system, with only a few minor modifications, seemed to work fairly well..

One overall intent of the process is to create a "mental image" of what character and what values a particular lake had. Anyone should be able to grasp what a lake is like by using the rating tables along with the rating definitions.

See Chapter __ for a further explanation of the process and for the results.

Unique Features or Values

Some Barron County lakes have values, uses, or features that stand out as being unique. These unique values are identified in each file folder and may be any of the following:

- geologic features (eskers, islands, points, etc.)
- endangered species or species of special concern
- exceptional water quality
- unique plant communities
- endangered or rare plants
- unique or rare fish
- unique lake types
- unique or high value wildlife habitat

Identification of these special or unique resources may put "extra value" on some lakes or portions of some lakes so that these resources can have added protection. These unique values are not listed in this publication, but are found in individual file folders.

Shoreline Characteristics

During the field inventory the entire shoreline was mapped based on slope, vegetation, and soil moisture. The width of this mapped zone may vary from lake to lake. The results of this information are located on the field maps in each lake folder.

Slope - The slope of the upper bank of the shoreline was rated on a 1 to 4 scale.

1 - flat to gentle slopes
2 - gentle to moderate
3 - moderate to steep
4 - steep

Vegetation - Shoreline vegetation was mapped in one of 9 different plant communities:

UH - upland hardwood
UC - upland conifer
UG - upland grassland
SH - swamp hardwood
SC - swamp conifer
SS - swamp shrub
SG - swamp grassland
BS - bog shrubs
BC - bog conifer

Soil moisture - An eyeball estimate was made of the upper bank soil moisture by examining vegetation types and abundance. Soils were placed in one of three categories:

W - wet soils
M - Moderate soil moisture
D - dry soils.

This information is mapped, using the numbers and letters next to the items listed above. For example, a 2UHM would be a moderate slope, with upland hardwoods, and a moderate soil moisture rating. A 4UCD would be on a steep slope with upland conifers and dry soils. Another example might be 1BSW - flat slope with bog shrubs and wet soils.

Purpose of Mapping Shoreline - "Red Flag Warnings"

This mapping process is intended to act as a "red flag warning" of possible development problems or zoning type regulations. If a party is interested in a portion of a particular shoreline, one could gather valuable information by examining the field map in the lake folders.

Slopes - For example, a slope rating of "1" indicating flat slopes, could raise a "red flag" for elevations above the lake level or above groundwater. A "1" rating could indicate possible problems in this area.

A slope rating of "4" or steep slope, could be a "red flag" warning about possible bank instability, development problems for buildings, or for other improvements, such as stairways down to the lakeshore.

Steep slopes pose different potential problems than do flat slopes. They may require more stringent erosion control measures than do gentle or flat slopes. They may also require some bank stability needs, or greater setbacks, or may be in such condition as to eliminate the possibility of any development. Again, these ratings are intended to be "red flag warnings" requiring extra or closer inspection before any development is allowed.

Each slope also poses different septic system needs. Flat slopes may not have sufficient soil above the groundwater, while steep slopes may have soil stability problems associated with the placement of septic systems.

Vegetation - The vegetation of the bank helps characterize existing soil conditions. Is the vegetation grassland, hardwoods, or conifers? Is it bog, wetland, or upland? Each plant community is a general indicator of soil moisture. Bogs or swamps, of course, identify wet soils that require special protection. Uplands are lands generally suitable for development.

Vegetation-type ratings may also help in identifying vegetative screening needs. For example:

- Grasslands are completely or mostly open and any development would be readily visible.

- Hardwoods provide vegetative screening during the summer months when the leaves are out, but offer little screening during the winter months.

- Conifers, when they are young, provide vegetative screening year-long. However, old pines lack lower branches and needles except above in the crowns. Trunks of trees provide the only vegetative screening.

Soil Moisture - A rating of wet, moderate, or dry, along with vegetation and slopes, can identify the kinds of allowable development or the types of wastewater systems.

Zoning Ordinances

Although it is not the intent of this report to propose new zoning ordinances, the above information could be used to refine or develop more site-specific ordinances. Slopes. vegetation, and soil moisture and other considerations, such as bank stability and soil erodibility, could be used for more specific ordinances regarding

- wastewater systems
- allowable vegetative removal
- setbacks
- allowable colors of buildings and other improvements
- shoreline protection structures
- shoreline outbuildings
- stairways and decks
- boathouses or docks.

Chapter 2

Glaciers in Barron County

- Hummocky Topography
- Tunnel Channel Lakes
- Ice-walled Lake Basins
- Kettle Lakes
- River Lakes
- Location of Lakes

During early stages of the Ice Age continental glaciers covered much of Wisconsin and all of Barron County. At the end of the Ice Age about 12,000 years ago, during the Wisconsin Glacial Period, two lobes of glacial ice stopped their southerly movement in Barron County.

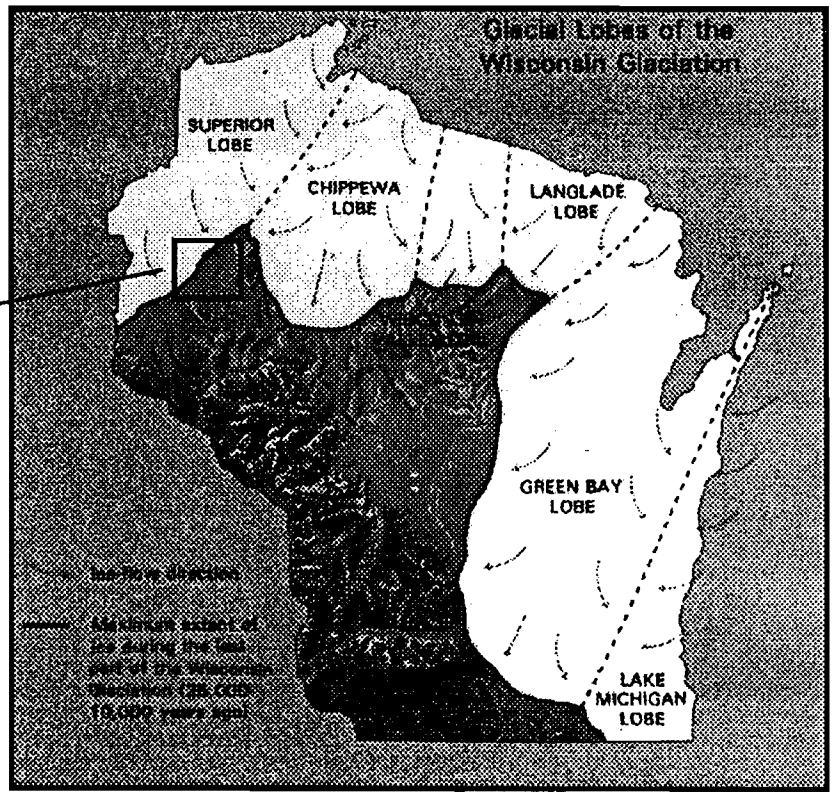
The Chippewa Lobe of the Chippewa Advance left its mark in northeastern Barron County, in a diagonal line from Upper Devils Lake to south of Red Cedar Lake. (see Map __)

The St. Croix Lobe left its mark in northwestern Barron County,along a line stretching from Haugen to Cumberland to Turtle Lake.

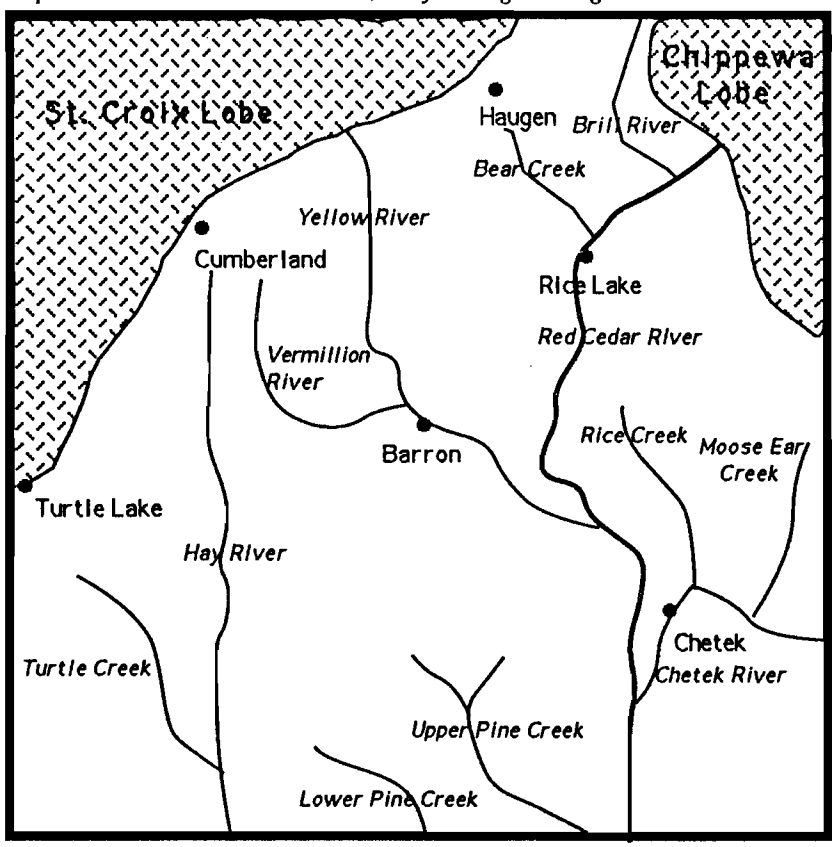
Both of these lobes of ice are believed to have occurred at the same time and to have actually touched near Long Lake just north of Barron County. These glaciers were believed to be over a mile thick and their influence is still with us today.

As glaciers move, they push and carry massive amounts of soil, sands, gravels, cobbles and even boulder size rocks. When a glacier melts and recedes,, this material may be deposited in place or carried by the glacier's meltwater and deposited someplace downstream. These materials now cover and make up the landscape of Barron County.

Our present day landscape of forests and farmland, of rivers and streams, and of wetlands, ponds and lakes is a direct result of those glacial events of milleniums past.



Map 3-1 Glaciers in Wisconsin 12,000 years ago during the Wisconsin Glacial Period



Map 3-2 Ice margin of the St Croix Lobe and the Chippewa Lobe in Barron County
Note: The St Croix Lobe is referred to as the Superior Lobe on Map 3-1.

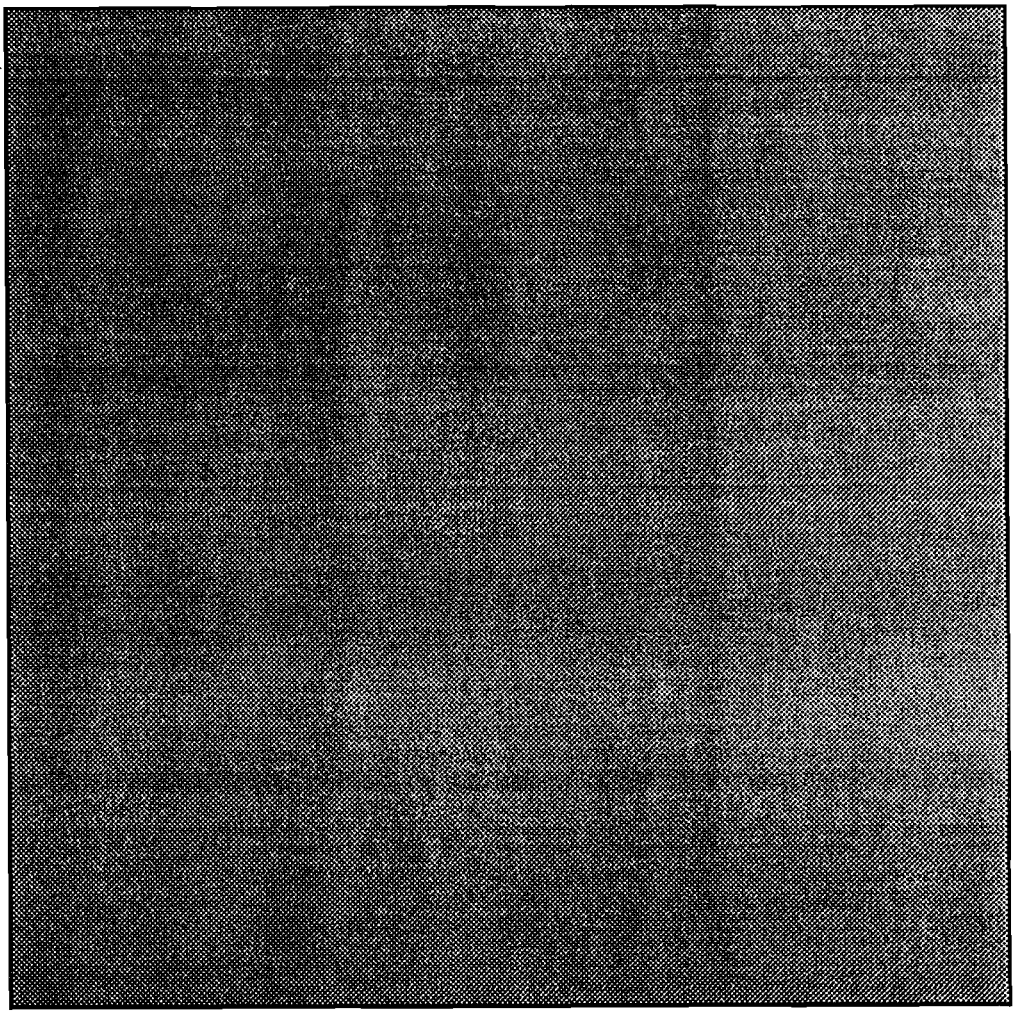


Photo 3-1 Hummocky topography, a result of the Chippewa Lobe found east of Brill in Cedar Lake Township.

Glacial Lake Types

Glacial activity resulted in several types of lakes. Along the leading edge of the glaciers, glacial deposits, called *terminal moraines*, left a rolling topography in which are numerous lakes and wetlands. Many lakes were formed in the low spots scattered among these moraine deposits. Some were formed along the large glacial rivers melting from the glaciers. Others were carved under the ice as glacial meltwater scoured deep channels. And still others were a result of buried blocks of ice.

Hummocky Topography

Along the leading edge of the St. Croix and Chippewa lobes of ice, glacial material was deposited either as moraines, similar to a pile of dirt plowed up by a bulldozer, or as varying depths of material deposited in piles as the ice melted.

An examination of these areas by aerial photography illustrates how hummocky topography is dotted by many small lakes, ponds and wetlands interspersed with forest. (see Photo __)

Most of the lakes found in the hummocky topography areas are *seepage lakes*. Seepage lakes receive their water directly from precipitation and from groundwater.

Tunnel Channel Lakes

As glaciers melt, rivers of meltwater flow from the ice. Some of these glacial rivers flow on top of the ice while others flow under the ice. These rivers had the power and energy to move material from the glacier and deposit it someplace downstream. The more energy a stream or river has, the larger the materials it can carry.

Along the leading edges of these glaciers, another type of lake formed under the ice. The glacial rivers were confined in ice tunnels. These rivers had the power to scour deep channels in which today we find *tunnel channel lakes.*

Sand, Beaver Dam, Bear, and Red Cedar are examples of tunnel channel lakes. They all are relatively deep and rather narrow and some are river-like in their appearance. (see Photo __)

Often at the place where these rivers emerged from the ice tunnels, there is a deposition of glacial materials. These deposits are often long snakelike ridges known as *eskers.*

The "island" on which Cumberland rests, and the islands in Red Cedar Lake are eskers deposited at the place where the glacial rivers emerged from the ice. As the rivers left the glacier, they spread out, losing their energy and depositing the sands and gravels of the esker.

There are several other examples of eskers in the county as well. One excellent example can be found just to the northeast of Granite Lake. A one-mile-long esker snakes from north of Granite to near Little Dummy Lake. This esker separates two small unnamed lakes which are being proposed to be named East and West Esker Lakes.

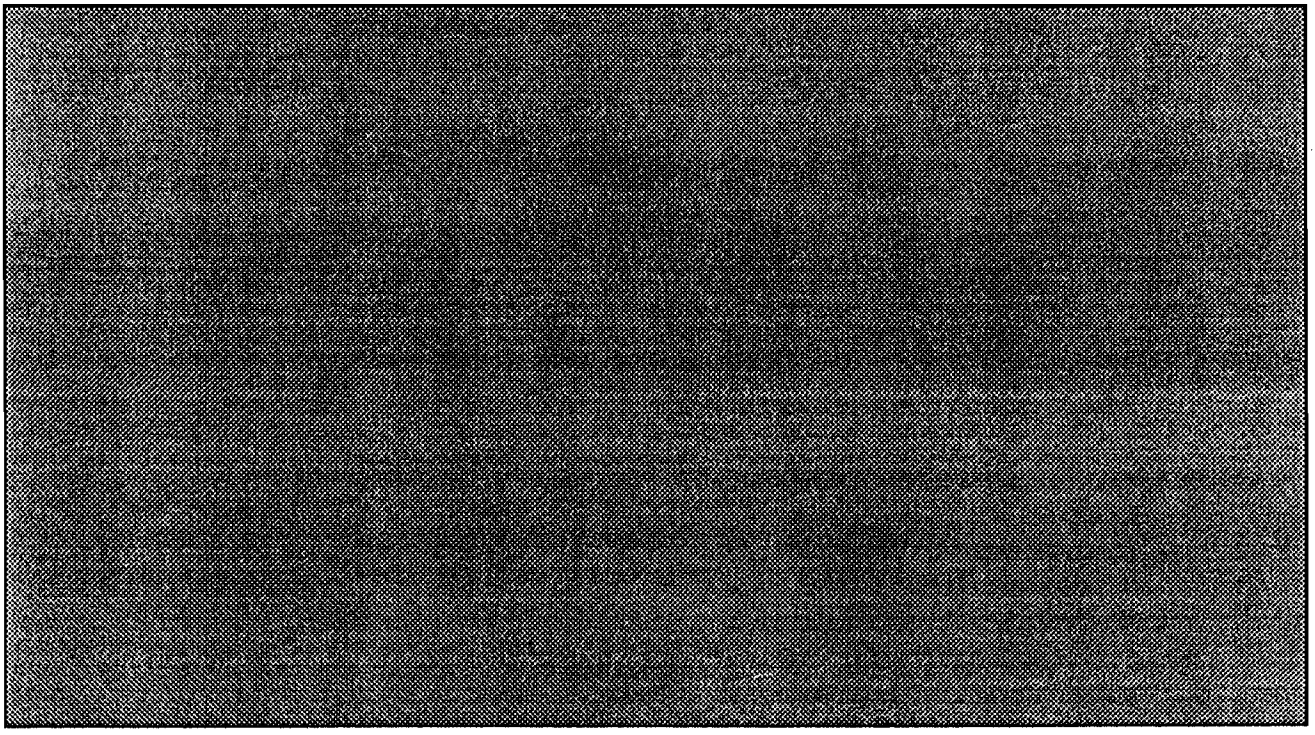


Photo 3-2 Sand and Beaver Dam lakes are examples of tunnel channel lakes in Barron County.

Ice-walled Lake Basins

Other interesting glacial lakes are associated with *ice-walled lake basins.* When glaciers began to melt, a hole occasionally melted into the ice, somewhat similar to a ice fisherman's chiseled or drilled ice-fishing hole. The meltwater draining into these holes resulted in an unusual glacial lake.

These basin lakes were surrounded by ice and much of the glacial material settled into these lakes, depositing on the bottom. Often the deposited material was fine-grained silts and sands. Gradually, the ice melted around these lakes leaving these flat deposits called *lacustrine* or lake bottom sediments.

Several examples of these ice-walled lake basins or lake plains exist in Barron County, some having remnants of glacial lakes around their edges. One example is just north of Crystal Lake in Crystal Lake Township. An examination of aerial photographs illustrates the ancient lake basin. Crystal, Scott, North, Wood Duck, Teepee, Mud, and several other smaller lakes are remnants of this type of glacial lake. (see Photo __)

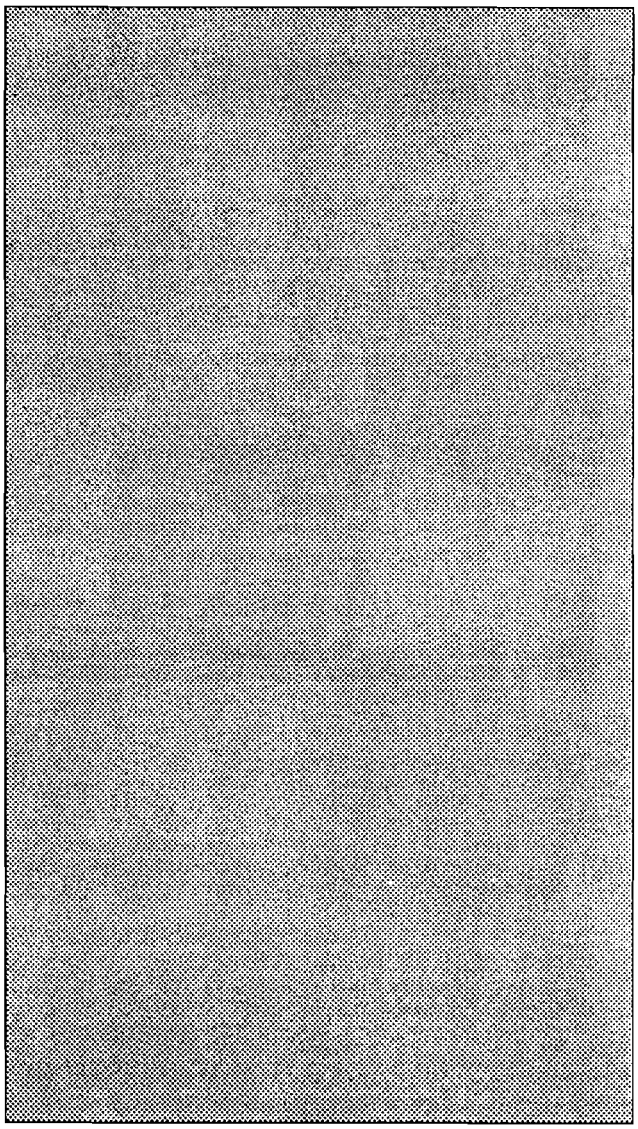
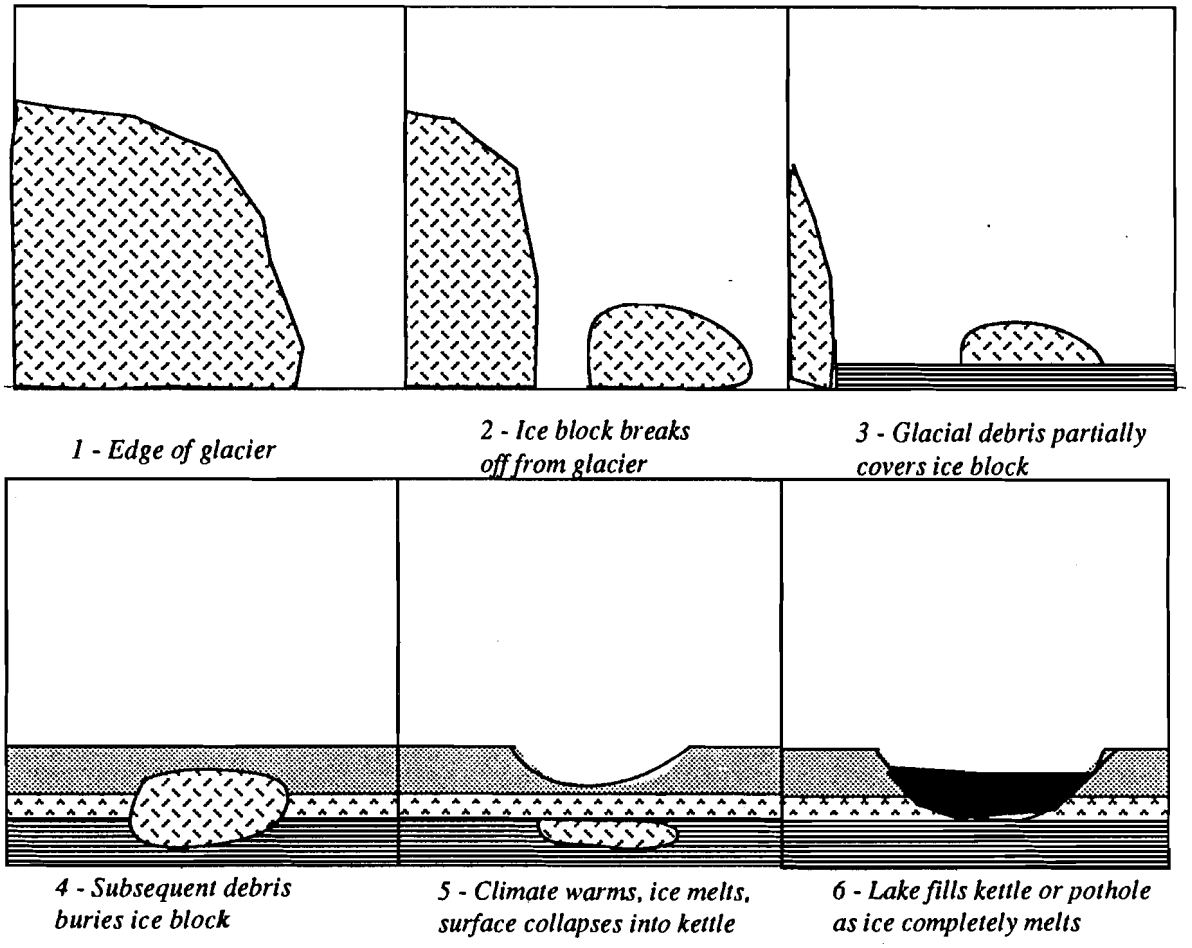


Photo 3-3 An ice-walled lake plain north of Crystal Lake in Crystal Lake Township.

Diagram __ Steps in Forming a Kettle Lake



Kettle Lakes

Another lake type unique to glaciated areas is the *kettle* or *pothole lake*. As glaciers began to melt, large blocks of ice along the leading edge often times broke off from the ice mass. These ice blocks were buried by succeeding glacial sands and gravels.

A cold climate allowed these ice blocks to remain buried for a long time until a warming climate eventually melted the buried ice. As the ice melted, the material covering the ice began to collapse resulting in a basin. In these basins water collected,

forming the pothole or kettle lake.

River Lakes

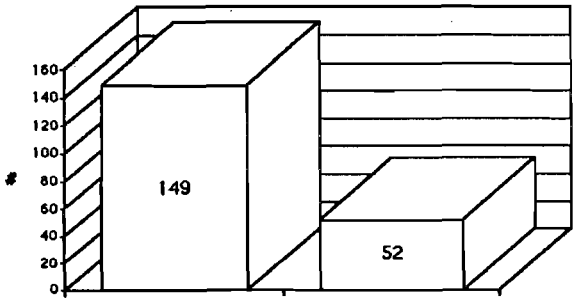
The Red Cedar River watershed owes its existence to the water melting from the glaciers. Sub-watersheds, such as the Hay River, Turtle Creek, Yellow River, Bear Creek, Chetek River, and Brill River, are also a result of this meltwater.

Along these waterways in areas where the floodplain was wide, shallow lakes often formed. These lakes, called *drainage lakes,* include such lakes as Rice Lake, Red Cedar Lake, Chetek Chain of Lakes, and Bear Lake.

Location of Barron County Lakes

Glaciers and their meltwaters were responsible for the lakes of Barron County. An examination of the location of the lakes of the county finds that 3 out of 4 named lakes are found north of the ice margin.

Location of Barron County Named Lakes



Chapter 3

The Values of Our Lakes

- Recreation
- Fishing
- Boating
- Cabins and Homes
- Wildlife
- Endangered Species
- OWR
- Access
- Boat Ramps

Lakes are Valuable

The lakes of Wisconsin and Barron County are one of our most valuable assets. These "gems" have always been important to the people living in and visiting Barron County.

We have seen in the Introduction and History of Our Lakes the values of our lakes in the past. More recently, lakes have become a mecca for all sorts of recreational use and as a place to live. Seasonal cabins and resorts were once the prime use of our lakeshores, but more and more people are making the lakeshore their year-round home.

No one who has ever experienced the beauty of our many lakes denies that our waters are among our most valuable assets. Indeed, these gems are priceless. But when we try to assess their values, we realize the complexity of the task. Each of us places different values on a lake, according to what is important to us.

Values may be grouped into economic, recreational, aesthetic, or scientific categories, each interdependent, almost impossible to separate one from another.

The purpose of this chapter is to raise an awareness of the many values placed on our lakes. Awareness leads to a broader appreciation of those values and, hopefully, to a greater concern for the need to protect, preserve and enhance them.

The following discussion briefly examines some of those values, tangible and intangible, that give lakes and their environs immeasurable value.

Recreation

Lakes provide valuable opportunity for many kinds of recreation. Barron County is particularly rich in offering a variety of recreational uses. Fishing, boating,swimming, water skiing, and other water sports make many of Barron County lakes desirable places for many people.

Others take simple pleasure in watching a sunset, or the beautiful reflections of some brilliant fall colors, or listening to the call of the loon, or the croak of a bullfrog. And nearly all of us enjoy the serenity and peace and quiet of a summer's evening on the lake.

Vacations, a weekend at the cabin or resort, or choosing to live by a lake draws resident and non-resident users to our lakes.

Recreational demands on our lakes, however, lead to problems. More people, more water sports, more fishermen, and more recreational "toys" all contribute to a decline in the quality of the recreational experience for many:

- "Fishin' ain't what it used to be."
- "Jet skis should be banned."
- "Wild lakes are an endangered resource."
- "How can I possibly afford future property taxes?"
- "They aren't making any more lakeshore."
- "$1,000 a frontage foot for prime lakeshore! Only the ultra-elite will be able to have and afford lakeshore property."

These are some of the concerns expressed by many about our lakes. The future of our lakes and the values they support is at risk by the growing demands being placed on them. As some people have said,"Our lakes are being loved to death."

Fishing

For example, fishing is increasing in popularity. In 1995 Barron County sold 28,400 fishing licenses (13,200 resident and 15,200 non-resident). In 1960, there were 23,000 sold. In the 35-year-period, 1960-1995, there were an additional 5,000 licenses sold. The greatest increase is in non-resident licenses. And this does not include the children and senior citizens who don't purchase an annual license.

Compare this with the county population of 41,000 and one can see the importance of fishing in Barron County.

The economic value of fishing in Barron County is a major benefit to Barron County businesses. Dollars spent for fishing licenses alone totaled $632,000 in 1995.

Chart __

Dollars Spent on Fishing Licenses in Barron County - 1995

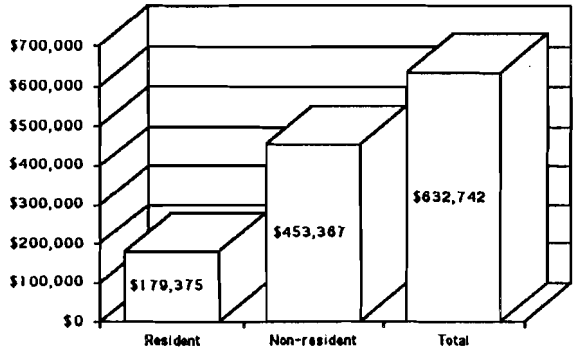


Chart __

Fishing Licenses Sold in Barron County 1960 and 1995

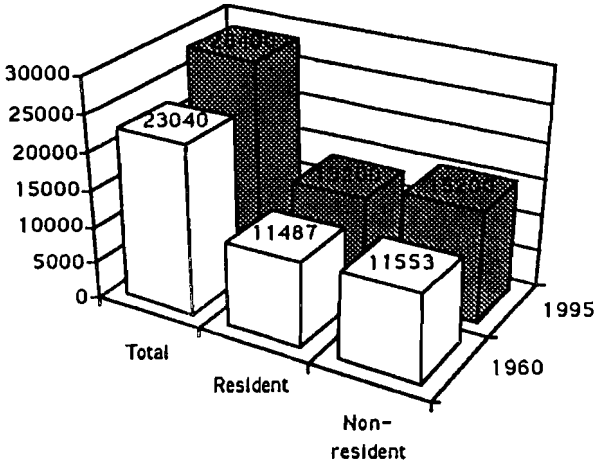


Chart __

Boats Registered in Barron County
1962, 1972, 1982 and 1992

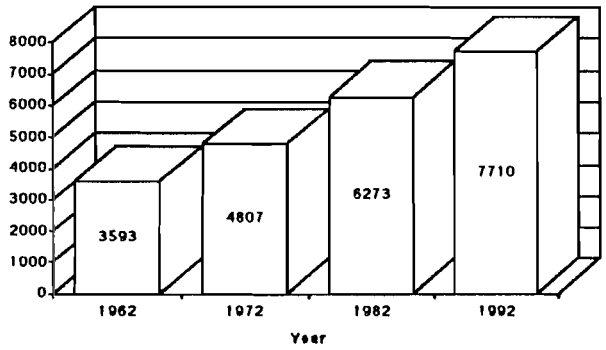
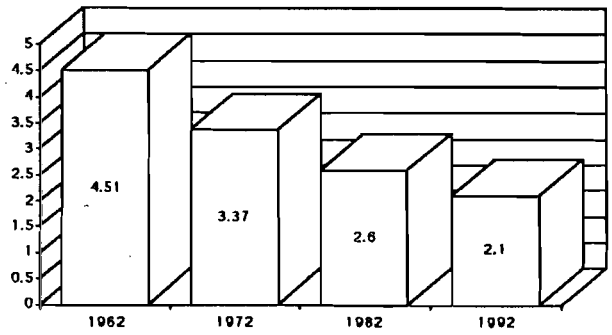


Chart __

Acres of Lake Per Boat
on Barron County Lakes
Over 25 Acres in Size
1962 to 1992



Boating

In 1992, boating licenses sold in Barron County totaled 7,710, more than doubling the 3,593 sold in 1962. (See Chart __)

Another way to measure the impacts of more and more boats is to calculate the numbers of acres of water per boat registered in the county. For the purpose of this exercise, assume that boating lakes are lakes at least 25 acres in size. If this is the case, then there are 2.1 acres of lake surface per boat in 1992, as compared to 4.5 acres in 1962. Our lakes are getting more and more crowded. (see Chart __)

Pontoon boats, personal watercraft (jet skis), and larger and more powerful boats are all a part of the increase over the past 30 some years. In 1960 a "big" outboard motor was probably in the range of 30 horsepower. Today, it is probably at the low end of the horsepower scale.

All of these changes put greater pressure on the lake resource. Bottom sediments are stirred up in shallow water from more powerful motors. Busy weekends make lakes much more dangerous than in the past. Conflicts, for example, arise from those that love jet skis and those that would like to see them banned. Motorized recreational sports often conflict with the non-motorized variety. The water skier is demanding recreational space and opportunity just as is the canoeing crowd.

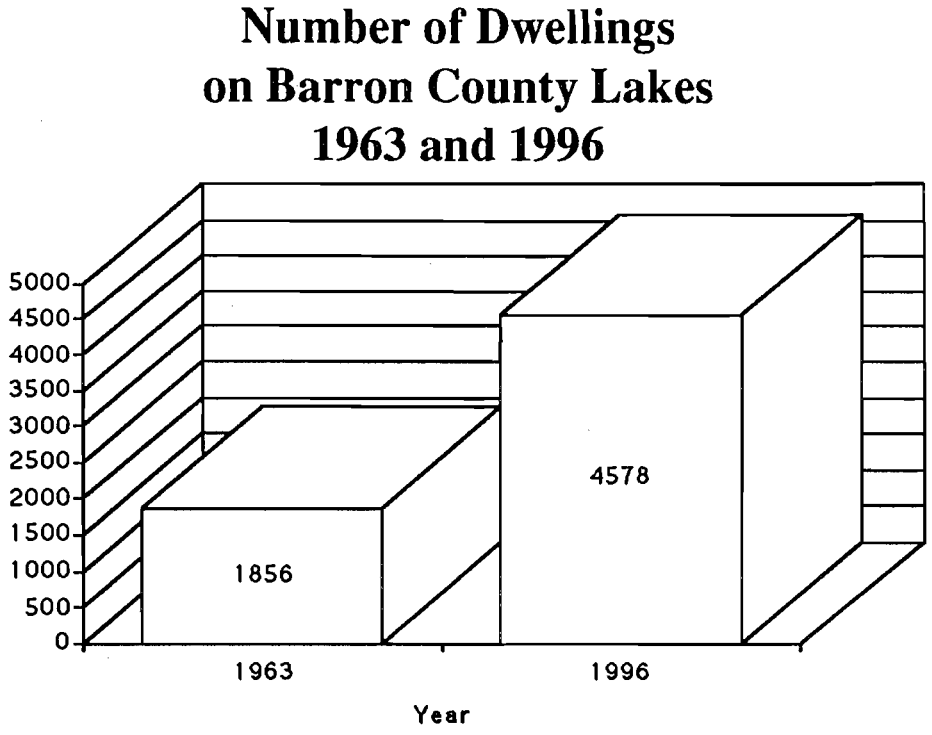
Cabins and Homes

In 1963, there were 1,856 dwellings on Barron County lakes. In 1996 there were 4,578 dwellings counted. 2,722 more dwellings have been constructed on our lakes in 33 years, roughly 82 dwellings on the average have been built per year.

Years ago the dwellings were cabins that were used on a few weekends and possibly for summer vacations. More recently people are making these dwellings year-round homes, changing the kinds and amounts of impacts to the lake and the lake values.

As populations and recreational demand for our public waters climb, more and more conflicts and problems will arise. Similar trends from recreational use will impact our water quality, and some lake values will deterioriate.

Chart __



Wildlife

All lakes provide habitat for some forms of wildlife use. A variety of life forms use our lakes for their habitat. Reptiles, amphibians, birds, mammals, and, of course, fish call our lakes home.

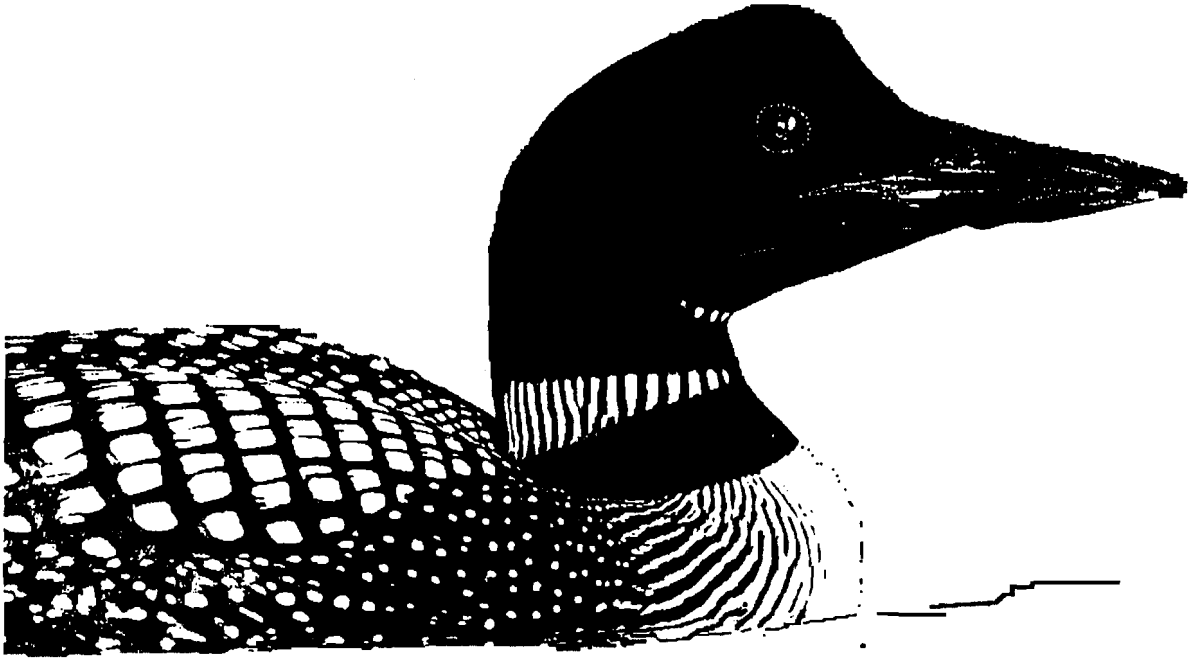
Some lakes are better for wildlife than others. Better habitat, food, seclusion and lack of disturbance, aquatic vegetation, nesting habitat, water quality, quality riparian habitat, wetlands, and water clarity are some of the many factors defining the quality of habitat for wildlife.

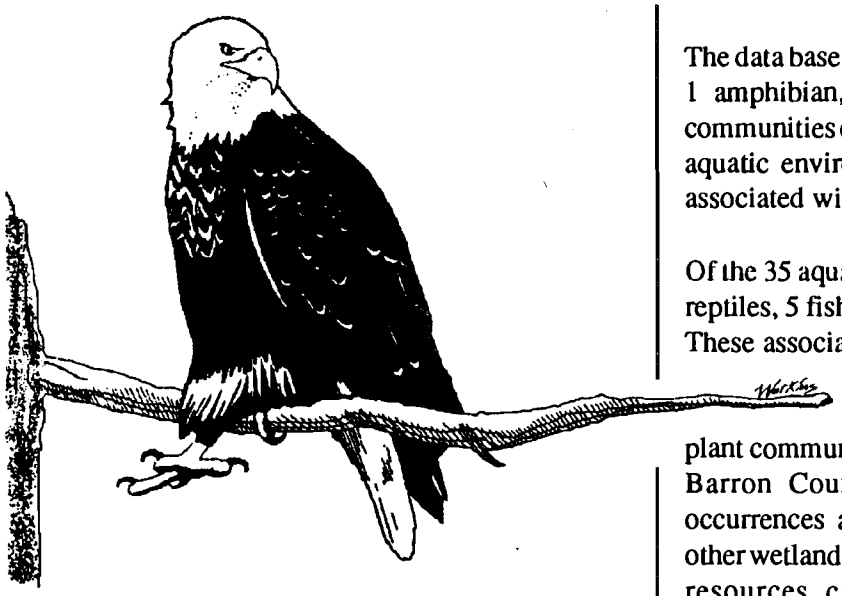
Lakes are often favored for a variety of unique, rare, or endangered wildlife. Barron County lakes provide habitat for species of special concern like loons, or threatened lake-dependent wildlife like bald eagles, or osprey. Endangered fish, reptiles, and amphibians find some Barron County lakes suitable habitat. Those lakes providing habitat for these unique species have added value because of it.

Riparian habitat along our lakes provide valuable habitat for many bird species, such as many in the warbler family. Wetlands and sedge meadows provide habitat for the La Conte sparrow and the yellow rail, and bogs offer a unique habitat for a completely different group of species. Each plant community in and around our lakes offers habitat for one species or another.

Biological diversity is a relatively recent term and concept in the life sciences. Basically it means that we need to provide suitable habitat for every species of plant and animal. Every native plant and animal is important in the overall workings of an environment or ecosystem.

We are just beginning to grasp the complexity of these habitats and the interactions that occur. We have barely scratched the surface in our quest for understanding. Lakes and their associated habitats have uncalculable value for these many varieties of plants and animals.





Endangered Resources

One unique value of our lakes is for endangered, threatened, and rare plants and animals. In addition, there are several Species of Special Concern that deserve our attention as well. Barron County lakes also have several unique wetland communities associated with some of them.

The Natural Heritage Program (NHP) is a DNR program for endangered resources of Wisconsin. Their purpose is to keep track of the unique and special animals, plants, and plant communities. NHP keeps a computer data base of these special habitats and plants and animals. Their overall goal is to work toward the protection and restoration of these special habitats and species on the list.

Wisconsin presently has __ species on the state list and __ species on the federal list. In addition there are many species that are in trouble and are being examined and considered for possible inclusion on the lists.

The Barron County Land Conservation Department requested a listing of the species in Barron County from the Natural Herutage Program. After signing a memorandum of understanding that identified how the information could be used, a data base listing was obtained with descriptions and locations of endangered resources.

The data base identifies 5 bird species, 11 fish species, 1 amphibian, 2 reptiles, 5 plants, and 11 natural communities of concern that are all associated with the aquatic environment. There are additional species associated with terrestrial environments.

Of the 35 aquatic occurrences, 4 birds, 1 amphibian, 2 reptiles, 5 fish, and 5 plants are associated with lakes. These associations may be as year-long residents, migratory or seasonal use, or for nesting habitat. In addition, 6 natural plant communities are found immediately adjacent to Barron County lakes. The remaining aquatic occurrences are associated with streams, rivers, or other wetlands. Specific locations of these endangered resources cannot be disclosed to the public.

Our purpose for including this information in this report is to increase the awareness of these valuable plants and animals. If activity is proposed on or near lake locations, the NHP of the Bureau of Endangered Resources of the DNR should be consulted so these valuable plants and animals and their habitat is adequately protected from disturbance.

Lake Associated Endangered Resources in Barron County

Fish
- weed shiner
- redfin shiner
- pugnose shiner
- lake herring
- least darter

Reptiles
- wood turtle

Amphibians
- bullfrog

Birds
- bald eagle
- osprey
- yellow rail
- La Conte's sparrow

Plants
- Robbin's spikerush
- Torrey's bulrush
- spotted pondweed

Natural Communities
- Moose Ear Sedge Meadow
  shallow, soft, drainage lake
  emergent aquatic
  northern sedge meadow
  alder thicket
- Lake Montanis Bog
  northern sedge meadow
  open bog
- Loon Lake Wildlife Area
  shallow, hard. seepage lake
  northern sedge meadow
- Bear Lake Sedge Meadow
  northern sedge meadow
  open bog
- Chain-o-Lakes Wild Lakes
  lake-soft bog
- Canvasback Lake
  shallow, soft, seepage lake
  emergent aquatic

Outstanding Water Resource (OWR)

Special or unique waters in Wisconsin can be included in a special classification called an Outstanding Water Resource. Lakes having special value can be included on this list because of their exceptional water quality, quality wildlife values, unique fishery, or unique geologic features.

Four (five?) lakes in Barron County are included on the list of Outstanding Water Resources:

- Bear Lake
- Red Cedar Lake
- Sand Lake
- Silver Lake
- Beaver Dam ?

Inclusion on the OWR list places added emphasis and value on these waters so that those values will be protected or possibly receive special treatment.

Lake Access

Lakes are public resources belonging to the people of the state of Wisconsin.. The public has the legal right to recreate on any of our lakes as long as public access is available.

Public lake access is the only way the public can access lakes and is therefore a very valuable asset to the people who do not have lakeshore property.

Lakes surrounded by private lands with no public access are off limits to the public unless permission is granted by the landowner. A new trespass law enacted in 1996, requires that permission must be acquired from the landowner before anyone can walk on someone else's property. "No Trespassing" signs no longer have to be displayed. It is up to the person wanting access to get permission. Unauthorized trespass can and will result in a penalty to the offender.

In Barron County, and throughout much of the lake country of Wisconsin, public access was acquired to many of our fishing lakes through a concerted effort by the DNR.

There are 113 fishing lakes in Barron County. Of those, public road access is available on 65 lakes (58%). Several others have walk-in or wilderness access. (see Chapter __ page __)

An examination of the total acres of fishable lakes, shows the total acreage is 16,548 acres. Fishable lake acres having public road access totals 15,502 acres or 94% of the total available.

Boat Ramps

Boat ramps are a valuable asset for providing boat access to the public. Boat ramps are managed by a variety of agencies and government entities in Barron County. Cities, townships, Barron County Forests and Recreation Department, and the DNR each have ownership and management responsibilities of public boat ramps in the county.

Boat ramps vary in their condition, signs, ease of use, parking, and available facilities. Oftentimes the access is only a narrow strip of land with a road, a turnaround, and the boat ramp itself.

Some boat ramps may be paved, have a dock, or have other facilities such as toilets or picnic tables. Signing varies with some having excellent notification for the public and others have no signing at all. Boat ramp access is identified on access lakes in the 1995 Barron County Platbook.

Tables __ and __ list the boat ramps and boat accessible lakes in the county along with other information about the ramp and associated facilities.

Chapter 4

Limnology - The Science of Lakes

- **Lake Aging - Eutrophication**
- **Lake Types**
- **Lake Zones**
- **Water Chemistry**

In order to better understand the problems associated with lakes, it helps to understand how lakes function.

The science or study of lakes is called **limnology**, from *limne* a Greek word meaning lake, and *ology* meaning "the study of." A scientist who participates in this science is called a limnologist.

Limnology is a complex science involving the physical, biological, and chemical characteristics of a lake while taking into account the many impacts caused by people and their activities.

Limnologists can study lakes for an entire lifetime and still don't completely understand the many interrelationships associated with lakes.

This chapter touches on a few basic limnological characteristics about lakes, so that the reader will be better able to understand them.

Lake Types

Lakes in Wisconsin can be classified according to how they receive their water and how they rid themselves of water. Wisconsin fall into four types: *seepage, groundwater with outlet, drainage lakes,* and *impoundments.* The first three were naturally formed by glacial action and associated glacial meltwaters. The fourth type, *impoundment,* results from the construction of a dam.

Seepage lakes receiving their water from groundwater and precipitation with no outlet or major inlet.

Goundwater drainage lakes receive their water from groundwater and precipitation and have an outlet stream.

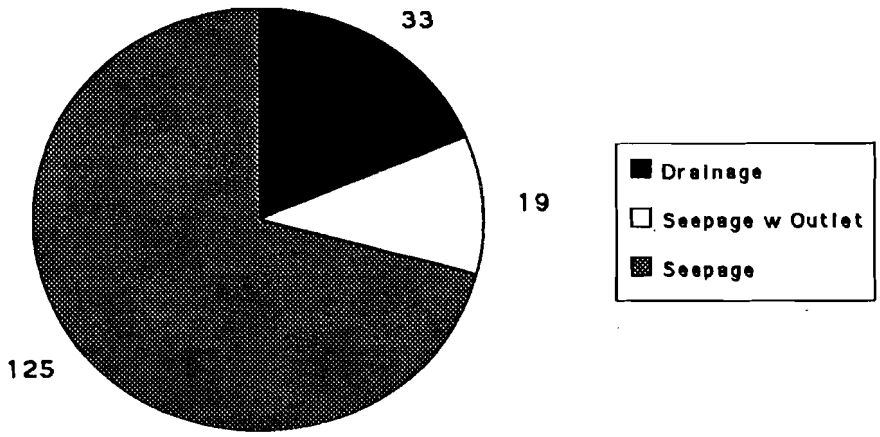
Drainage lakes have both stream inlets and outlets. Although groundwater is still a source of its water, streamflow is the major source. Some drainage lakes may also have a dam holding back a portion of the lake's volume

Impoundments are lakes developed completely by damming a stream or river. These lakes would not be there with out a dam.

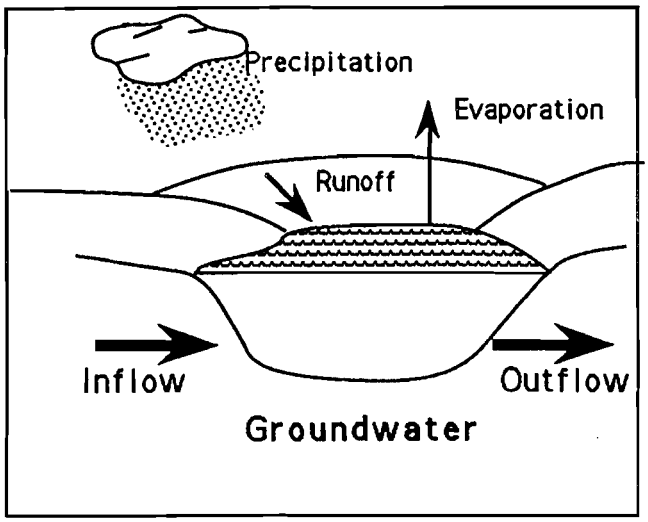
The vast majority of Barron County lakes fall into the seepage classification (See Diagram __)

Each of these lake types exhibits different characteristics which reflects different management problems and solutions. (see Table __)

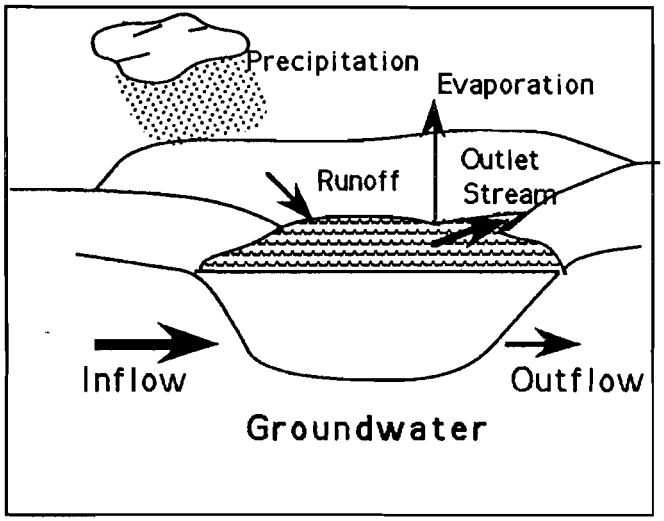
Chart __ Lake Types in Barron County



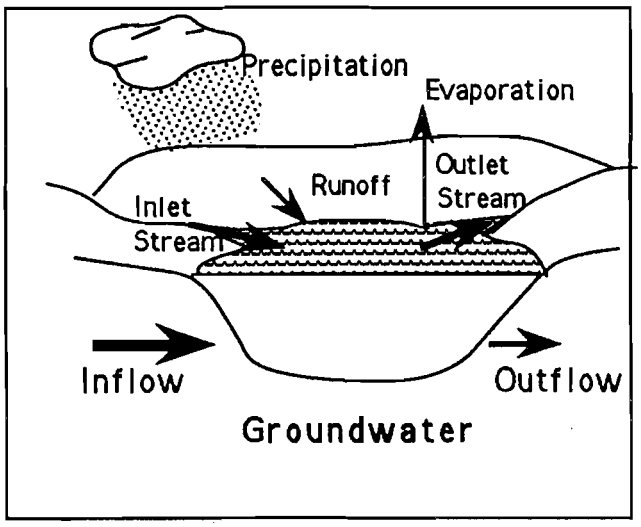
Note: Barron County has 9 impoundments, which are grouped in the drainage lake category on the pie chart. *They are: Red Cedar Lake, Rice Lake, Bear Lake, Chetek Chain of Lakes (These lakes were originally lakes but have been dammed) Barron Flowage 1 & 3, Dallas Flowage, Prairie Farm Flowage, and Cranberry Creek Flowage (These lakes are entirely impoundments on streams) Beaver Dam and Poskin have minor lake level control structures.*



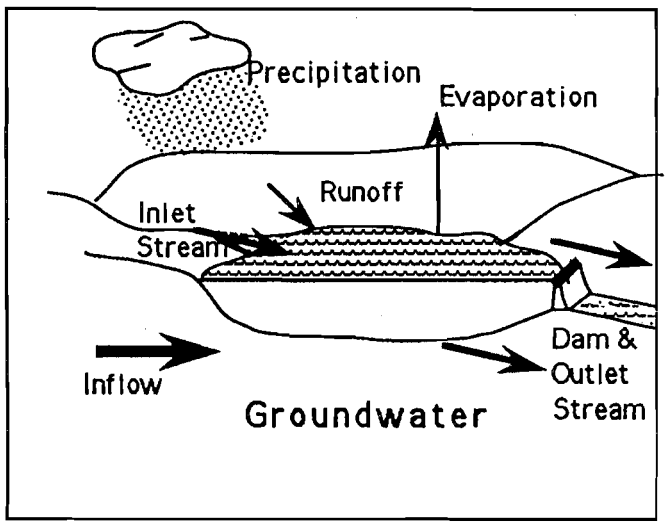
Seepage Lake



Groundwater Lake with Outlet



Drainage Lake



Impoundment

Source: Adapted and redrawn from Understanding Lake Data, Byron Shaw, Christine Mechenich, and Lowell Klessig, UWEX

Table __ Characteristics by Lake Type

	Lake Type			
Characteristics	**Seepage**	**Groundwater with Outlet**	**Drainage**	**Impoundment**
Water Sources	Groundwater and Precipitation	Groundwater and Precipitation and possibly some small streams	Rivers, Streams, Groundwater, Precipitation	Rivers, Streams, Groundwater, Precipitation
Outlets	None	Small Headwater Stream	Rivers	Rivers
Watershed Size	Very Small	Small to Medium - Outlet Stream	Large	Large
Sources of Impacts	Localized in small watershed	Localized in small to medium sized watershed	Widespread from land uses of large watershed and often more people	Widespread from land uses of large watershed and often more people
Natural Water Clarity	Generally clearer	Generally clearer	Poorer water clarity	Poorer water clarity
Natural Fertility	More oligotrophic unless very shallow	More oligotrophic unless very shallow	Meso or eutrophic	Meso or eutrophic
Water Quality	Good unless local impacts	Good unless local impacts	Poorer	Poorer
Acidity	More acidic as precipitation is slightly acidic	More acidic as precipitation is slightly acidic	Generally more alkaline	Generally more alkaline
Rate of Flushing	Very slow	Slightly faster but still slow	Fastest	Dam can trap sediments causing poor flushing of nutrients
Problems	Once polluted, very slow to fix	Once polluted very slow to fix	Many small poor land uses may lead to big problems	Many small poor land uses may lead to big problems
Water Quality Solutions	If localized problems are solved, water quality has better chance for clean-up	If localized problems are solved, water quality has better chance for clean-up	Faster flushing may mean if problems are fixed, water quality may improve at a faster rate	Trapped sediments and nutrients make clean-up more difficult

Lake Zones

Lakes have different habitats or zones that provideing different habitat situations for aquatic life.

Littoral Zone - the shallow water area of the lake close to shore. This area is where aquatic plants live and provides habitat for fish and other aquatic life.

The littoral zone and the plants that live there is defined by the amount of light that penetrates the water. Lakes with clearer water may have aquatic plants growing at greater depths than lakes with poor water clarity. As a result the littoral zone may vary by lake depending on its water clarity as well as its depths.

Profundal Zone - the bottom zone in the deepest areas of the lake. Deposition and decomposition of of organic material occurs in this zone. This area often lacks oxygen, especially during the winter when plants in the lake are not undergoing photosynthesis and decomposition is using up available oxygen.

Limnetic Zone - the open water area of the lake beyond the littoral area and above the profundal zone.

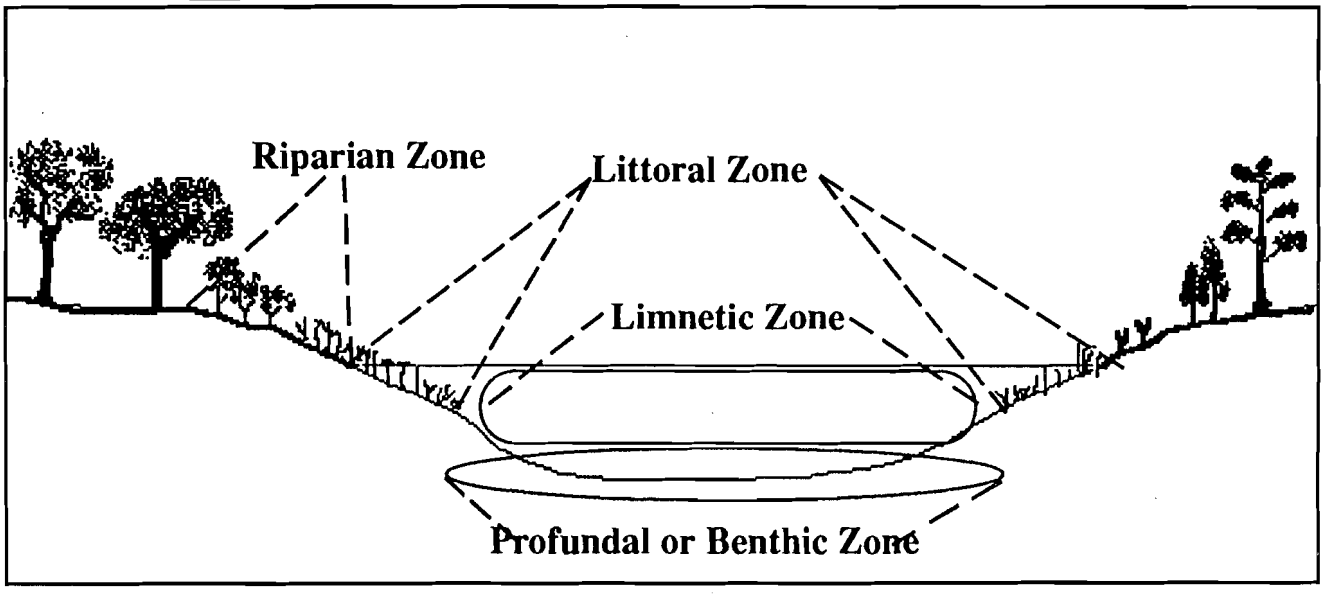
Riparian Zone - the land area adjacent to the shore. *Riparian* refers to "the bank" and also the vegetation that occurs there. Riparian areas are extremely important for lake health. It is in the riparian areas where resource and land use conflicts often occur. Values of the riparian area are often lost when we build our homes and cottages on lakeshores. (see further discussion later in this chapter)

Watershed - the land area that drains to the lake. Watershed area may be small as in the case of small seepage lakes; or large, as in drainage lakes with extensive drainage areas. Land uses within the watershed are reflected in the water quality conditions of the lake. Poor water quality may reflect poor land use practices or pollution problems within the watershed. Good water quality conditions indicate that proper land uses are occurring in the lake's watershed. (see further discussion later in this chapter)

Each of these lake zones is important for lake health. None can be neglected or negatively impacted without influencing the entire lake ecosystem. When looking at lake problems, one must examine each of these zones and the impacts that are occurring there.

Two of these areas, the riparian zone, and the lake's watershed, are so vital to lake health that they warrant additional discussion.

Diagram __ Lake Zones



The Riparian Zone: Importance to Lake Health

Riparian areas are extremely important to the lake and to things living there. Riparian vegetation is that growing close to the lake and is different from the terrestrial vegetation, a short distance from the water. Riparian vegetation exists often times in a very narrow band and it grows in that area because of the abundance of soil moisture.

The riparian area and riparian vegetation is important for several reasons:

- Acts as a filter from outside impacts.
- Stabilizes the bank with extensive root system.
- Helps control or filter erosion
- Provides screening to protect visual quality and hides man's activities and buildings.
- Provides the visual backdrop as seen from the lake.
- Provides organic material to the lakes food web. Leaves, needles, and woody debris are fed upon by bacteria, fungi, aquatic insects and this energy moves upward through the food web.
- Offers cover and shade for fish and other aquatic life.
- Provides valuable wildlife habitat. Riparian areas have been found to be the most productive of wildlife habitats. More species (biological diversity) and higher populations of species are found in riparian areas than in any other habitat. Riparian areas also provide a travel corridors for species using the lake.

Riparian areas are too often the areas impacted and riparian vegetation is lost when man enters the picture. Cabins, homes, lawns, boat houses, are often right in the riparian area. Riparian vegetation is too often cut down to provide a wider vista from the front deck or it is mowed and its value s are lost.

The loss of riparian vegetation results in deterioriation of many lake values. Water quality is impacted, wildlife habitat is lost, scenic quality suffers, fish habitat may bc impacted, bank stability is weakened, and the potential for erosion increases.

The maintenance of and restoration of riparian vegetation is extremely important for the future health of our lakes.

Watershed

As mentioned, a watershed is the entire land area that drains to a particular point, such as a lake. Watersheds may be very small encompassing a few acres or square miles, or may encompass thousands of square miles, such as the Lake Superior or Mississippi River watersheds.

In assessing the land uses in the watershed and their effects on a lake, consider the following:

- Is the watershed forest or agricultural land?
- What crops are being grown?
- What is its population (total number)?
- What is the population density (number per square mile)?
- Are there urban areas or is it a rural landscape?
- Are there industrial uses, major transportation corridors, barnyards or feedlots?
- Is there high use of fertilizers or other agricultural chemicals in the watershed?
- Are there steep erosive soils being farmed?
- Is soil erosion a problem?
- How is livestock waste being managed?
- Are there good riparian buffers between agricultural uses and lakes, streams, and rivers?
- Are people properly using lawn and garden chemicals?
- What kind of wastewater treatment facilities exist? Are they effective?
- Are there urban stormwater problems in the watershed?
- What is the lakeside housing density? Setbacks? Septic and sewage problems? Riparian protection on shorelines?
- What types of laundry detergents are being used?
- How are grass clippings and leaves treated by land owners?

These questions are some of the many that could be asked when examining the effects of various watershed land uses and how they are affecting lakes. (For further discussion see Chapter __ Water Clarity page ___)

All these land uses have different impacts to lakes and to the lake's water quality. One of the most significant, in terms of lake water quality, is the introduction of nutrients.

Phosphorus is the nutrient having the greatest influence on degradation of lake water quality. Each land use has different impacts in terms of adding phosphorus to our lakes. (see Chapter __) When looking for ways to clean up our lakes, reducing the addition of phosphorus is a high priority.

Chapter 5

Lake Information

This chapter is a summary of the information collected during the project. Each sub-section offers the viewer a short discussion of the information collected along with charts and tables describing or possibly interpreting the results.

The data and information is provided in such a manner that the reader has ready access to the information rather than searching the appendix.

Table 5-2 Size of Barron County Lakes - Largest to Smallest

Rank	Lake	Size	Rank	Lake	Size	Rank	Lake	Size
1	Red Cedar Lake	1841	60	Pickerel	37	119	Wickerts	14
2	Prairie	1534	61	Skinaway	37	120	Wintergreen	14
3	Bear	1358	62	Moose Ear	34	121	Jacksnipe	13
4	Beaver Dam	1112	63	Hogback	32	122	Long (Vance Creek)	13
5	Rice	939	64	Tamarack	32	123	Pine	13
6	Chetek	770	65	Grassy	31	124	Ruddick	13
7	Mud(Ojaski)	577	66	Little Dummy	31	125	Unnamed (Bear Lk 8)	13
8	Pokegama	506	67	Prairie Farm Flowage	29	126	Bloomquist	12
9	Upper Turtle	438	68	Black Duck	28	127	Bowman	12
10	Horseshoe (Almena)	377	69	Mitchell	28	128	Canvasback	12
11	Ten Mile	376	70	Scott (Maple Plain)	28	129	Dietz #2	12
12	Hemlock	357	71	Spruce Hen	28	130	Elbow	12
13	Silver	337	72	Dallas Flowage	27	131	West Esker	12
14	Sand	322	73	Eyk	27	132	Fox	12
15	Staples	305	74	Little Moon	27	133	Goose	12
16	Lower Turtle	276	75	Minnow	26	134	Jacobson	12
17	Lower Vermillion	208	76	Mosquito	25	135	Raccoon	12
18	Montanis	200	77	Little Bass	24	136	Trigger	12
19	Big Moon	191	78	Mud (Bear Lake 30)	24	137	Beauty	11
20	Tuscobia	190	79	Lower Spirit	24	138	Beaver (Crystal Lake)	11
21	Lower Devils	162	80	Bass (Bear Lake)	23	139	Couderay	11
22	Echo	161	81	Hillman	23	140	Nelson	11
23	Granite	154	82	Mud (Crystal Lake)	23	141	Spirit	11
24	Butternut	141	83	Little Butternut	22	142	Grouse	10
25	Poskin	136	84	Little Granite	22	143	Pintail	10
26	Stump	129	85	Mud (Sioux Creek)	22	144	Round (Cedar Lake)	10
27	Crystal	120	86	Upper Waterman	22	145	Squirrel	10
28	Bass (Chetek)	118	87	Dietz #1	21	146	Unnamed (Almena)	10
29	Horseshoe (MapPlain)	115	88	Ginder	21	147	Wolf	10
30	Big Dummy	111	89	Collingwood	20	148	Cranberry	9
31	Little Sand	101	90	Bass (Cedar Lake)	19	149	Crystal Bay	9
32	Duck	100	91	Bass (Turtle Lake)	19	150	Deer	9
33	Loon	94	92	Canthook	19	151	Hawk	9
34	Kirby (Maple Plain)	92	93	Kelley's	19	152	Lake 5	9
35	Shallow	92	94	Maple Plain Fish Pond	19	153	Mirror	9
36	North	89	95	Mud (Almena)	19	154	North Pine	9
37	Upper Vermillion	89	96	Mud Hen	19	155	Redhead	9
38	Upper Devils	86	97	Kelly	18	156	Spawn	9
39	Moon	84	98	Little Silver	18	157	Star	9
40	Desair	81	99	Muskrat	18	158	Wildcat	9
41	Scott (Crystal Lake)	81	100	Round (Bear Lake)	18	159	Blueberry	8
42	Chain (Ced Lk) (Twin)	80	101	Wood Duck	18	160	Firetag	8
43	Thirty	73	102	Little Poskin	17	161	Fish	8
44	Cranberry Cr Flow.	72	103	Teepee	17	162	Johnny's	8
45	Sylvan	67	104	Unnamed(Bear Lake 5)	17	163	Peewee	8
46	Barron Flowage #3	65	105	Dietz #3	16	164	Kirby (Bear Lake)	7
47	Spring	60	106	East Esker	16	165	Little	7
48	Buck	57	107	Larson's	16	166	Red Ribbon	7
49	Greeley	56	108	Beaver (Cedar Lake)	15	167	Shinner	7
50	Barron Flowage #1	48	109	Crooked	15	168	Upper Spirit	7
51	Sweeney Pond	47	110	Dietz #4	15	169	Little Mud	6
52	Lake of the Woods	46	111	Gates	15	170	Lindberg Lakes **	5
53	Bailey	43	112	Killdeer	15	171	Old Mill Pond	5
54	Chain (Lakeland)	43	113	Little Spider	15	172	Thompson	5
55	Fisher	40	114	Anderson	14	173	Mud (Bear Lake 34)	4
56	Kidney	40	115	Bullhead	14	174	Meadow	3
57	Long (Crystal Lake)	40	116	Loch Lomond	14	175	Pea Viner	3
58	Spider	40	117	Teal	14	176	Robinson	3
59	Peterson	37	118	Lower Waterman	14			

Table 5-3 Depths of Barron County Lakes in Order of Depth

Rank	Lake	Depth	Rank	Lake	Depth	Rank	Lake	Depth
1	Beaver Dam	106	46	Hemlock	21	91	East Esker	11
2	Silver	91	47	North	21	92	Mosquito	11
3	Bear	87	48	Lower Waterman	21	93	Round (Cedar Lake)	11
4	Spring	67	49	Buck	20	94	Mud (Crystal Lake)	11
5	Horseshoe (Almena)	57	50	Little Silver	20	95	Beauty	10
6	Sand	57	51	Bass (Turtle Lake)	19	96	Barron Flowage #3	10
7	Little Bass	56	52	Chain/Twin (Cedar Lake)	19	97	Crooked	10
8	Little Granite	56	53	Horseshoe (Maple Plain)	19	98	Hillman	10
9	Lake of the Woods	55	54	Kirby (Maple Plain)	19	99	Muskrat	10
10	Lower Vermillion	55	55	Mud (Sioux Creek)	19	100	Skinaway	10
11	Big Dummy	54	56	Pokegama	19	101	Upper Devils	10
12	Red Cedar	53	57	Rice	19	102	West Esker	10
13	Big Moon	48	58	Fox	18	103	Dallas Flowage	9
14	Upper Waterman	47	59	Ginder	18	104	Cranberry Cr. Flowage	9
15	Little Dummy	44	60	Anderson	17	105	Gates	9
16	Lower Spirit	42	61	Bowman	17	106	Old Mill Pond	9
17	Echo	41	62	Deer	17	107	Thompson	9
18	Kelly	41	63	Mud (Bear Lake 34)	17	108	Upper Vermillion	9
19	Bass (Cedar Lake)	39	64	Staples	17	109	Bullhead	8
20	Sylvan	37	65	Crystal Bay	16	110	Dietz #2	8
21	Little Sand	36	66	Little Butternut	16	111	Hogback	8
22	Granite	34	67	Mirror	16	112	Little Spider	8
23	Fish	34	68	Prairie	16	113	Prairie Farm Flowage	8
24	Desair	33	69	Round (Bear Lake)	16	114	Bailey	7
25	Kidney	32	70	Butternut	15	115	Little	7
26	Little Moon	30	71	Chain (Lakeland)	15	116	Mud (Bear Lake 30)	7
27	Poskin	30	72	Dietz #1	15	117	Raccoon	7
28	Robinson	30	73	Goose	15	118	Stump	7
29	Shallow	30	74	Mud (Ojaski)	15	119	Wolf	7
30	Cranberry	28	75	Bass (Chetek)	14	120	Blueberry	6
31	Thirty	27	76	Minnow	14	121	Johnny's	6
32	Duck	26	77	Mitchell	14	122	Long (Vance Creek)	6
33	Loon	26	78	Montanis	14	123	Moose Ear	6
34	Lower Devils	26	79	Greeley	13	124	Upper Spirit	6
35	Scott (Crystal Lake)	26	80	Kirby (Bear Lake)	13	125	Pea Viner	6
36	Wildcat	26	81	Long (Crystal Lake)	13	126	Elbow	5
37	Collingwood	25	82	Peterson	13	127	Moon	5
38	Pickerel	25	83	Spider	13	128	North Pine	5
39	Tuscobia	25	84	Barron Flowage #1	12	129	Pine	5
40	Upper Turtle	25	85	Dietz #4	12	130	Pintail	5
41	Lower Turtle	24	86	Kelley's	12	131	Firetag	4
42	Dietz #3	23	87	Minnow	12	132	Mud (Almena)	4
43	Chetek	22	88	Sweeney Pond	12	133	Couderay	3
44	Crystal	22	89	Ten Mile	12			
45	Bass (Bear Lake)	21	90	Wickerts	12			

Table 5-4 Volumes of Barron County Lakes

Rank	Lake	Volume (acre-feet)	Area (acres)	Max Depth	Rank	Lake	Volume (acre-feet)	Area (acres)	Max Depth
1	Red Cedar	50,000	1840	53	29	Big Dummy	1,322	111	54
2	Beaver Dam	35,990	1112	106	30	Crystal	1,159	120	22
3	Bear	27,253	1358	87	31	Horseshoe (Maple Plain)	1,096	115	19
4	Prairie	14,035	1534	16	32	Loon	1,052	94	26
5	Silver	12,793	337	91	33	Butternut	1,039	141	15
6	Chetek	9,991	770	22	34	Bass (Chetek)	1,017	118	14
7	Sand	9,070	322	57	35	North	944	89	21
8	Rice	7,953	939	19	36	Tuscobia	936	190	25
9	Horseshoe (Almena)	7,591	377	57	37	Thirty	924	73	27
10	Upper Turtle	6,054	438	25	38	Lake of the Woods	915	46	55
11	Pokegama	5,322	506	19	39	Scott	739	81	26
12	Lower Vermillion	4,879	208	55	40	Kirby (Maple Plain)	720	92	19
13	Big Moon	4,639	191	48	41	Chain (Cedar Lake)	704	107	19
14	Lower Turtle	3,933	276	24	42	Stump	601	129	7
15	Staples	3,165	305	17	43	Upper Vermillion	492	89	9
16	Echo	3,158	161	41	44	Little Granite	490	22	56
17	Hemlock	2,940	357	21	45	Upper Waterman	430	22	47
18	Granite	2,723	154	34	46	Little Dummy	399	31	44
19	Mud (Ojaski)	2,460	577	15	47	Kidney	391	40	32
20	Ten Mile	2,369	376	12	48	Upper Devils	347	86	10
21	Poskin	2,348	136	30	49	Buck	323	57	20
22	Montanis	1,643	200	14	50	Barron Flowage #3	276	65	10
23	Spring	1,521	60	67	51	Bass (Cedar Lake)	254	19	39
24	Sylvan	1,399	67	37	52	Barron Flowage #1	240	48	12
25	Lower Devils	1,369	162	26	53	Little Butternut	196	22	16
26	Duck	1,357	100	26	54	Anderson	141	14	17
27	Desair	1,380	81	33	55	Round (Cedar Lake)	55	10	11
28	Little Sand	1,322	101	36					

Chart 5-1 Lake Volume Distribution
Lakes by Volume Class

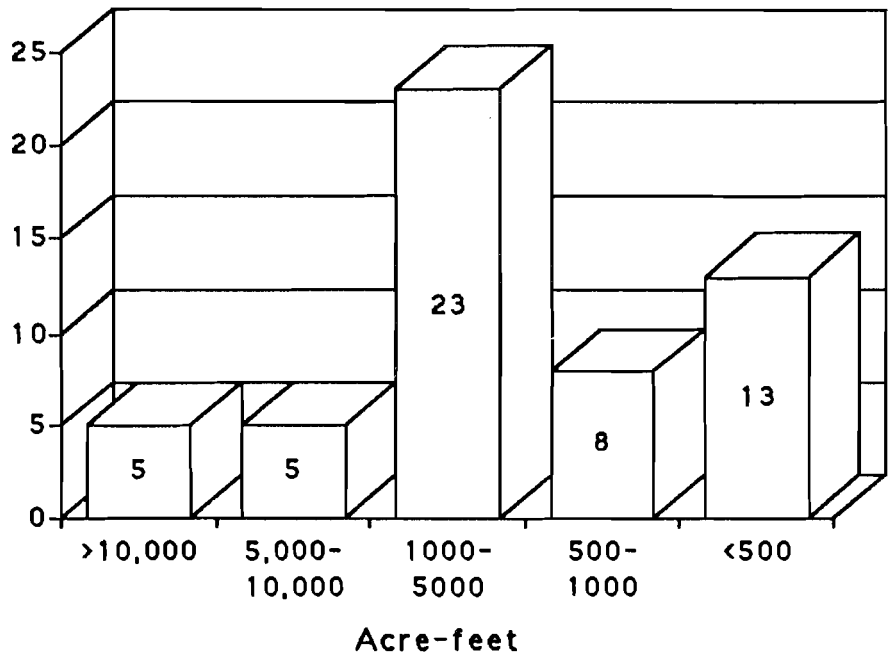


Chart 5-2 Size Class Distribution of Barron County Lakes

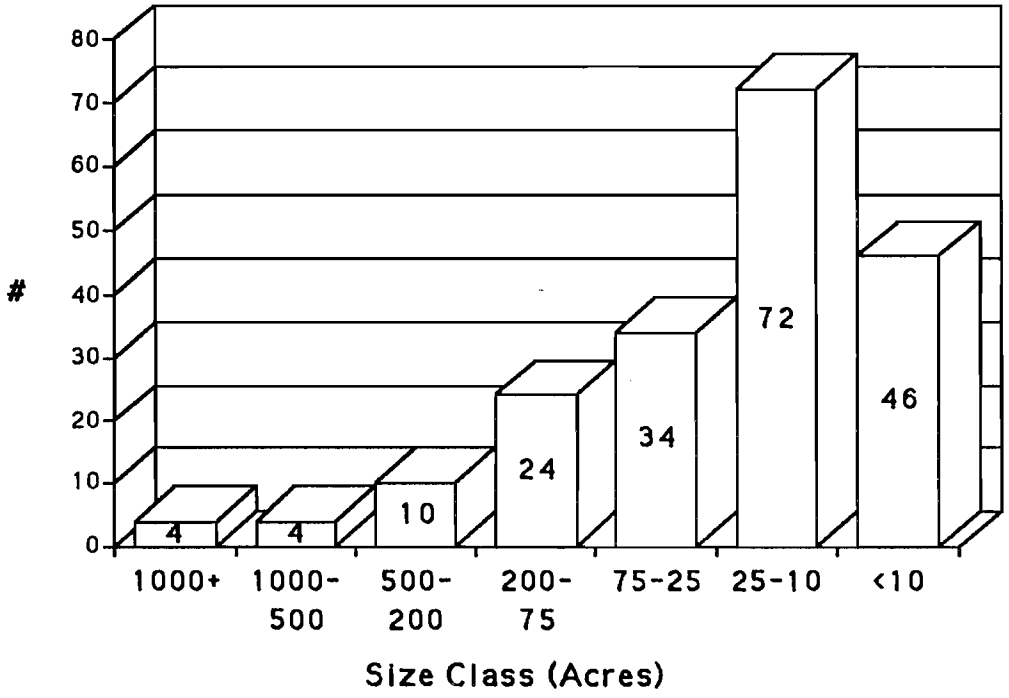
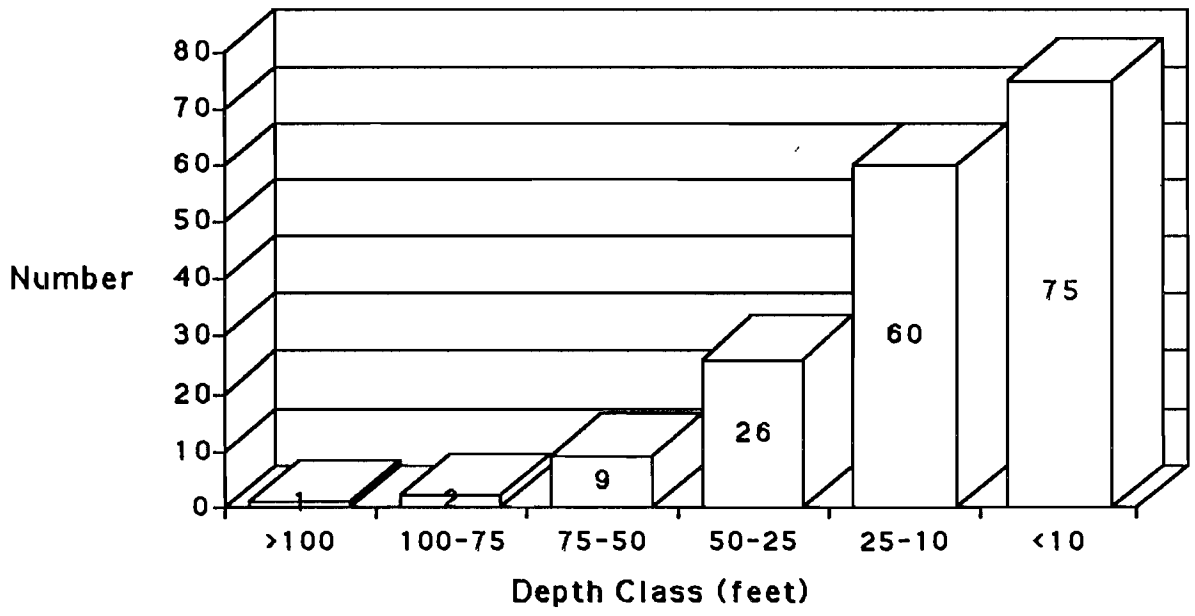


Chart 5-3 Depth Class Distribution of Barron County Lakes



Shoreline Miles

Total shoreline miles were measured on all 176 named lakes. Both USGS quadrangle maps and aerial photographs were used for the measurements. Total shoreline miles for these lakes was 354.91 miles of which 345 is within Barron County. 9.52 miles of the total lakeshore is outside the county on 5 lakes shared with Polk, Washburn, and Burnett counties.

Prairie Lake has the greatest number of shoreline miles at 21.44 miles. Beaver Dam and Red Cedar rank #2 and #3 at 17.77 and 17.45 miles respectively.

See Table 5-5 for a ranking of shoreline miles from greatest to smallest.

Shoreline Development Factor (SDF)

A lake's shoreline development factor is an indicator of the irregularity of the shoreline. It is calculated with the following formula:

$$SDF = \frac{s}{2\sqrt{\pi a}}$$

s = shoreline miles
a = area of lake in square miles

A circular lake has a SDF of 1.0 and is the smallest SDF possible.

SDF is an important value to evaluate:

- the amount of littoral (shallow water) habitat, important for fish and other aquatic life.
- the degree of crowding

Pertaining to the degree of crowding, the higher the SDF the more dwellings can "hide" from each other. It may be possible to put more dwellings on lakes with higher SDFs than on circular lakes with SDFs closer to 1.0 with similar "feelings" of crowding.

Long narrow lakes or lakes with many bays have higher SDFs than round lakes. SDF values for Barron County lakes range from circular Johnny's Lake with a SDF of 1.0 to Prairie Lake with an SDF of 3.91. (See Table 5-6)

Table 5-5 Shoreline Miles - Largest to Smallest

Rank	Lake	Miles	Rank	Lake	Miles	Rank	Lake	Miles
1	Prairie	21.44	60	Duck	1.52	119	Cranberry	.76
2	Beaver Dam	17.77	61	Spruce Hen	1.52	120	Crystal Bay	.76
3	Red Cedar	17.55	62	Grassy	1.51	121	Dietz #3	.76
4	Rice	14.43	63	Poskin	1.42	122	Jacobson	.76
5	Bear *	13.29	64	Lake of the Woods	1.40	123	Pine	.76
6	Pokegama	10.04	65	Moose Ear	1.38	124	Raccoon	.76
7	Lindberg Lakes **	8.13	66	Mud (Almena)	1.38	125	Round (Bear Lake)	.76
8	Horseshoe (Almena)*	7.13	67	Teepee	1.33	126	Spawn	.76
9	Chetek	7.05	68	Little Dummy	1.30	127	Wolf	.76
10	Upper Turtle	6.47	69	Ruddick	1.29	128	Anderson	.72
11	Ten Mile	6.36	70	Kidney	1.27	129	Squirrel	.72
12	Sand	5.87	71	Mosquito	1.27	130	Dietz #1	.70
13	Tuscobia	5.49	72	Hogback	1.25	131	Canvasback	.68
14	Hemlock	5.35	73	Bailey	1.25	132	Eyk	.68
15	Silver	5.25	74	Pickerel	1.23	133	Kelley's	.68
16	Mud (Ojaski)	5.22	75	Mitchell	1.21	134	Little Poskin	.68
17	Cranberry Cr. Flowage	4.36	76	Little Butternut	1.16	135	Bass (Cedar Lake)	.66
18	Chain (Cedar Lake)	3.81	77	Little Silver	1.14	136	Goose	.66
19	Lower Turtle	3.75	78	Mud (Crystal Lake)	1.12	137	Loch Lomond	.66
20	Granite	3.52	79	Wood Duck	1.12	138	Unnamed (Bear Lake 8)	.66
21	Staples *	3.22	80	Hillman	1.10	139	Blueberry	.64
22	Barron Flowage #3	3.14	81	Peterson	1.10	140	Gates	.64
23	Prairie Farm Flowage	3.13	82	Ginder	1.08	141	Teal	.64
24	Kirby (Maple Plain)	2.95	83	Black Duck	1.06	142	Wickerts	.63
25	Chain (Lakeland)	2.86	84	Tamarack	1.06	143	Bass (Turtle Lake)	.61
26	Big Moon	2.84	85	Unnamed (Bear Lake 5)	1.06	144	Beaver (Crystal Lake)	.61
27	Lower Vermillion	2.84	86	Canthook	1.04	145	Larsons	.59
28	Skinaway *	2.80	87	Elbow	1.04	146	Maple Plain Fish Pond	.59
29	Echo	2.77	88	Lower Spirit	1.02	147	Bullhead	.57
30	Long (Crystal Lake)	2.72	89	Long (Vance Creek)	1.00	148	Couderay	.57
31	Lower Devils	2.65	90	Bass (Bear Lake)	.98	149	Deer	.57
32	Montanis	2.65	91	Scott (Maple Plain)	.98	150	Jacksnipe	.57
33	Horseshoe (Maple Plain)	2.60	92	Muskrat	.97	151	Nelson	.57
34	Butternut	2.54	93	Kelly	.95	152	Old Mill Pond	.57
35	Little Sand	2.50	94	Minnow	.95	153	Trigger	.57
36	Sweeney Pond	2.50	95	Unnamed (Almena)	.95	154	Firetag	.55
37	Shallow *	2.44	96	Little Moon	.93	155	Fish	.55
38	Upper Vermillion	2.41	97	Crooked	.89	156	Peewee	.55
39	Barron Flowage #1	2.38	98	Beaver (Cedar Lake)	.87	157	Red Ribbon	.55
40	Upper Devils	2.37	99	Little Bass	.87	158	Bowman	.53
41	Crystal	2.27	100	West Esker	.87	159	Star	.53
42	Big Dummy	2.20	101	Dietz #4	.85	160	Dietz #2	.49
43	Greeley	2.08	102	East Esker	.85	161	Hawk	.49
44	Loon	2.06	103	Upper Spirit	.85	162	Spirit	.47
45	Fisher	1.99	104	Lake 5	.83	163	Shinner	.45
46	Bass (Chetek)	1.95	105	Little Granite	.83	164	Wildcat	.45
47	North	1.95	106	Mud (Sioux Creek)	.83	165	Kirby (Bear Lake)	.44
48	Spring	1.93	107	Pintail	.83	166	Mirror	.44
49	Scott (Crystal Lake)	1.91	108	Upper Waterman	.82	167	North Pine	.43
50	Desair	1.89	109	Grouse	.81	168	Robinson	.40
51	Sylvan	1.89	110	Mud (Bear Lake)	.81	169	Johnnys	.38
52	Thirty	1.89	111	Bloomquist	.80	170	Little	.38
53	Buck	1.86	112	Killdeer	.80	171	Little Mud	.38
54	Moon	1.78	113	Little Spider	.80	172	Round (Cedar Lake)	.38
55	Lower Waterman	1.76	114	Beauty	.78	173	Thompson	.38
56	Spider	1.76	115	Fox	.78	174	Meadow	.34
57	Dallas Flowage	1.70	116	Mudhen	.78	175	Pea Viner	.30
58	Stump	1.70	117	Redhead	.78	176	Mud (Bear Lake)	.28
59	Wintergreen	1.53	118	Collingwood	.76		**Total Miles**	**357.54**

Lake Access

Lakes are public resources belonging to the people of Wisconsin. The public has the right to recreate on any of our lakes as long as public access is available.

Lakes surrounded by private land with no public access are off limits to the public unless permission is granted by the landowner. A new trespass law, enacted in 1996, requires that permission must be acquired from the landowner before anyone can be on someone elses property. Unauthorized trespass can and will result in a penalty to the offender.

In Barron County, and throughout much of the lake country of Wisconsin, public access to many of our fishing lakes was acquired through a concerted effort by the DNR.

There are 113 fishing lakes in the county and 65 of them (58%) have public road access. Several others have walk-in or wilderness public access.

If we examine the total acres of fishing lakes, the total is 16,548 acres. Fishable lake acres total 15,502 or 94% of the total.

Boat Ramps

Boat ramps vary in their condition, signing, ease of use, parking, and available facilities. Often times the access is only a narrow strip of land with a road and a turnaround. Parking is usually provideds but is often very limited.

Other boat landing may be paved, have a dock, and have other facilities such as restrooms or picnic tables. Signing varies with some having good notification to the public and some with no signs at all.

Boat landings are managed by a variety of agencies or governments. Cities, townships, Barron County Forests and Recreation Department, and the DNR all have ownership of some public boat landings in the county.

Lake Maps

__ lakes have been mapped by the DNR. These maps, called Lake Survey Maps, identify depths, lake contours, weed beds, general locations of dwellings, access locations, lakeshore vegetation, and some roads. In addition, physical information about acreage, shoreline miles, depths, and lake volumes can be found on each map.

Copies of the Lake Survey Maps are available from area DNR offices. A copy is also found in the BCLCD office lake files.

Chart 5-6 # Fishable Lakes by Boat Access Status

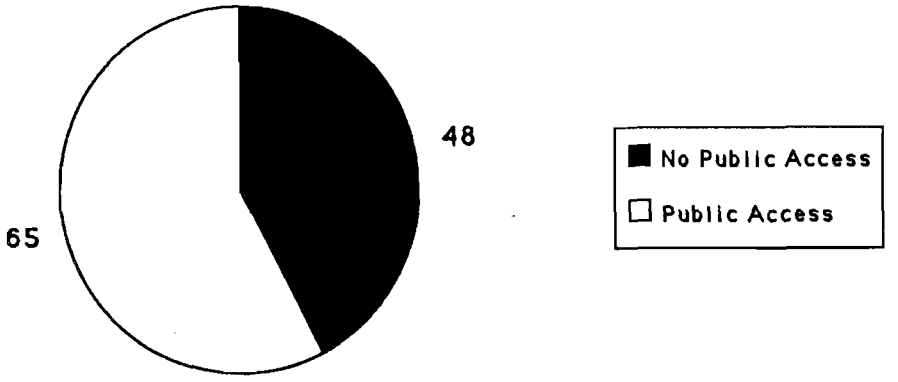
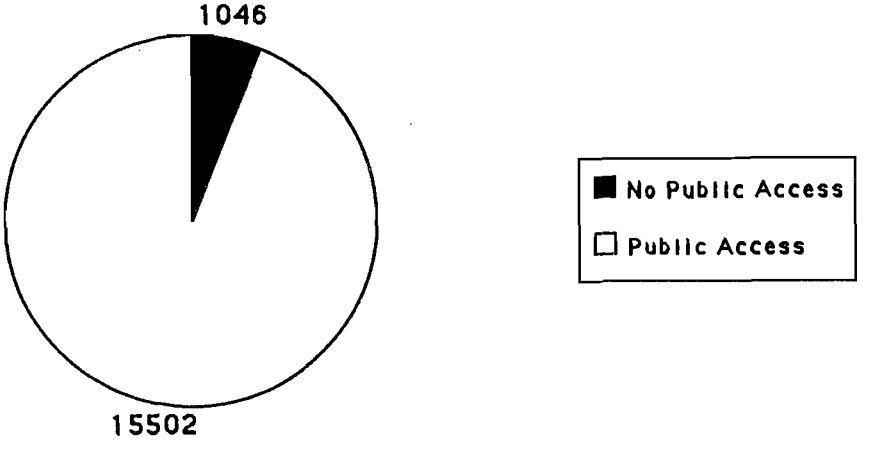


Chart 5-7 Fishable Lake Acres by Boat Access Status



Chemical Characteristics

The scope of the project did not allow for the investigation of current chemical characteristics of Barron County lakes. Water chemistry information was included in the 1964 Surface Waters of Barron County report and included *lake acidity* (pH), *alkalinity*, and *specific conductance*.

Although the chemical information was collected over 30 years ago, the data is still valid. pH, alkalinity, and specific conductance are generally a product of the bedrock geology and soil characteristics of the lake's watershed.

pH (acidity) (Table 5-7 and Chart 5-8)

pH defines the acid or alkaline status of the water. A pH of 7.0 is neutral, while waters above 7.0 are alkaline and waters below 7.0 are acidic. Of the 109 samples taken 9 (8%)were neutral, 24 (22%)were alkaline (range 7.1 to 8.8), and the majority 76 (70%)were acidic (range 5.5 to 6.9).

Rainwater is naturally slightly acidic, and lakes that receive the majority of their water from precipitation, such as seepage lakes, will be acidic. Drainage lakes, on the other hand, receive the majority of their water from streams and rivers and will tend to be more alkaline.

The acidity or non-acidity of a lake directly influences the aquatic life in the lake. For example, if a lake has a pH of 6.5 or lower (acidic), walleye spawning is inhibited. At a pH of 5.2 walleyes cannot survive.

Also, lakes that are more acidic, can have greater problems with higher mercury and aluminum levels and may pose health problems to wildlife and to humans consuming fish.

Chart 5-8 Lake Acididy (pH) in Barron County Lakes

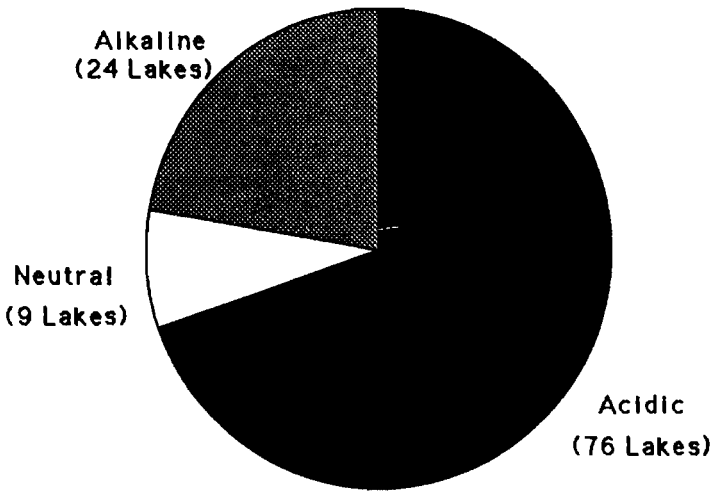


Table 5-7 pH (Acidity) of Barron County Lakes

Rank	Lake	#	Rank	Lake	#
1	Dallas Flowage	8.8	56	Little Bass	6.6
2	Poskin	8.0	57	Staples	6.6
3	Prairie Farm Flowage	7.6	58	Bass (Bear Lake)	6.4
4	Lower Waterman	7.6	59	Buck	6.4
5	Barron Flowage #1	7.4	60	Chain (Lakeland)	6.4
6	Barron Flowage #3	7.4	61	Cranberry Creek Flowage	6.4
7	Big Moon	7.4	62	Lower Devils	6.4
8	Little Butternut	7.4	63	Upper Devils	6.4
9	Montanis	7.4	64	Dietz #3	6.4
10	Rice	7.4	65	Horseshoe (Maple Plain)	6.4
11	Sand	7.4	66	Little Granite	6.4
12	Lower Turtle	7.4	67	Little Sand	6.4
13	Upper Turtle	7.4	68	Loon	6.4
14	Upper Waterman	7.4	69	Mud (Almena)	6.4
15	Bear	7.2	70	Mud (Bear Lake Sec 30)	6.4
16	Beaver Dam	7.2	71	Mud (Bear Lake Sec 34)	6.4
17	Little Moon	7.2	72	Robinson	6.4
18	Mosquito	7.2	73	Lower Spirit	6.4
19	Pickerel	7.2	74	Sylvan	6.4
20	Red Cedar	7.2	75	Thirty	6.4
21	Sweeney Pond	7.2	76	Big Dummy	6.2
22	Tuscobia	7.2	77	Cranberry	6.2
23	Lower Vermillion	7.2	78	Crystal	6.2
24	Hemlock	7.1	79	Dietz #2	6.2
25	Bass (Turtle Lake)	7.0	80	Dietz #4	6.2
26	Chetek	7.0	81	Ginder	6.2
27	Desair	7.0	82	Kelly	6.2
28	Duck	7.0	83	Lake of the Woods	6.2
29	Fish	7.0	84	Little Dummy	6.2
30	Little	7.0	85	Little Silver	6.2
31	Silver	7.0	86	Mitchell	6.2
32	Spring	7.0	87	Moose Ear	6.2
33	Stump	7.0	88	Mud (Sioux Creek)	6.2
34	Goose	6.9	89	North	6.2
35	Long (Vance Creek)	6.9	90	Old Mill Pond	6.2
36	Minnow	6.9	91	Round (Cedar Lake)	6.2
37	Bailey	6.8	92	Round (Bear Lake)	6.2
38	Bass (Chetek)	6.8	93	Scott (Crystal Lake)	6.2
39	Bass (Cedar Lake)	6.8	94	Skinaway	6.2
40	Butternut	6.8	95	Wickerts	6.2
41	Gates	6.8	96	Spider	6.1
42	Granite	6.8	97	Anderson	6.0
43	Kidney	6.8	98	Bullhead	6.0
44	Kirby (Maple Plain)	6.8	99	Couderay	6.0
45	Moon	6.8	100	Echo	6.0
46	Mud (Ojaski)	6.8	101	Greeley	6.0
47	Peterson	6.8	102	Little Spider	6.0
48	Pokegama	6.8	103	Kelley's	6.0
49	Prairie	6.8	104	Kirby (Bear Lake)	6.0
50	Ten Mile	6.8	105	Upper Spirit	6.0
51	Wildcat	6.8	106	Blueberry	5.8
52	Chain (Cedar Lake)	6.7	107	Dietz #1	5.8
53	Crooked	6.6	108	Long (Crystal Lake)	5.8
54	Crystal Bay	6.6	109	Mud (Crystal Lake)	5.8
55	Deer	6.6			

Source: Surface Waters of Barron County (1964) WDNR

Alkalinity (Chart 5-8and Table5-8)

Alkalinity is associated with the carbon system in the lake. Another term used to indicate a lake's alkalinity is *hardness*. Hard water lakes (greater than 60 mg/l calcium carbonate) tend to be better producers of aquatic life, both plants and animals. Soft water lakes (less than 60 mg/l calcium carbonate) are not as productive.

Alkalinity, measured as methyl purple alkalinity (MPA) in the 1964 report, ranges from a high of 112 mg/l to a low of 4 mg/l on the 106 samples taken. The majority of Barron County lakes fall into the soft water category. Of the 106 samples, 20 are hard water lakes and 86 are soft water lakes. (see Chart 5-9)

Glacial soils in Barron County tend to lack limestone in their composition resulting in low alkalinities.

Extremely low alkalinities (less than 5 mg/l) are more likely to be impacted by acidification by such agents as acid rain. Alkalinities above 5 mg/l have enough buffering to counteract the effects of acid rain. Only 4 lakes in Barron County fall into the less than 5 mg/l alkalinity category.

Chart 5-9 Hardness in Barron County Lakes

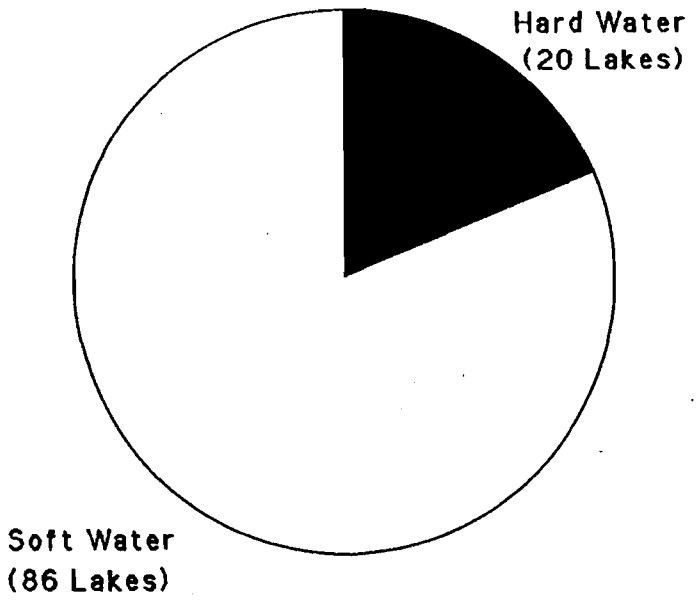


Table 5-8 Methyl Purple Alkalinity of Barron County Lakes

Rank	Lake	Alk	Rank	Lake	Alk
1	Little Moon	112	56	Dietz #2	15
2	Sweeney Pond	106	57	Long (Crystal Lake)	15
3	Prairie Farm Flowage	103	58	Staples	15
4	Upper Turtle	100	59	Lower Devils	14
5	Long (Vance Creek)	93	60	Greeley	14
6	Big Moon	91	61	Lake of the Woods	13
7	Dallas Flowage	89	62	Dietz #1	12
8	Little Butternut	88	63	Kidney	12
9	Lower Turtle	88	64	Little Sand	12
10	Lower Waterman	86	65	Minnow	12
11	Lower Vermillion	82	66	Sylvan	12
12	Upper Waterman	81	67	Blueberry	11
13	Barron Flowage #1	80	68	Crystal	11
14	Barron Flowage #3	79	69	Gates	10
15	Sand	75	70	Little Bass	10
16	Tuscobia	70	71	Mud (Almena)	10
17	Poskin	67	72	Mud (Bear Lake Sec 30)	10
18	Cranberry Creek Flowage	66	73	Mud (Bear Lake Sec 34)	10
19	Red Cedar	66	74	Peterson	10
20	Rice	64	75	Silver	10
21	Stump	58	76	Wickerts	10
22	Bear	50	77	Bass (Chetek)	9
23	Montanis	48	78	Upper Devils	9
24	Hemlock	45	79	Little Spider	9
25	Prairie	45	80	Kelly	9
26	Chetek	44	81	Pickerel	9
27	Ten Mile	44	82	Scott (Crystal Lake)	9
28	Crystal Bay	37	83	Bass (Bear Lake)	8
29	Fish	37	84	Chain (Cedar Lake)	8
30	Beaver Dam	33	85	Couderay	8
31	Mud (Sioux Creek)	32	86	Deer	8
32	Old Mill Pond	30	87	Echo	8
33	Buck	28	88	Horseshoe (Maple Plain)	8
34	Granite	27	89	Loon	8
35	Bass (Cedar Lake)	26	90	North	8
36	Upper Spirit	26	91	Round (Cedar Lake)	8
37	Bullhead	25	92	Spring	8
38	Desair	25	93	Wildcat	8
39	Little Silver	25	94	Crooked	7
40	Mosquito	25	95	Kelley's	7
41	Pokegama	25	96	Big Dummy	6
42	Mud (Ojaski)	24	97	Chain (Lakeland)	6
43	Moose Ear	23	98	Kirby (Bear Lake)	6
44	Robinson	22	99	Kirby (Maple Plain)	6
45	Ginder	21	100	Goose	6
46	Moon	19	101	Little Dummy	6
47	Anderson	18	102	Mitchell	6
48	Cranberry	18	103	Bailey	5
49	Dietz #4	18	104	Butternut	5
50	Lower Spirit	18	105	Little Granite	5
51	Duck	17	106	Round (Bear Lake)	4
52	Bass (Turtle Lake)	16			
53	Dietz #3	16			
54	Little	16			
55	Mud (Crystal Lake)	16			

Source: Surface Waters of Barron County (1964) WDNR

Specific Conductance
(Chart 5-10 and Table 5-9)

Specific conductance is a measurement of the ability of water to pass an electric current. It is measured in micromhos (µmhos) Electric current (conductance) is the opposite of electric resistance, and therefore the term *mhos*, the oppositeof resistance *ohms*.

Specific conductance is directly related to the amount of dissolve inorganic chemicals (minerals, nutrients, metals, and othet inorganic chemicals) in the water. Like alkalinity, it is a reflection of the soils and bedrock in the lake's watershed.

Similar to alkalinity, lakes with a higher specific conductance are more productive waters.

The 1964 survey found the range of specific conductance values to be from a low of 19 µmhos to a high of 239 µmhos on the 111 samples taken.

Specific conductance is also a reflection of the degree of eutrophication. Values greater than 250 µmhos are considered hypereutrophic, while values below 100 µmhos are much closer to distilled water and are considered to be oligotrophic.

Chart 5-10 # Lakes by Specific Conductance Class

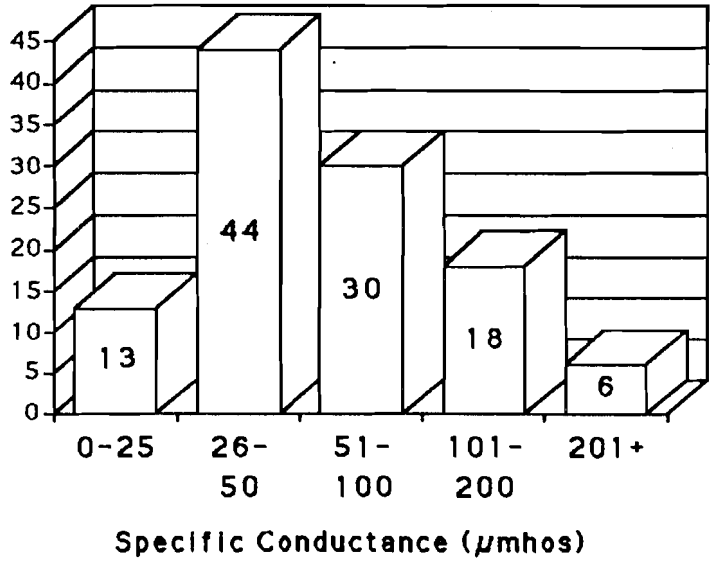


Table 5-9 Specific Conductance of Barron County Lakes

Rank	Lake	S.C.	Rank	Lake	S.C.
1	Little Moon	239	56	Dietz #2	46
2	Big Moon	238	57	Long (Crystal Lake)	46
3	Prairie Farm Flowage	236	58	Echo	44
4	Long (Vance Creek)	226	59	Greeley	44
5	Dallas Flowage	212	60	Lake of the Woods	42
6	Upper Turtle	202	61	Mud (Bear Lake)	42
7	Sweeney Pond	191	62	Dietz #4	41
8	Little Butternut	189	63	Dietz #3	39
9	Lower Turtle	189	64	Mud (Crystal Lake)	39
10	Lower Vermillion	189	65	Dietz #1	38
11	Barron Flowage #3	163	66	Gates	38
12	Barrob Flowage #1	162	67	Moon	37
13	Upper Waterman	162	68	Round (Bear Lake)	37
14	Tuscobia	160	69	Sylvan	37
15	Lower Waterman	160	70	Crystal	35
16	Sand	158	71	Kelly	35
17	Poskin	154	72	Kidney	35
18	Cranberry Creek Flowage	135	73	Little Granite	35
19	Rice	128	74	North	35
20	Red Cedar	127	75	Wickerts	35
21	Montanis	116	76	Minnow	34
22	Stump	111	77	Kelley's	33
23	Bear	110	78	Scott (Crystal Lake)	33
24	Hemlock	100	79	Lower Devils	32
25	Crystal Bay	98	80	Blueberry	31
26	Beaver Dam	94	81	Horseshoe (Maple Plain)	31
27	Ten Mile	93	82	Pickerel	31
28	Chetek	89	83	Wildcat	31
29	Prairie	88	84	Butternut	30
30	Bullhead	84	85	Chain (Cedar Lake)	30
31	Mud (Almena)	83	86	Little Bass	30
32	Mud (Sioux Creek)	81	87	Loon	30
33	Mosquito	78	88	Spring	30
34	Mud (Bear Lake Sec 34)	78	89	Bailey	29
35	Fish	77	90	Little Spider	29
36	Pokegama	74	91	Spider	29
37	Upper Spirit	72	92	Anderson	28
38	Buck	69	93	Deer	28
39	Little	69	94	Peterson	27
40	Old Mill Pond	69	95	Little Sand	26
41	Desair	68	96	Chain (Lakeland)	25
42	Silver	68	97	Kirby (Bear Lake)	25
43	Mud (Ojaski)	66	98	Bass (Chetek)	24
44	Bass (Turtle Lake)	63	99	Upper Devils	24
45	Couderay	63	100	Round (Cedar Lake)	24
46	Skinaway	61	101	Big Dummy	23
47	Moose Ear	60	102	Kirby (Maple Plain)	23
48	Robinson	59	103	Mitchell	22
49	Ginder	56	104	Goose	21
50	Bass (Cedar Lake)	55	105	Little Dummy	21
51	Granite	54	106	Little Silver	21
52	Duck	52	107	Bass (Bear Lake)	19
53	Cranberry	48	108	Crooked	19
54	Lower Spirit	48			
55	Staples	47			

Source: Surface Waters of Barron County (1964) WDNR

Mercury in Fish

Another chemical of concern in our lakes is the level of mercury contamination in fish. Mercury is believed to be a result of air pollution from the burning of fossil fuels in upwind power plants.

Mercury is a bio-accumulator, meaning that it may be in minute amounts in small fish and other aquatic life; but as it moves upward through the food web, it becomes more concentrated. Fish, ospreys, bald eagles, loons, and humans that eat contaminated fish may experience health problems, especially if they consume many of these contaminated fish.

The DNR and Department of Health has conducted tests on 20 Barron County lakes in recent years to test for mercury. Eleven lakes were found to have fish with unacceptable levels of mercury. Nine lakes were tested, but found to have low and acceptable levels of mercury.

Lake Tested	Advisory
Bass Lake (Chetek)	yes
Bear Lake	yes
Beaver Dam Lake	yes
Echo Lake	yes
Granite Lake	no
Loon Lake	yes
Lower Vermillion	no
Montanis Lake	no
North Lake	yes
Prairie Lake	no
Red Cedar Lake	yes
Rice Lake	no
Scott Lake	yes
Silver Lake	yes
Spring Lake	yes
Staples Lake	no
Sylvan Lake	yes
Lower Turtle Lake	no
Upper Turtle Lake	no
Upper Vermillion	no

Source: Lakes of Wisconsin - DNR 1995 and Health Guide for people who eat sport fish from Wisconsin waters - WDNR and Wisc. Div. of Health, Publ-IE-019 4/94 Rev.

A consumption advisory recommends the amount of fish that can be eaten over a specified period of time from a specific lake. Special care should be taken if a woman is pregnant. Contact the WDNR about consumption advisories and what they mean to you. Ask for Health Guide for people who eat sport fish from Wisconsin waters - WDNR and Wisc. Div. of Health, Publ-IE-019 4/94 Rev.

Water Clarity

Water clarity, also called water transparency, is measured using a simple piece of equipment called a secchi disc. Secchi discs (pronounced sekki) is an 8 inch weighted disc with alternate quarters painted black and white. The disc is lowered into the lake and the depth at which it disappears from sight is recorded. The deeper the sampler can see the disc, the clearer the water.

Secchi disc readings are influenced by water color, by the amount of microscopic plant life (algae or phytoplankton) in the water, and by the amount of zooplankton (minute crustaceans) in the lake. The most significant of these influences is usually the amount of algae in the lake.

Secchi disc readings are not static, but change through out the year. (See Chart 5-11) Algae, being tiny plantlife, has a growing season just like corn or any other annual plant. Like corn, algae has periods of growth and a period of death. It is this variability that causes changes in water clarity throughout the seasons.

When conditions are favorable for the growth of algae, the algae reproduces rapidly resulting in poorer water clarity. At the end of the growing season, the algae dies off and settles to the bottom resulting in clearer water.

Conditions of temperature, period of ice and snow cover, poor sunlight conditions, availability of nutrients, and other factors can affect the quantities of algae from year to year.

Limnologists, however, use late summer secchi disc readings to characterize the water clarity of a particular lake. Late summer is a period when algae abundance is at its maximum for the year and water clarity is at its poorest.

Due to these factors, it is difficult to compare secchi disc readings over time by examining only a few measurements. Secchi disc readings taken over several years are a much better indicator of the conditions of a lake.

To most people water clarity of a lake is most meaningful to them. It is something they can visualize and easily understand.

Lake scientists from Wisconsin and from the U.S. Environmental Protection Agency have characterized various levels of water clarity with the lake's trophic state.

Trophic State	Secchi Disc (ft)	Clarity Class
Oligotrophic	>13 ft	very good to excellent
Mesotrophic	6.6 to 13 ft	good
Eutrophic	3.3 to 6.6 ft	poor to fair
Hypereutrophic	< 3.3 ft	very poor

See discussion of trophic state in Chapter 4 Lake Science.

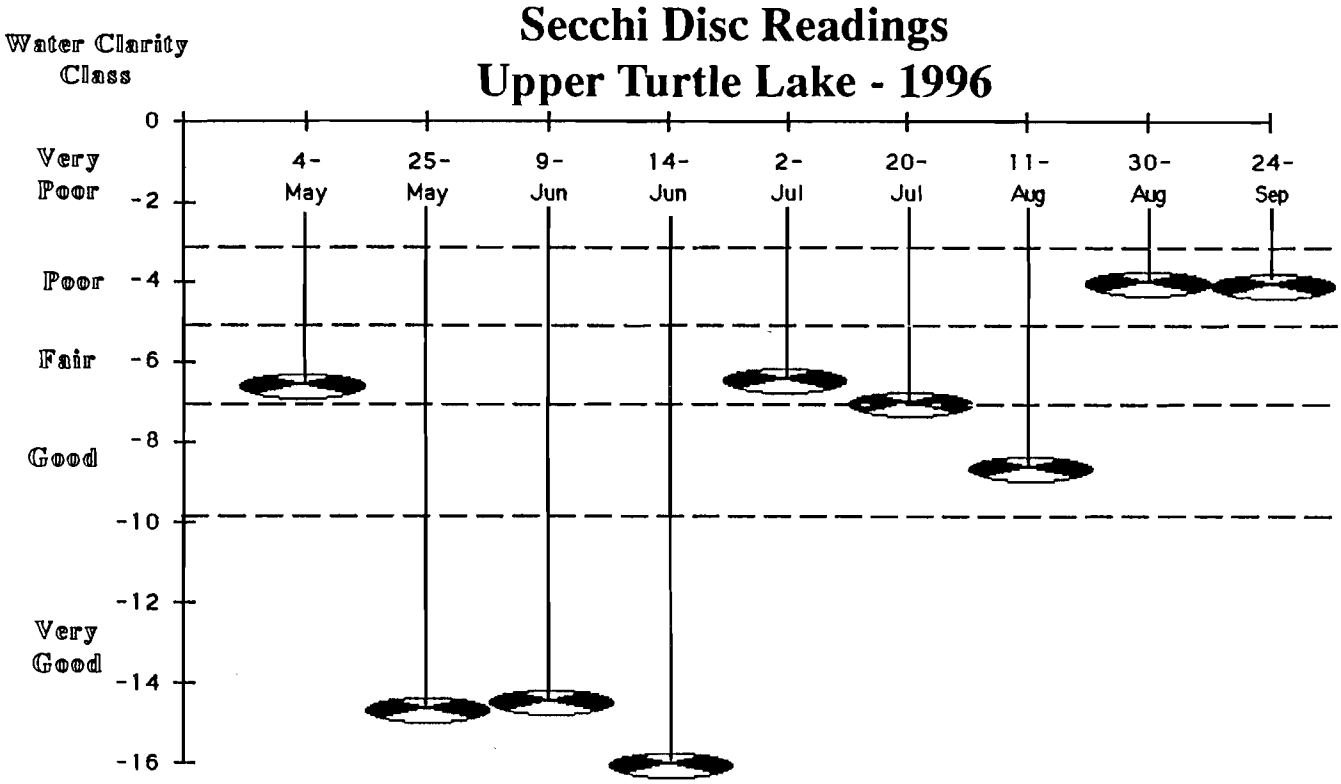
Water Clarity and Nutrient Levels

Although water clarity can be a result of natural water color, such as staining from organic materials like in some bogs, the primary reason for poorer water clarity is the amount of algae present . The amount off algae present is directly related to the amount of nutrients in the lake. The more nutrients, the more algae, and the poorer the water clarity.

Two nutrients are most important in Wisconsin lakes - phosphorus and nitrogen. Phosphorus has been identified as being the most important nutrient related to the growth of plantlife in lakes. Nitrogen is much less important.

Phosphorus occurs naturally in our waters but accelerated amounts of phosphorus are directly a result of the impacts of man on the environment.

Chart 5-11


Secchi Disc Readings
Upper Turtle Lake - 1996
Water Clarity Class
Very Poor
Poor
Fair
Good
Very Good
0
-2
-4
-6
-8
-10
-12
-14
-16
4-May
25-May
9-Jun
14-Jun
2-Jul
20-Jul
11-Aug
30-Aug
24-Sep

A recent study of nutrient enrichment to waters in the Red Cedar River watershed found that cropland contributes 60.91% of added phosphorus yet makes up only 34.17 % of the land use area of the watershed. (See Charts 5-12 and 5-13 below) In other words, the phosphorus contributions from cropland are nearly double that of the land area. Other land uses that are high contributors of added phosphorus are barnyards, point sources (sewage treatment plants, etc.), and urban sources. Forest land use and pasture land use are significant land uses in the watershed, but phosphorus contributions are significantly less than land usage percentages.

This study was done by Sanjay Syal of the DNR's Bureau of Watershed Managament in 1996 using a nutrient prediction model to make these estimates.

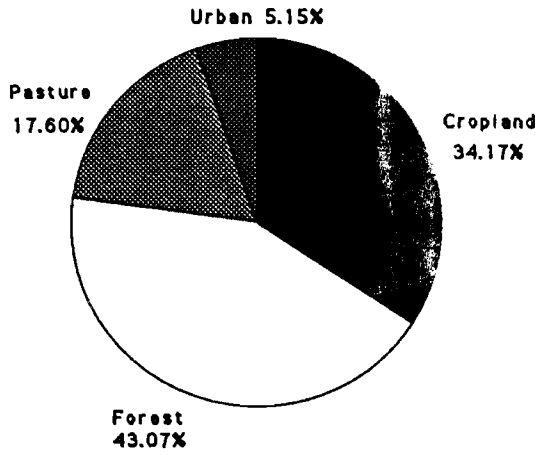
The study states that phosphorus contributions from cropland are due primarily from the application of manure and other fertilizers especially during winter months. As a result a large percentage of applied nutrients are washed from the landscape during the spring snowmelt period. Other sources of phosphorus include septic systems, phosphorus in laundry detergents, and livestock grazing.

What does this mean regarding impacts to our lakes? Basically the major sources of nutrients, especially phosphorus, are from cropland, barnyards, urban, and point sources. So; if a lake has poor water quality conditions; if a particular lake has these particular land uses in its watershed; if we want to clean up or minimize the problems; then we should take a hard look at these sources when looking for solutions.

Of course, poor septic systems, lawn, garden, and home sources, possibly laundry detergents, and other sources all contribute to the problem. Management actions that minimizing all these sources will help in the clean up and/or protection of our lakes.

Note: The information on Charts 5-11 and 5-12 is for the entire Red Cedar River watershed. The data for Barron County would be slightly different. Approximately 85 oercent of Barron County is in the Red Cedar River watershed.

Chart 5-12 Land Use Distribution in Red Cedar River Watershed



Source: Prediction of Suspended Solids and Total Phosphorus Yields in the Red Cedar Drainage System - 2nd Draft, Sanjay Syal, WDNR, August 1996.

Chart 5-13 Total Phosphorus Loadings by Land Use for Red Cedar River Watershed

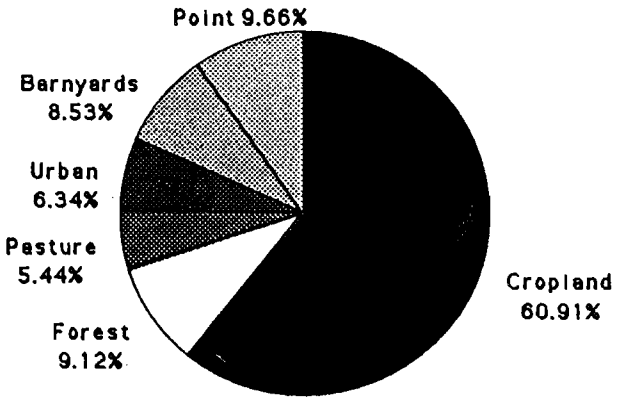
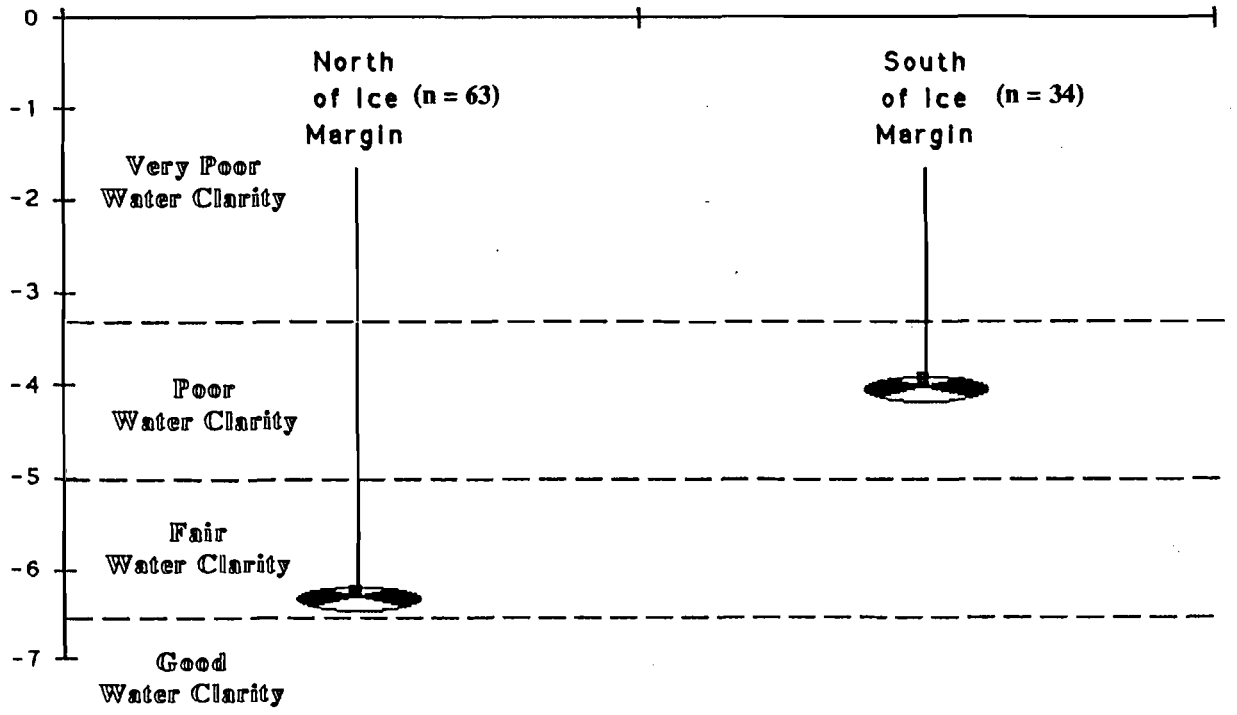


Chart 5-15 Average Secchi Disc Readings on Lakes North and South of Ice Margin

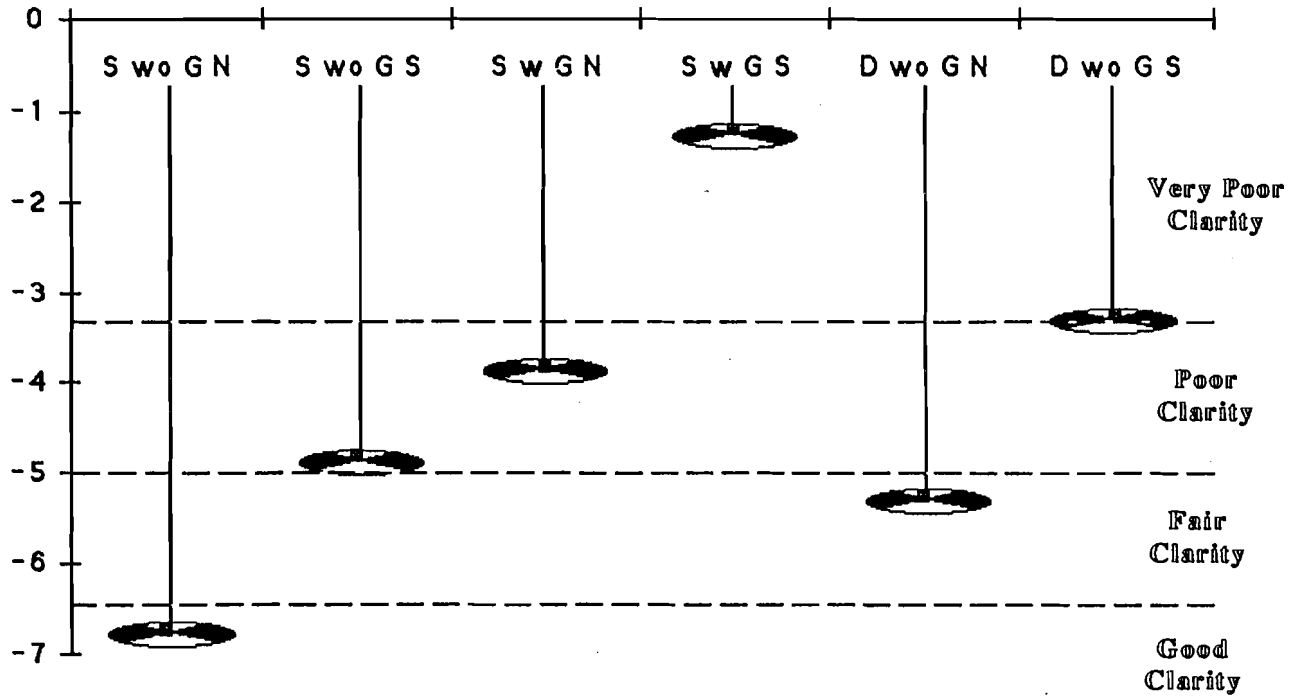


Lake Location

Next we examined the location of the lakes. Were they north of the ice-margin limit or south of it? Predominant land use north of the ice-margin limit is forests while the major land use south of it is agriculture.

Lakes found north of the ice margin were found to have an average secchi disc reading of 6.26 feet. Lake south of the ice-margin were found to have an average secchi disc reading of 3.96 feet. A difference of 2.3 feet better water clarity north of the ice margin in the predominantly forested region (see Chart 5-15 and Map 2-2 in Chapter 2 Glaciers in Barron County).

Chart 5-18 Average Secchi Disc Readings by Lake Type, Location, and Grazing Status



An Examination of All Factors

When lakes were grouped into these six categories:

seepage - north - non-grazing SwoGN
seepage - south - non-grazing SwoGS
drainage north - non-grazing DwoGN
drainage - south - non-grazing DwoGS
seepage - north - grazing SwGN
seepage - south - grazing SwGS

average secchi disc readings were found to be significantly different. (see Chart 5-18).

As one can see there are definite differences between the groups. Seepage lakes, south of the ice-margin, and having grazing activity are definitely the poorest in terms of water clarity.

Reasons for this are most probably that

•seepage lakes have a very high retention time for water and the nutrients it may contain. Once contaminated with nutrients they may be available for a long period of time.

• seepage lakes south of the ice margin have a much higher possibility of additional nutrient contamination than those north of the ice margin as there is more human activity, such as agriculture, south of the ice margin.

An Example at Twin Lakes

One example to illustrate a grazing problem was observed on Chain Lakes (Twin Lakes) in Cedar Lake Township. There are four lakes associated with this chain. Round and North Twin are north of Highway V. Spawn and South Twin are south of the highway, and are connected to the other lakes with culverts under the highway. North Twin and South Twin are of similar depth, about 19 feet.

Secchi disc readings were taken on August 26 and were found to be:

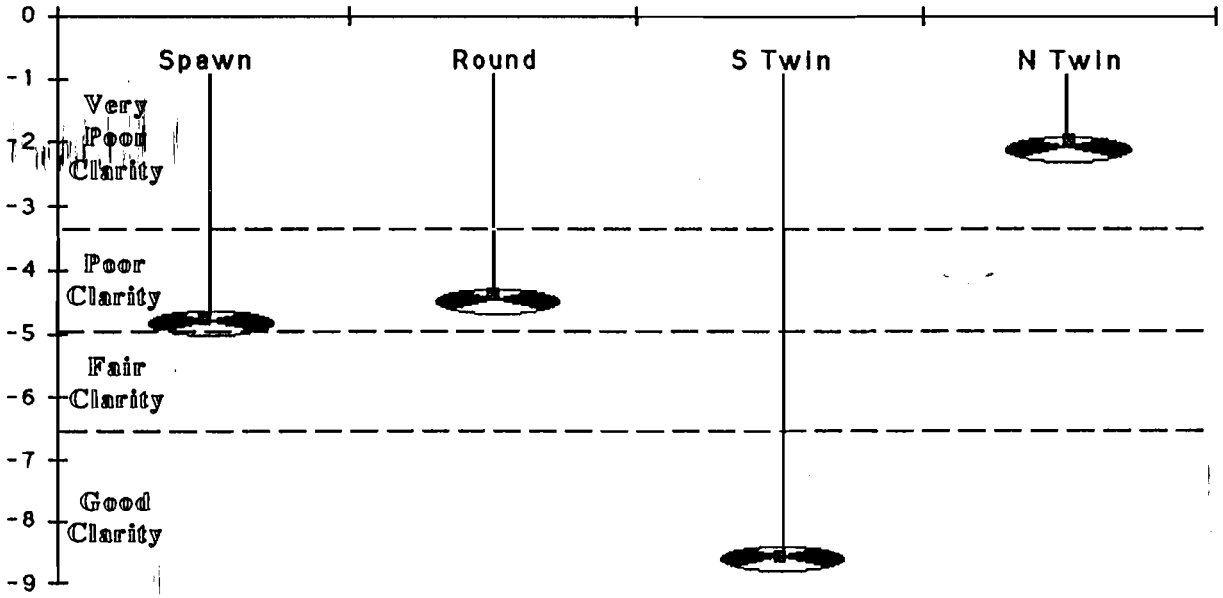
South Twin	8.6 feet
North Twin	2.0 feet
Spawn	4.8 feet
Round	4.4 feet (taken July 15)

(See Chart 5-19)

North Twin and South Twin Lakes were once the same lake prior to the construction of the highway. The difference of water clarity between North and South Twin is dramatic. South Twin has a secchi disc reading of 6.6 feet greater than North Twin. South Twin's water clarity indicates a trophic state of mesotrophic with water clarity in the good class. North Twin is in a hypereutrophic state with water clarity in the very poor class. "Why the difference?" would be a logical question.

The major difference is that North Twin has a barnyard with intensive grazing activity on its eastern shore. Nutrient pollution is obvious and it is supported by the secchi disc readings.

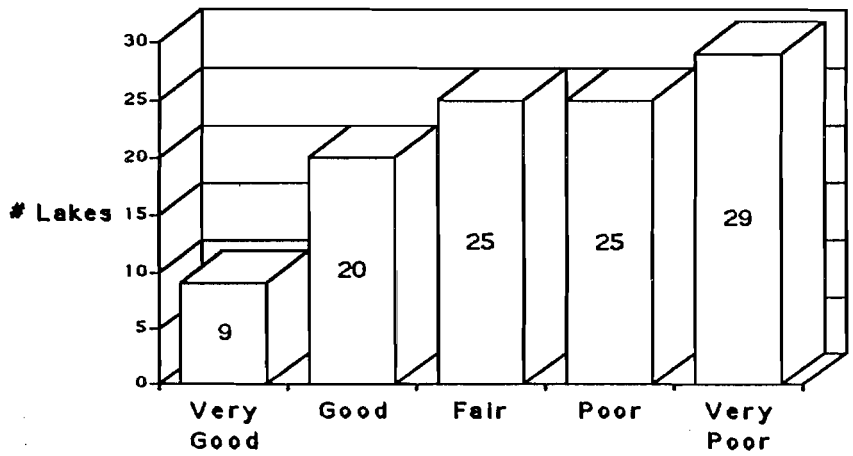
Chart 5-19 Secchi Disc Readings on the Four Lakes of the Twin Lakes Chain - August 26, 1996



The Overall Results

An examination of the 108 secchi disc samples taken during the project shows a wide distribution of water clarity. See Chart 5-20.

Chart 5-20 Number of Lakes by Water Clarity Class



Water Clarity Classes	
Very Good	9.7 to 19 feet
Good	6.6 to 9.7 feet
Fair	5.0 to 6.6 feet
Poor	3.3 to 5.0 feet
Very Poor	< 3.3 feet

Dwellings and Related Impacts

Dwellings

One of the major impacts occuring to lakes is the amount of development. Dwellings were counted on every lake examined during the field inventory. Dwellings are considered any building used for human habitation including homes, cabins, trailers, or cottages at resorts that is there primarily because of the lake. For example, a cottage or mobile home at a resort may not be right on the lakeshore but it is there because of the associated recreational opportunity on the lake.

Of the 176 named lakes, 95 (54%) had at least one dwelling on it. There were 4,578 dwellings counted during the project. This compares to 1,856 counted for the Surface Waters of Barron County publication in 1964. This equates to a growth of 2,722 dwellings over a 32 year period or 85 dwellings per year.

Dwellings constructed prior to 1966 are not covered under the state's 75-foot setback regulations. Some are right on the water and there are even examples of homes or decks out over the water.

Lawns

Lawns that are mowed right to the edge of the lake without any filter or buffer strip between ther lawn and the lake were counted during the field inventory. It was determined that 1,579 lawns were mowed right to the water's edge and equates to 34% of the dwellings had lawns right to the lake, a little better than 1 in 3.

Lake managers are often asked "What's the big deal about lawns and the quality of the lake?" Some of the answers to this question may be:

- the loss of natural riparian vegetation
- can impact water quality
- natural visual quality is lost
- lawn chemicals may impact the lake
- leaves and grass clippings may be burned close to the lake and are often dumped right into the lake
- the filtering effect of riparian vegetation is lost
- the potential for erosion or bank instability may be increased.

The impacts of a few lawn is probably negligible, but when over a third of the developed shoreline is in lawn the small negligible impacts add up to a significant problem.

Shoreline Protection Structures

About 1 in every 5 dwellings on Barron County lakes was found to have a shoreline protection structure of some kind or another. 1,011 shoreline structures were counted during the project.

These structures may be board retaining walls, rock rip rap, log structures, or one shoreline was seen that was completely covered with poured concrete.

Shorelines are often eroded by high water, boat wakes, waves in windy locations, water level fluctuation, or impacts caused by ice. Structures were often installed to attempt to protect the shoreline from these impacts. Sometimes, however, the "remedy" may be worse than the "disease."

- Many old, weathered, and dilapidated board retaining walls are in very poor shape and will soon disintegrate into the water and cause failure of shorelines.

- Rock rip rap structures are often installed improperly and do not function as intended.

- Some rock rip rap is over-built for the intended purpose causing a change in shoreline character and visual quality.

All of these structures result in a loss of the natural values of the riparian vegetation. Wildlife habitat is lost and often travel corridors between the lake and adjacent habitats is made impassible. Visual quality is always changed and often in a negative way.

If shorelines are in potential danger of failure, many times a more natural method of control will work. Various plantings of suitable plants can control bank erosion, or instability of the bank. See the DNR or the Barron County Land Conservation Department for methods of shoreline protection. Permits from the DNR are needed for this type of work.

Other solutions to the problem may be limiting boat speed and wakes in sensitive areas.

Failing or deteriorating structures, especially board retaining walls, in need of repair should be examined and better solutions sought. Problem structures should be repaired long before the problem all ends up in the lake.

See Table __ for information on which lakes have a greater percentage of shoreline structures. High numbers of shoreline structures indicate other possible problems with wave action, high water levels, boat wakes, possible unstable or steep shorelines,or ice problems.

Chart 5-21 Total # of Dwellings 1963 and 1996

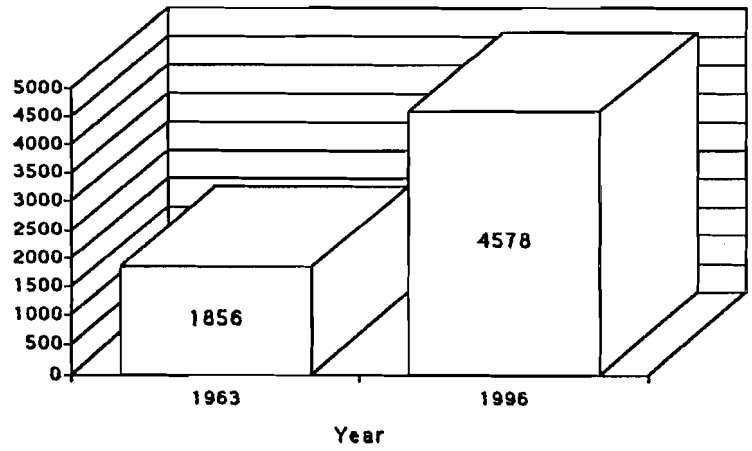


Chart 5-22 Total Dwellings, Lawns, and Shoreline Protection Structures on Barron County Lakes - 1996

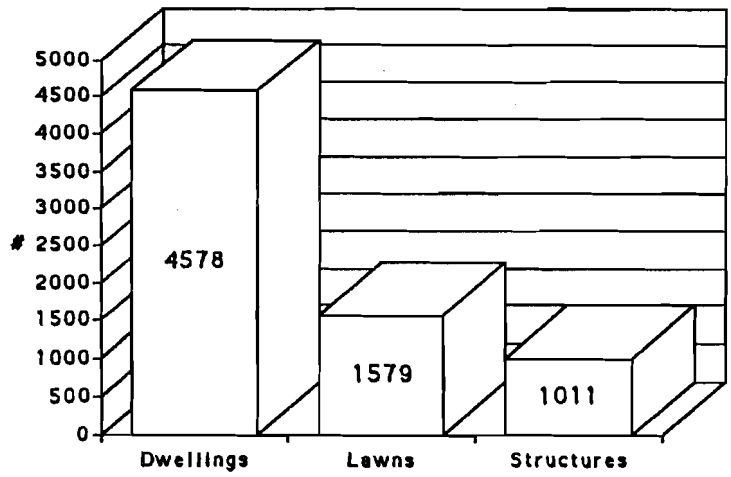


Table 5-13 Dwellings, Lawns, and Shoreline Protection Structures

Rank	Lake	D	L	SPS	Rank	Lake	D	L	SPS	Rank	Lake	D	L	SPS
1	Anderson	2			60	Grouse	0			119	Pickerel	1		
2	Bailey	0			61	Hawk	0			120	Pine	1		
3	Barron Flowage #1	23	5		62	Hemlock	58	1	1	121	Pintail	0		
4	Barron Flowage #3				63	Hillman	0			122	Pokegama	257	82	76
5	Bass (Bear Lake)	0			64	Hogback	0			123	Poskin	80	39	38
6	Bass (Cedar Lake)	2			65	Horseshoe (Almena)	218	134	78	124	Prairie	598	211	193
7	Bass (Chetek)	23		2	66	Horseshoe (Maple Plain)	13	6		125	Prairie Farm Flowage			
8	Bass (Turtle Lake)	0			67	Jacksnipe	0			126	Raccoon	1		
9	Bear	140	38	12	68	Jacobson	0			127	Red Cedar	389	71	41
10	Beauty	0			69	Johnnys	1			128	Redhead	0		
11	Beaver (Cedar Lake)	0			70	Kelleys	0			129	Red Ribbon	0		
12	Beaver (Crystal Lake)	0			71	Kelly	0			130	Rice	331	130	135
13	Beaver Dam	492	174	56	72	Kidney	15		1	131	Robinson	1		
14	Big Dummy	27	14	2	73	Killdeer	0			132	Round (Bear Lake)	0		
15	Big Moon	65	40	17	74	Kirby (Bear Lake)	0			133	Round (Cedar Lake)	0		
16	Black Duck	0			75	Kirby (Maple Plain)	25	1	2	134	Ruddick	0		
17	Bloomquist	1			76	Lake 5	0			135	Sand	137	35	17
18	Blueberry	1			77	Lake of the Woods	9			136	Scott (Crystal Lake)	21	8	
19	Bowman	0			78	Larsons	0			137	Scott (Maple Plain)	1		
20	Buck	2			79	Lindberg Lakes	0			138	Shallow	10	4	
21	Bullhead	1			80	Little	0			139	Shinner	0		
22	Butternut	18			81	Little Bass	4	2		140	Silver	82	29	20
23	Canthook	0			82	Little Butternut	1			141	Skinaway	6		
24	Canvasback	0			83	Little Dummy	13			142	Spawn	0		
25	Chain (Cedar Lake)	10			84	Little Granite	4	1		143	Spider	4		
26	Chain (Lakeland)	0			85	Little Moon	0			144	Spirit	0		
27	Chetek (inc. Moose Ear Bay)	315	156	148	86	Little Mud	0			145	Spirit (Upper)	1		
28	Collingwood	6			87	Little Poskin	4			146	Spirit (Lower)	1		
29	Couderay	1			88	Little Sand	14			147	Spring	23	9	1
30	Cranberry Cr. Flowage	0			89	Little Silver	2	1		148	Spruce Hen	0		
31	Cranberry	1			90	Little Spider	0			149	Squirrel	2		
32	Crooked	0			91	Loch Lomond	0			150	Staples	70	33	17
33	Crystal	6	2		92	Long (Crystal Lake)	2			151	Star	0		
34	Crystal Bay	1			93	Long (Vance Creek)	0			152	Stump	9		
35	Dallas Flowage	1			94	Loon	62	41	8	153	Sweeney Pond	0		
36	Deer	0			95	Maple Plain Fish Pond	0			154	Sylvan	21	2	2
37	Desair	10	1		96	Meadow	0			155	Tamarack	0		
38	Lower Devils	19			97	Minnow	8	1		156	Teal	1		
39	Upper Devils	5	1		98	Mirror	0			157	Ten Mile	126	52	48
40	Dietz #1	3			99	Mitchell	0			158	Teepee	0		
41	Dietz #2	2			100	Montanis	37	5	4	159	Thirty	22	2	2
42	Dietz #3	5			101	Moon	14	9	4	160	Thompson	0		
43	Dietz #4	1			102	Moose Ear	0			161	Trigger	0		
44	Duck	28	21		103	Mosquito	2			162	Upper Turtle	134	71	24
45	Echo	74	34	14	104	Mud (Almena)	2			163	Lower Turtle	101	36	7
46	Elbow	3			105	Mud (Bear Lake 30)	0			164	Tuscobia	6		
47	East Esker	0			106	Mud (Bear Lake 34)	0			165	Unnamed (Almena)	0		
48	West Esker	0			107	Mud (Ojaski)	186	36	34	166	Unnamed(Bear Lake 5)	0		
49	Eyk	1			108	Mud (Crystal Lake)	1			167	Unnamed(Bear Lake 8)	0		
50	Firetag	0			109	Mud (Sioux Creek)	0			168	Lower Vermillion	59	11	4
51	Fish	0			110	Mud Hen	1			169	Upper Vermillion	3		
52	Fisher	0			111	Muskrat	0			170	Lower Waterman	3		
53	Fox	0			112	Nelson	1			171	Upper Waterman	0		
54	Gates	1			113	North	27	3	1	172	Wickerts	0		
55	Ginder	0			114	North Pine	1			173	Wildcat	0		
56	Goose	1			115	Old Mill Pond	0			174	Wintergreen	2		
57	Granite	50	26	2	116	Pea Viner	0			175	Wolf	0		
58	Grassy	0			117	Peterson	4	1		176	Wood Duck	1		
59	Greeley	3			118	Peewee	0							

D - dwellings
L - lawns
SPS - shoreline protection structures

Table 5-14 Number of Dwellings by Lake - Listed Most to Least with # Per Mile and Acres/Dwelling

Rank	Lake	#	#/Mile	Ac/Dw	Rank	Lake	#	#/Mile	Ac/Dw
1	Prairie	598	27.9	2.5	49	Skinaway	6	2.1	10.33
2	Beaver Dam	492	27.7	2.26	50	Upper Devils	5	2.1	17.2
3	Red Cedar	389	22.2	4.73	51	Dietz #3	5	6.6	3.2
4	Rice	331	22.9	2.84	52	Little Bass	4	4.6	6.0
5	Chetek	286	40.6	2.69	53	Little Granite	4	4.8	5.5
6	Pokegama	257	25.6	1.97	54	Little Poskin	4	5.9	4.25
7	Horseshoe (Almena)*	218	30.6	1.73	55	Peterson	4	3.6	9.25
8	Mud (Ojaski)	186	35.6	3.1	56	Spider	4	2.3	10.0
9	Ten Mile	155	25	2.36	57	Dietz #1	3	4.3	7.0
10	Bear	140	10.5	9.7	58	Elbow	3	2.9	4.0
11	Sand	137	23.3	2.35	59	Greeley	3	1.4	18.66
12	Upper Turtle	134	20.7	3.27	60	Upper Vermillion	3	1.2	29.66
13	Lower Turtle	101	26.9	2.73	61	Lower Waterman	3	1.7	8.67
14	Silver	82	15.6	4.1	62	Anderson	2	2.8	7.0
15	Poskin	80	27.2	1.7	63	Bass (Cedar Lake)	2	3.0	7.5
16	Echo	74	26.7	2.18	64	Buck	2	1.1	28.5
17	Staples	70	21.7	4.36	65	Dietz #2	2	4.1	6.0
18	Big Moon	65	22.9	2.94	66	Little Silver	2	1.8	9.0
19	Loon	62	30.1	1.52	67	Long (Crystal Lake)	2	.7	20.0
20	Lower Vermillion	59	20.8	3.53	68	Mosquito	2	1.6	12.5
21	Hemlock	58	10.8	6.16	69	Mud (Almena)	2	1.4	9.5
22	Granite	50	14.2	3.08	70	Squirrel	2	2.8	5.0
23	Montanis	37	14	5.4	71	Wintergreen	2	1.3	7.0
24	Duck	28	18.4	3.57	72	Bloomquist	1	1.3	12.0
25	Big Dummy	27	12.3	4.33	73	Blueberry	1	1.6	8.0
26	North	27	13.9	3.3	74	Bullhead	1	1.8	14.0
27	Kirby	25	8.5	3.68	75	Crystal Bay	1	1.3	9.0
28	Bass (Chetek)	23	11.8	5.13	76	Dallas Flowage	1	.6	27.0
29	Spring	23	11.9	2.61	77	Dietz #4	1	1.2	15.0
30	Barron Flowage #1	23	9.7	2.09	78	Eyk	1	1.5	27.0
31	Thirty	22	11.6	3.32	79	Gates	1	1.6	15.0
32	Scott (Crystal Lake)	21	11	3.86	80	Goose	1	1.5	12.0
33	Sylvan	21	11.1	3.19	81	Johnnys	1	2.6	8.0
34	Lower Devils	19	7.2	8.52	82	Little Butternut	1	.9	22.0
35	Butternut	18	7.1	7.83	83	Mud (Crystal Lake)	1	.9	23.0
36	Kidney	15	11.8	2.67	84	Mud Hen	1	1.3	19.0
37	Little Sand	14	5.6	7.21	85	Nelson	1	1.8	11.0
38	Moon	14	7.9	6.0	86	North Pine	1	2.3	9.0
39	Horseshoe (Map Plain)	13	5	8.85	87	Pickerel	1	.8	37.0
40	Little Dummy	13	10	2.38	88	Pine	1	1.3	13.0
41	Chain (Cedar Lake)	10	2.6	8.0	89	Raccoon	1	1.3	12.0
42	Desair	10	5.3	8.1	90	Robinson	1	2.5	3.0
43	Shallow	10	4.1	9.2	91	Scott (Maple Plain)	1	1.0	28.0
44	Lake of the Woods	9	6.4	5.11	92	Lower Spirit	1	1.0	24.0
45	Stump	9	5.3	14.33	93	Upper Spirit	1	1.2	7.0
46	Minnow	8	8.4	3.25	94	Teal	1	1.6	14.0
47	Collingwood	6	7.9	3.33	95	Wood Duck	1	.9	18.0
48	Crystal	6	2.6	20.0					

Table 5-15 Dwellings Per Mile by Lake - Listed Most to Least

		Dwellings					Dwellings		
Rank	Lake	#/Mile	Miles	#	Rank	Lake	#/Mile	Miles	#
1	Chetek	40.6	7.05	286	49	Little Bass	4.6	.87	4
2	Mud (Ojaski)	35.6	5.22	186	50	Dietz #1	4.3	.70	3
3	Horseshoe (Almena)	30.6	7.13	218	51	Dietz #2	4.1	.49	2
4	Loon	30.1	2.84	62	52	Shallow	4.1	2.44	10
5	Prairie	27.9	21.44	598	53	Peterson	3.6	1.10	3
6	Beaver Dam	27.7	17.77	492	54	Bass (Cedar Lake)	3.0	.66	2
7	Poskin	27.2	2.94	80	55	Elbow	2.9	1.04	3
8	Lower Turtle	26.9	3.75	101	56	Anderson	2.8	.72	2
9	Echo	26.7	2.77	74	57	Squirrel	2.8	.72	2
10	Pokegama	25.6	10.04	257	58	Chain (Cedar Lake)	2.6	3.81?	10
11	Ten Mile	25.0	6.36	159	59-	Crystal	2.6	2.27	6
12	Sand	23.3	5.87	167	60	Johnny's	2.6	.38	1
13	Rice	22.9	14.43	331	61	Robinson	2.5	.40	1
14	Big Moon	22.9	2.84	65	62	North Pine	2.3		1
15	Red Cedar	22.2	17.55	389	63	Spider	2.3	1.76	4
16	Staples	21.7	3.22	70	64	Skinaway	2.1	2.80	6
17	Lower Vermillion	20.8	2.84	59	65	Upper Devils	2.1	2.37	5
18	Upper Turtle	20.7	6.47	164	66	Bullhead	1.8	.57	1
19	Duck	18.4	1.52	28	67	Little Silver	1.8	1.14	2
20	Silver	15.6	5.25	82	68	Nelson	1.8	.57	1
21	Granite	14.2	3.52	50	69	Lower Waterman	1.7	1.76	3
22	Montanis	14.0	2.65	37	70	Blueberry	1.6	.64	1
23	North	13.9	1.95	27	71	Gates	1.6	.64	1
24	Big Dummy	12.3	2.2	27	72	Mosquito	1.6	1.27	2
25	Spring	11.9	1.93	23	73	Teal	1.6	.64	1
26	Bass	11.8	1.95	23	74	Eyk	1.5	.68	1
27	Kidney	11.8	1.27	15	75	Goose	1.5	.66	1
28	Thirty	11.6	1.89	22	76	Greeley	1.4	2.08	3
29	Sylvan	11.1	1.89	21	77	Mud (Almena)	1.4	1.38	2
30	Scott (Crystal Lake)	11.0	1.91	21	78	Bloomquist	1.3	.80	1
31	Hemlock	10.8	5.35	58	79	Crystal Bay	1.3	.76	1
32	Bear	10.5	13.29	140	80	Mud Hen	1.3	.78	1
33	Little Dummy	10.0	1.30	13	81	Pine	1.3		1
34	Barron Flowage #1	9.7	3.13	23	82	Raccoon	1.3	.76	1
35	Kirby (Maple Plain)	8.5	2.95	25	83	Wintergreen	1.3		2
36	Minnow	8.4	.95	8	84	Dietz #4	1.2	.85	1
37	Collingwood	7.9	.76	6	85	Upper Spirit	1.2	.85	1
38	Moon	7.9	1.78	14	86	Upper Vermillion	1.2	2.41	3
39	Lower Devils	7.2	2.65	19	87	Buck	1.1	1.86	2
40	Butternut	7.1	2.54	18	88	Lower Spirit	1.0	1.02	1
41	Dietz #3	6.6	.76	5	89	Scott (Maple Plain)	1.0	.98	1
42	Lake of the Woods	6.4	1.40	9	90	Little Butternut	.9	1.16	1
43	Little Poskin	5.9	.68	4	91	Mud (Crystal Lake)	.9	1.12	1
44	Little Sand	5.6	2.50	14	92	Wood Duck	.9	1.12	1
45	Desair	5.3	1.89	10	93	Pickerel	.8	1.23	1
46	Stump	5.3	1.70	9	94	Long (Crystal Lake)	.7	2.72	2
47	Horseshoe (Maple Plain)	5.0	2.60	13	95	Dallas Flowage	.6	1.70	1
48	Little Granite	4.8	.83	4					

Table 5-16 Acres of Lake Per Dwelling by Lake Most Crowded to Least Crowded

Rank	Lake	Ac/Dwell	Acres	# Dwell	Rank	Lake	Ac/Dwell	Acres	# Dwell
1	Loon	1.52	94	62	49	Upper Spirit	7.0	7	1
2	Poskin	1.7	136	80	50	Wintergreen	7.0	14	2
3	Horseshoe (Almena)	1.73	377	218	51	Little Sand	7.21	101	14
4	Pokegama	1.97	506	257	52	Bass (Cedar Lake)	7.5	19	2
5	Barron Flowage #3	2.09	48	23	53	Butternut	7.83	141	18
6	Echo	2.18	161	74	54	Blueberry	8.0	8	1
7	Beaver Dam	2.26	1112	492	55	Chain (Cedar Lake)	8.0	80	10
8	Sand	2.35	322	137	56	Johnny's	8.0	8	1
9	Ten Mile	2.36	376	159	57	Desair	8.1	81	10
10	Little Dummy	2.38	31	13	58	Lower Devils	8.52	162	19
11	Prairie	2.5	1534	598	59	Lower Waterman	8.67	14	3
12	Spring	2.61	60	23	60	Horseshoe (Map Plain)	8.85	115	13
13	Kidney	2.67	40	15	61	Crystal Bay	9.0	9	1
14	Chetek	2.69	770	286	62	Little Silver	9.0	18	2
15	Lower Turtle	2.73	276	101	63	North Pine	9.0	9	1
16	Rice	2.84	939	331	64	Shallow	9.20	92	10
17	Big Moon	2.94	191	65	65	Peterson	9.25	37	4
18	Robinson	3.0	3	1	66	Mud (Almena)	9.5	19	2
19	Granite	3.08	154	50	67	Bear	9.7	1358	140
20	Mud (Ojaski)	3.1	577	186	68	Spider	10.0	40	4
21	Sylvan	3.19	67	21	69	Skinaway	10.33	37	6
22	Dietz #3	3.2	16	5	70	Nelson	11.0	11	1
23	Minnow	3.25	26	8	71	Bloomquist	12.0	12	1
24	Upper Turtle	3.27	438	134	72	Goose	12.0	12	1
25	North	3.3	89	27	73	Raccoon	12.0	12	1
26	Thirty	3.32	73	22	74	Mosquito	12.5	25	2
27	Collingwood	3.33	20	6	75	Pine	13.0	13	1
28	Lower Vermillion	3.53	208	59	76	Bullhead	14.0	14	1
29	Duck	3.57	100	28	77	Teal	14.0	14	1
30	Kirby	3.68	92	25	78	Stump	14.33	129	9
31	Scott (Crystal Lake)	3.86	81	21	79	Dietz #4	15.0	15	1
32	Elbow	4.0	12	3	80	Gates	15.0	15	1
33	Silver	4.1	337	82	81	Upper Devils	17.2	86	5
34	Little Poskin	4.25	17	4	82	Wood Duck	18.0	18	1
35	Big Dummy	4.33	117	27	83	Greeley	18.66	56	3
36	Staples	4.36	305	70	84	Mud Hen	19.0	19	1
37	Red Cedar	4.73	1841	389	85	Crystal	20.0	120	6
38	Squirrel	5.0	10	2	86	Long (Crystal Lake)	20.0	40	2
39	Lake of the Woods	5.11	46	9	87	Little Butternut	22.0	22	1
40	Bass (Chetek)	5.13	118	23	88	Mud (Crystal Lake)	23.0	23	1
41	Montanis	5.4	200	37	89	Lower Spirit	24.0	24	1
42	Little Bass	5.5	24	4	90	Dallas Flowage	27.0	27	1
43	Dietz #2	6.0	12	2	91	Eyk	27.0	27	1
44	Little Bass	6.0	24	4	92	Scott (Maple Plain)	28.0	28	1
45	Moon	6.0	84	14	93	Buck	28.5	57	2
46	Hemlock	6.16	154	58	94	Upper Vermillion	29.66	89	3
47	Anderson	7.0	14	2	95	Pickerel	37.0	37	1
48	Dietz #1	7.0	21	3					

Lakes Without Dwellings

Of the 176 named lakes in Barron County 81 do not have any dwellings. These lakes are all relatively small lakes with other values, uses, or impacts that make them not very desireable for cabins or homes. There are several reasons why these lakes do not have any dwellings: (See Charts 23, 24 and 25)

- A portion are on public land, either Barron County Forest or DNR lands. (37 lakes - 392 acres)
- Another group are used for agriculture and livestock. (12 lakes - 100 acres)
- The greatest portion are wildlife lakes and in many people's minds unsuitable for cabins and homes. Some consider these as swamps. (24 lakes - 576 acres)
- 4 lakes are on Boy Scout lands. (4 lakes - 84 acres)
- 100 acres of lakes are small lakes that would probably be desireable for some people as a remote cabin site but as yet are not developed. (14 lakes - 165 acres)

An examination of these numbers shows that __% of lakes do not have homes or cabins and that __ % of lake acres do not have them.

Another interesting figure is that less than 1% of the county's total lake acres that would probably be suitable for cabins or homes do not presently have them. The "suitable" wild undeveloped lake in Barron County is an endangered resource.

A lake might fit into more than one character class. An example might be a wild lake that also fit the wildlife character class.

Chart 5-23 Acres of Lakes in Barron County With and Without Dwellings - 1996

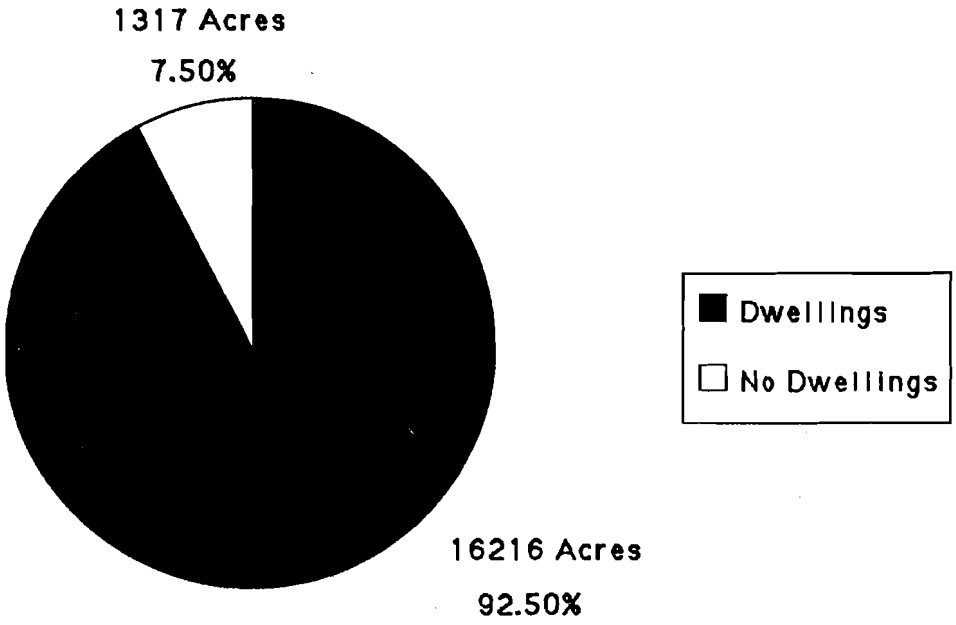


Chart 5-24 Lake Acreage Without Dwellings by Character Class

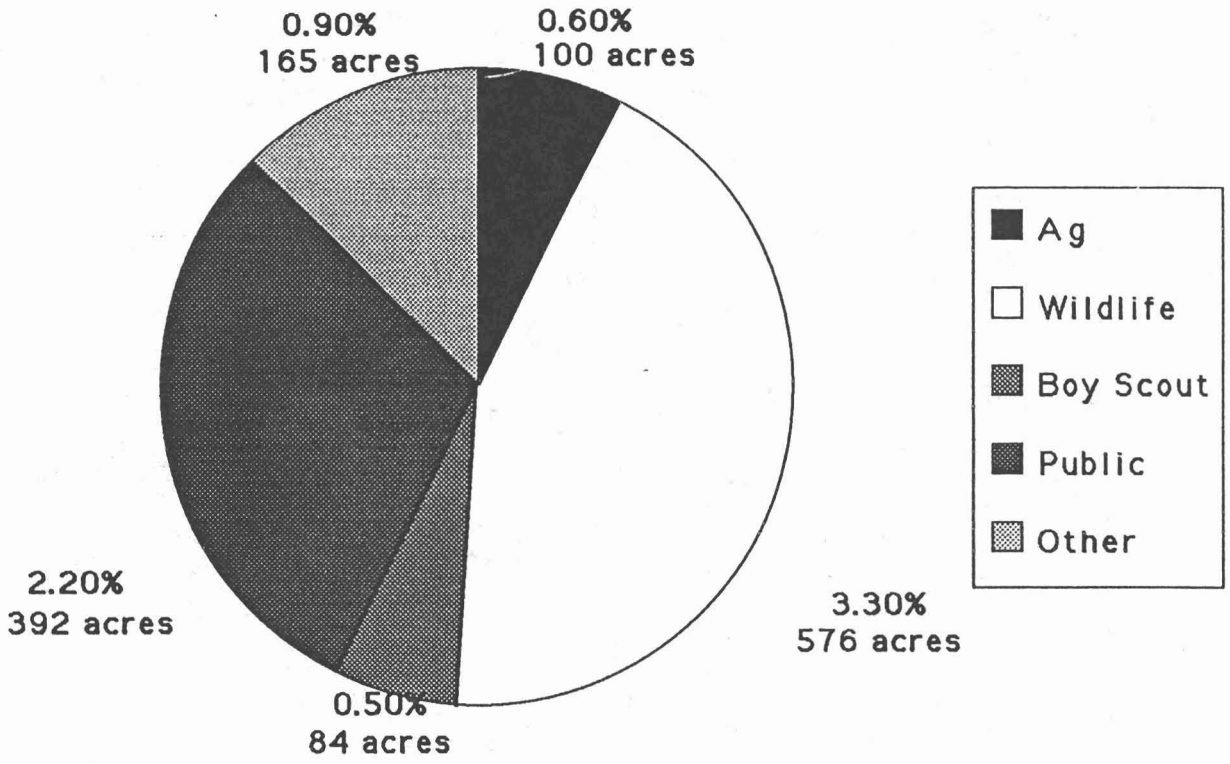
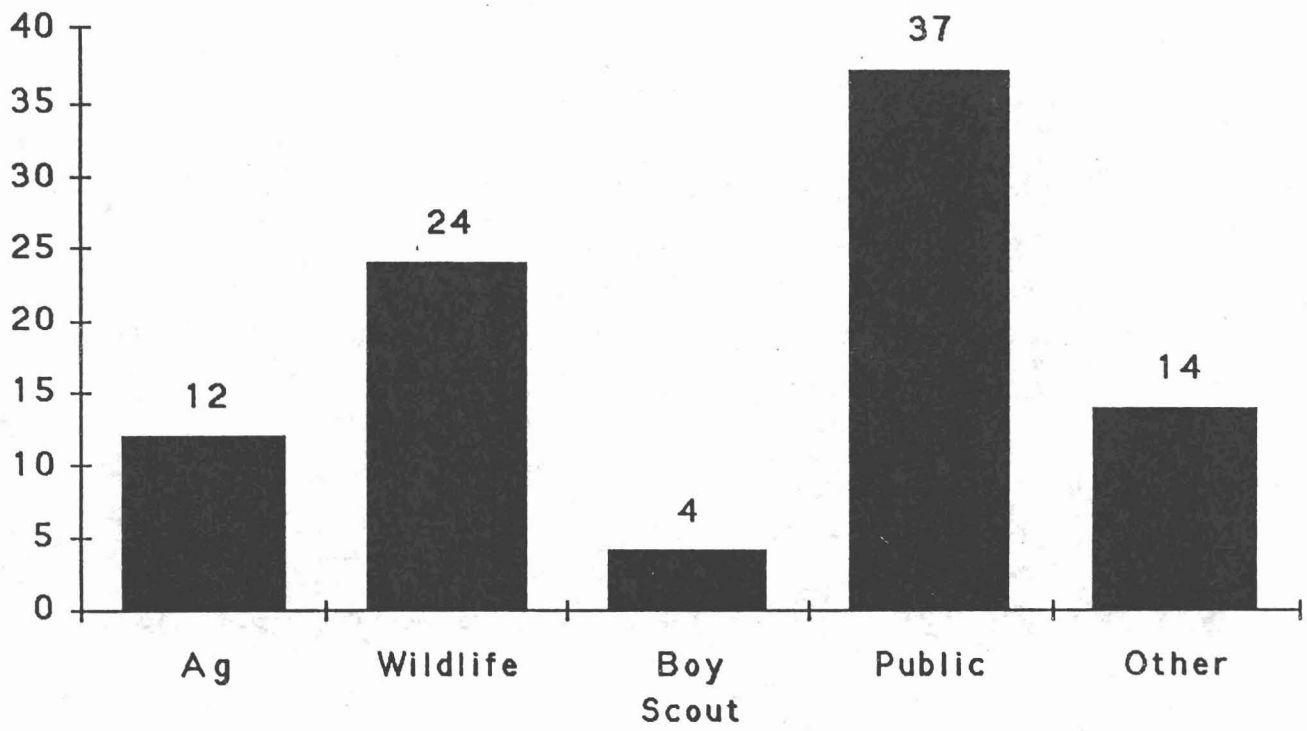


Chart 5-25 Numbers of Lakes Without Dwellings by Character Class



Chapter 6

Lake Character and Lake Attributes: A System to Define Our Lakes

As mentioned in Chapter __ there are many ways lakes can be classified. For the purpose of this project we developed a simple system that defines the character of a specific lake and the present values a lake may have.

Definitions of character classes and a rating system of lake values was developed and field tested. Our system was evaluated both its ease of use and its value for lake characterization.

MORE DISCUSSION NEEDED

Lake Character

Fiver character classes were developed to define the character of lakes in Barron County. The recreational lakes were sub-grouped into a low use, moderate use, and high use sub-rating. The five character classes are:

- Recreational Lakes(low, moderate, and high use)
- Wilderness Lakes
- Wildlife Lakes
- Bog Lakes
- Agricultural Lakes

(see definitions Chapter__)

Character Class Definitions

Recreational Character - Lakes having the majority of the shoreline in a developed state. These lakes are used by boaters, have public access, and usually have fishery value. Recreational lakes are sub-grouped into high, moderate, and low use based on judgement by the reviewer in the field.

Wild or Wilderness Character - A lake surrounded by forest and with a small percentage of development. The forest should be extensive and not just a narrow band of trees around the shoreline. Access is either limited or absent. Any development should be hidden or mostly hidden from view with a natural looking shoreline.

Wildlife Character - A lake with a large percentage of the adjacent area in wetland
or
A shallow lake with high use by wildlife either seasonally or year-round.
or
A lake with abundant aquatic vegetation providing wildlife food and habitat.

Bog Lake - Lakes having a majority og the shoreline in bog habitat. Bogs may be spruce/ tamarack swamps, or shrub communities. Both have sphagnum moss and the lake is usually acidic, although there are also some alkaline bog lakes.

Agriculture Character - Lakes surrounded by agricultural activity or having a predominance of agricultural activity in the lake's watershed. The agricultural activity may be cropland, pasture, or barnyards and it does not have to be immediately adjacent to the shoreline. These lakes are usually very high in nutrient levels with poor to very poor water clarity. Lake size may vary from small farm ponds to larger lakes with other recreational use.

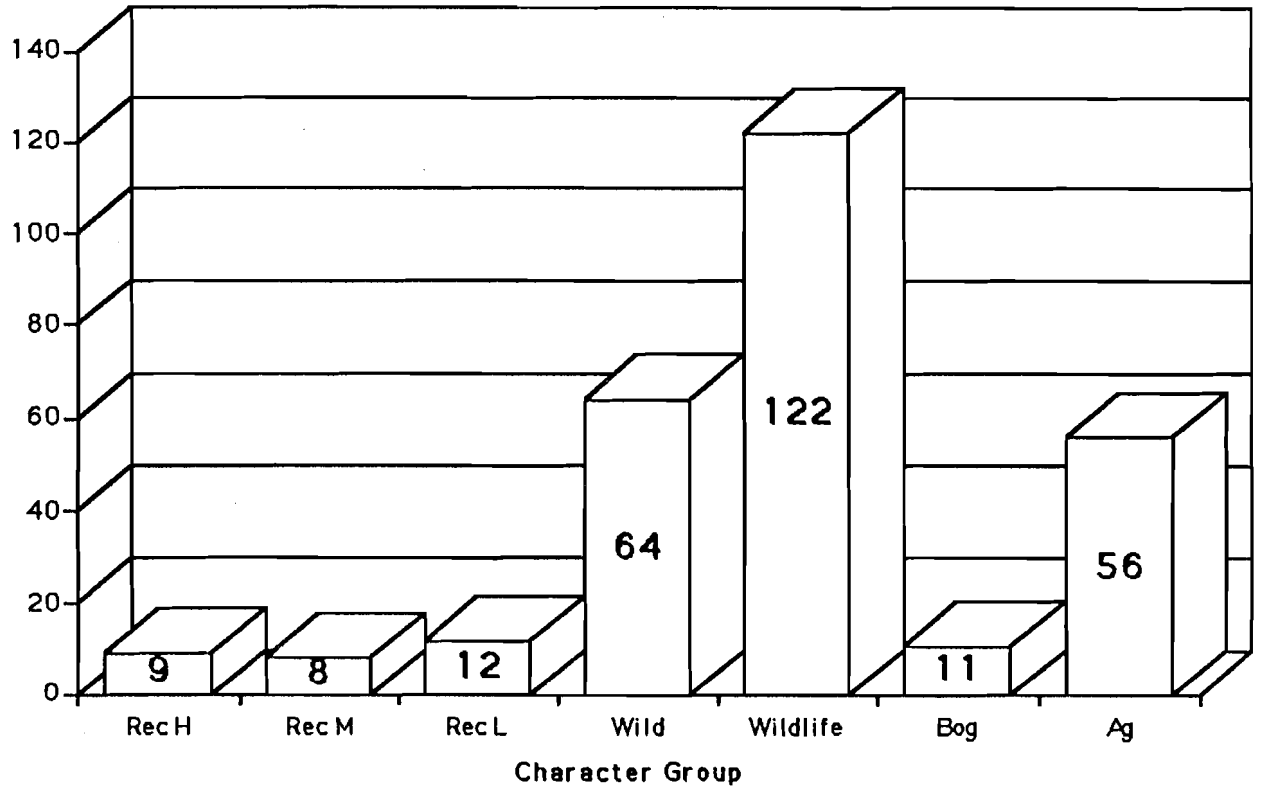

140
120
100
80
60
40
20
0
9
8
12
64
122
11
56
Rec H
Rec M
Rec L
Wild
Wildlife
Bog
Ag
Character Group

Table __ Definitions of Lake Attributes or Values

Environmental Attributes and Values

Wild or Wilderness Values

1 - Forested shoreline but thin strip. Cabins and facilities evident to the viewer. Portions of shore may be void of forest. Public access available.

2 - Forested shoreline. Cabins few and hidden from view. Public access available.

3 - Forested shoreline. Little evidence of development. Public access available.

4 - Forested shoreline. No development. Partial public ownership. No boat ramp access to the public.

5 - Forested shoreline. No public boat ramp. 100% public ownership.

Wildlife Values

1 - Little apparent wildlife use. Adjacent wetlands compose a very small percentage of the shoreline. Wildlife use of the lake is minimal and/or aquatic vegetation sparse or absent.

2 - Wetlands compose 10 to 20% of shoreline but small acreage and not extensive. Wildlife use of lake is apparent but limited or may be only seasonal and/or aquatic vegetation patchy.

3 - Wetlands 20-30% of shoreline and extensive. Use of lake by wildlife throughout the ice-free periods. Aquatic vegetation significant.

4 - Wetlands compose 30-50% of shoreline. Use of lake by wildlife year long. Wildlife foods abundant. High seasonal and day to day use. Lake used by species of special concern such as loons for nesting habitat. Aquatic vegetation abundant.

5 - Wetlands extensive and more than 50% of shoreline. Wildlife foods abundant. High seasonal and day to day use. May be used by threatened or endangered wildlife for nesting. Aquatic vegetation abundant and widespread.

Fishery Values

1 - None or low value fishery

2 - Panfish fishery and fished by locals

3 - Gamefish and panfish fishery and moderate use by fishing public

4 - Quality fishery with high use

5 - Unique fishery or exceptional quality

Water Clarity

1 - Very poor water clarity. Late summer secchi disc readings less than 3 feet.

2 - Poor water clarity. Late summer secchi disc readings 3 to 5 feet.

3 - Fair water clarity. Late summer secchi disc readings 5 to 6.5 feet.

4 - Good water clarity. Late summer secchi disc readings 6.5 to 10 feet.

5 - Very good water clarity. Late summer secchi disc readings greater than 10 feet.

Social Attributes or Values

Lake Size

1 - Less than 10 acres

2 - 10 to 25 acres

3 - 25 to 75 acres

4 - 75 to 200 acres

5 - 200+ acres

Public Use

1 - No access for public. Private shoreline.

2 - Minimal public use occurs. Access limited.

3 - Public use moderate. Boat ramp available.

4 - Public use moderate to high. Excellent boat ramp facilities, may be more than one ramp. Multi-use lake.

5 - High use lake. Public and private resorts and campgrounds. Multi-use lake.

Public Access

1 - None or walk-in only

2 - Limited - roadside access but no boat ramp.

3 - Boat ramp available but may have small parking area, tight or difficult turn-around area or ramp in poor condition. Poor signing.

4 - Lake has excellent boat ramp or may have several boat ramps. Good signing.

5 - Several boat ramps in excellent condition with paved boat ramp. Has good parking and other facilities such as dock, toilets, camping, beaches, etc.

Non-Motorized Recreation

1 - No use

2 - Minimal use

3 - Moderate use

4 - High use and dedicated use

5 - Very high use and dedicated use

Motorized Recreation

1 - No use

2 - Small motorboats

3 - Moderate-sized powerboats

4 - High use by all sizes of powerboats. Water skiing and personal watercraft (jet skis) use lake regularly.

5 - Very high use. High powered boats. Water ski and personal watercraft use very high. Lake use if often times excessive and conflicts of users often occurs.

Developable Shoreline

1 - Less than 20% of shoreline appropriate for development.

2 - 20 to 40% of shoreline appropriate for development.

3 - 40 to 60% of shoreline appropriate for development.

4 - 60 to 80% of shoreline appropriate for development.

5 - More than 80% of shoreline appropriate for development.

		Environmental Values				Social Values				
	Lake	W	WL	F	WC	LS	PU	PA	NMR	MR
1	Anderson	3	3	2	3	2	2	3	3	1
2	Bailey	1	4	2		3	1	1	1	1
3	Barron Flowage #1	1	2	2	1	3	2	2	2	2
4	Barron Flowage #3	1	2	2	1	3	2	2	2	2
5	Bass (Bear Lake)	4	4	2		2	1	1	1	1
6	Bass (Cedar Lake)	3	3	2	5	2	2	2	4	1
7	Bass (Chetek)	2	2	2	3	4	3	4	4	1
8	Bass (Turtle Lake)	1	4	3		2	1	1	1	1
9	Bear	2	5	4	4	5	4	4	3	4
10	Beauty	4	2	2		2	1	1	1	1
11	Beaver (Cedar Lake)	5	4	1		2	1	1	1	1
12	Beaver (Crystal Lake)	1	5	1		2	1	1	1	1
13	Beaver Dam	1	2	3	4/5	5	5	5	3	5
14	Big Dummy	2	5	3	3	4	2	3	3	2
15	Big Moon	1	2	3	3	4	3	3	2	3
16	Black Duck	5	5	1		3	1	1	1	
17	Bloomquist	3	3	1		2	1	1	2	1
18	Blueberry	3	5	1		1	1	1	1	1
19	Bowman	1	1	2	1	2	1	1	1	1
20	Buck	4	5	2	3	3	1	1	2	1
21	Bullhead	1	4	1		2	1	1	1	1
22	Butternut	2	3	3	1	4	3	4	2	1
23	Canthook	4	3	1		2	1	1	1	2
24	Canvasback	4	4	1		2	1	2	1	1
25	Chain (Cedar Lake)	1	3	3	1/4	3	3	4	3	1
26	Chain (Lakeland)	4/5	3/4	2	2/3	2	1	1/2	2	2
27	Chetek	1	2	4	1	5	5	5	2	1
28	Collingwood	1	3	2	2	2	1	1	2	5
29	Couderay	2	3	1		2	1	1	2	1
30	Cranberry Cr. Flowage	2	5	2	2	3	3	2	2	1
31	Cranberry	4	5	2		1	1	1	1	2
32	Crooked	4	3	2	4	2	1	1	2	1
33	Crystal	1	3	3	1	4	3	3	2	3
34	Crystal Bay	4	3	2		1	1	1	2	1
35	Dallas Flowage	1	3	2	1	3	2	2	1	1
36	Deer	3	3	2		1	1	1	1	1
37	Desair	3	3	3	2	4	3	4	2	2
38	Lower Devils	1	3	3	2	4	2	1	2	3
39	Upper Devils	1	3	3	2	4	2	3	2	3
40	Dietz #1	3	5	2	4	2	1	1	2	1
41	Dietz #2	4	4	2	2	2	1	1	2	1
42	Dietz #3	3	4	2	4	2	1	1	2	1
43	Dietz #4	4	4	2	4	2	1	1	2	1
44	Duck	1	4	3	3	4	3	3	2	3
45	Echo	2	2	3	5	4	3	3	3	3
46	Elbow	1	4	1		2	1	1	1	1
47	East Esker	4	3	1	2	2	1	1	2	1
48	West Esker	4	3	1	1	2	1	1	1	1
49	Eyk	3	3	1		3	1	1	2	1
50	Firetag	1	4	1		1	1	1	1	1
51	Fish	1	4	1		1	1	1	1	1
52	Fisher	2	5	1		3	1	1	2	1
53	Fox	1	3	2		2	1	1	1	1
54	Gates	1	1	1		2	1	2	2	1
55	Ginder	3	2	2	1	2	1	1	2	1
56	Goose	3	2	2	4	2	1	1	2	1
57	Granite	2	3	3	2	4	3	3	3	3
58	Grassy	5	5	2		3	2	2	2	1
59	Greeley	1	4	2	1	3	1	1	2	1

		Environmental Values				Social Values				
	Lake	W	WL	F	WC	LS	PU	PA	NMR	MR
60	Grouse	4	2	1		2	1	1	1	1
61	Hawk	1	5	1		1	1	1	1	1
62	Hemlock	3	3	4	4	5	3	3	3	3
63	Hillman	1	3	2		2	1	1	1	1
64	Hogback	4	5	1		3	1	1	1	1
65	Horseshoe (Almena)	2	2	3	4	5	3	2	2	4
66	Horseshoe (Maple Plain)	3	5	3	3	4	3	3	3	2
67	Jacksnipe	4	5	1		2	1	1	1	1
68	Jacobson	1		1		2	1	2	1	1
69	Johnnys	1	3	1		1	1	1	1	1
70	Kelleys	4	4	2		2	1	1	1	1
71	Kelly	4	4	2	2	2	3	3	2	2
72	Kidney	2	4	3	4	3	2	3	2	2
73	Killdeer	3	2	1		2	1	1	2	1
74	Kirby (Bear Lake)	5	5	2		1	1	1	1	1
75	Kirby (Maple Plain)	2	4	3	4	4	3	3	3	3
76	Lake 5	4	3	1		1	1	1	1	1
77	Lake of the Woods	3	3	3	3	3	3	3	3	2
78	Larsons	1	4	1		2	1	1	2	1
79	Lindberg Lakes	5	4	1		1	1	1	1	1
80	Little	2	5	1		1	1	1	1	1
81	Little Bass	3	2	2	5	2	1	1	2	1
82	Little Butternut	4	4	2	1	2	1	1	2	1
83	Little Dummy	2	5	3	3	3	2	3	3	2
84	Little Granite	2	2	3	4	2	3	4	4	1
85	Little Moon	2	4	2	1	3	2	3	2	2
86	Little Mud	1	4	1		1	1	1	1	1
87	Little Poskin	1	5	3		2	1	1	2	2
88	Little Sand	3	2	3	3	2	3	3	3	2
89	Little Silver	2	3	2	3	2	2	3	2	2
90	Little Spider	4	4	2	3	2	2	2	2	1
91	Loch Lomond	4	4	1		2	1	1	1	1
92	Long (Crystal Lake)	1	4	1		3	2	2	1	1
93	Long (Vance Creek)	1	4	2		2	1	2	1	1
94	Loon	2	2	3	3	4	2	3	2	2
95	Maple Plain Fish Pond	4	4	1		2	1	1	1	1
96	Meadow	1	3	1		1	1	1	1	1
97	Minnow	3	3	2	3	3	1	1	2	1
98	Mirror	4	2	1	2	1	3	3	2	1
99	Mitchell	3	2	2	4	3	1	1	2	1
100	Montanis	1	5	3	1	4	3	3	2	3
101	Moon	1	4	2	3	4	1	3	3	1
102	Moose Ear	1	5	2	3	3	2	2	2	2
103	Mosquito	1	3	1	1	2	1	1	2	1
104	Mud (Almena)	1	4	1	1	2	1	1	1	1
105	Mud (Bear Lake 30)	4	5	1		2	1	1	1	1
106	Mud (Bear Lake 34)	1	4	2		1	1	1	1	1
107	Mud (Ojaski)	1	3	4	1	5	5	4	2	5
108	Mud (Crystal Lake)	1	5	2		2	2	2	1	1
109	Mud (Sioux Creek)	4	5	2	1	2	1	1	1	1
110	Mud Hen	4	4	1		2	1	1	1	1
111	Muskrat	4	5	1		2	1	1	1	1
112	Nelson	3	4	1		2	1	1	2	1
113	North	2	4	3	2	4	3	3	2	3
114	North Pine	1	2	1	1	1	1	1	1	1
115	Old Mill Pond	3	5	1		1	1	1	1	1
116	Pea Viner	1	3	1		1	1	1	1	1
117	Peterson	4	5	2	1	3	1	1	2	2
118	Peewee	4	2	1		1	1	1	1	1

		Environmental Values				Social Values				
	Lake	W	WL	F	WC	LS	PU	PA	NMR	MR
119	Pickerel	1	2	2	1	3	3	3	2	2
120	Pine	4	3	1	2	2	1	1	1	1
121	Pintail	4	3	1	3	2	1	1	2	1
122	Pokegama	1	2	4	1	5	5	5	2	5
123	Poskin	1	2	3	2	4	3	4	3	4
124	Prairie	1	3	4	1	5	5	5	2	5
125	Prairie Farm Flowage	1	2	2	1	3	2	2	2	2
126	Raccoon	3	5	1	1	2	1	1	2	1
127	Red Cedar	1	3	4	3	5	5	5	3	5
128	Redhead	5	4	1		1	1	1	1	1
129	Red Ribbon	4	5	1		1	1	1	1	1
130	Rice	1	3	4	2	5	5	5	3	5
131	Robinson	1	2	1	3	1	1	1	2	1
132	Round (Bear Lake)	3	2	2	5	2	2	2	3	2
133	Round (Cedar Lake)	4	4	3	2	2	1	1	5	1
134	Ruddick	5	2	1		2	1	1	1	1
135	Sand	2	2	3	5	5	3	3	3	4
136	Scott (Crystal Lake)	2	2	3	2	4	3	3	2	2
137	Scott (Maple Plain)	4	4	1	2	3	1	1	2	1
138	Shallow	3	2	3	5	4	2	3	3	2
139	Shinner	4	3	1		1	1	2	1	1
140	Silver	2	1	4	5	5	4	3	3	4
141	Skinaway	3	4	2	4	3	1	2	2	1
142	Spawn	4	2	1	2	1	1	1	2	1
143	Spider	3	3	2	3	3	3	3	2	1
144	Spirit	2	2	2	4	2	1	1	1	1
145	Spirit (Lower)	2	2	2		2	1	1	2	1
146	Spirit (Upper)	2	5	1		1	1	1	1	1
147	Spring	2	1	3	4	3	2	2	3	2
148	Spruce Hen	4	5	1		3	1	1	1	1
149	Squirrel	1	2	1	1	2	1	1	2	1
150	Staples	1	4	4	2	5	3	3	3	3
151	Star	1	3	1		1	1	1	1	1
152	Stump	1	5	3		4	2	1	2	2
153	Sweeney Pond	3	5	2	2	3	2	2	2	2
154	Sylvan	2	2	3	1	3	2	3	3	2
155	Tamarack	5	5	1		3	1	1	1	1
156	Teal	4	3	1		2	1	1	1	1
157	Ten Mile	2	2	4	1	5	5	5	2	5
158	Teepee	3	4	1		2	1	1	1	1
159	Thirty	2	4	3	3	3	3	3	2	3
160	Thompson	1	2	1		1	1	1	1	1
161	Trigger	1	5	1		2	1	1	1	1
162	Upper Turtle	1	2	4	4*	5	3	4	2	4
163	Lower Turtle	1	2	4	4*	5	3	3	3	4
164	Tuscobia	3	5	3	3	4	3	3	2	2
165	Unnamed (Almena)	1	2	1		2	1	1	1	1
166	Unnamed(Bear Lake 5)	5	5	1		2	1	1	1	1
167	Unnamed(Bear Lake 8)	5	5	1		2	1	1	1	1
168	Lower Vermillion	1	2	3	2	5	3	3	3	3
169	UpperVermillion	1	3	2	1	4	2	3	1	2
170	Lower Waterman	3	5	3		2	1	1	1	2
171	Upper Waterman	3	4	3	5	2	2	2	2	1
172	Wickerts	1	3	2		2	1	2	1	1
173	Wildcat	3	5	2	3	1	2	3	2	2
174	Wintergreen	3	2	1	2	2	1	1	2	1
175	Wolf	4	5	1	2	2	1	1	1	1
176	Wood Duck	2	4	1		2	1	1	1	1

Chapter 8

What Can We Do?

- **Some Action Items**
- **What can I do?**
- **Where can I get help?**
- **Publications of Interest**

The impacts to lakes have been going on for a long while and many of those impacts will continue into the future. We tend to concentrate on the many negative things happening to our lakes and probably throw up our hands in frustration thinking "What can I possibly do to influence the conditions and values on my lake?"

There are many things that can be done to protect and improve the conditions on our lakes. But we cannot continue with the attitude that it is up to the other guy or up to government to solve lake problems.

Oftentimes in the past the attitude about lakeshore seems to have been

- "What can I get away with?
- "How close can I get to the lake?"
- "How much vegetation can I remove from the shoreline?"
- "How many lots can we put on this shoreline?"
- "How cheap a septic system can I install?"
- "How big a lawn can I have?"

One of the first steps in solving lake problems is to change that attitude from "What can I get away with?" to "What can I do to protect and improve the conditions and values of my lakeshore?"

This simple change in perspective will do a lot to meeting the goals of a better lake in the future.

So it will take individuals to begin to make some difference in the future of our lakes. Individuals make things happen. Individuals can influence others to do good things for lakes. Individuals can participate in lake organizations and influence action for lake improvement.

Groups of individuals can make an even greater impact on lakes.

So we cannot leave it up to the other guy to get things done.

Government, also, has a role in lake improvement and management. The elected and career employees of our cities, townships, county, and state organizations and agencies all have concerns for our lakes.

They all have influence, authority, and the will to get things done concerning our lakes and their future.

So it will require a partnership between property owners, property owner organizations, and the general public along with a variety of government agencies to set a course for the future of our lakes.

The action items on the following pages identify some of the many things that can be done for our lakes. They are not in any particular order or priority but will hopefully get us thinking about the many things that need to be and can be done.

There is much concern about the future of our lakes in Wisconsin and in Barron County.

- One category of concerns deals with what to do about the relatively undeveloped lakes or lakes with no present developments. How can we protect the many values that exist on these types of lakes?

- Another category of concern deals with the lakes that are already developed. It seems that we tend to forget about these lakes with the thought that they are already impacted and there is not much we can do about that.

There are many things that can be done in both situations. Action will be needed that will take a partnership between the many people, landowners, and agencies concerned about lakes.

In general the already developed lakes will need some attention. Lakes with present water quality problems will need an action plan to solve these problems. Lakes with good water quality will need a plan to help insure that water quality is protected and maintained. If the lake is of high quality, how can we keep it that way and if the lake has problems, how can we improve the situation?

Some Action Items

The following action items are recommendations for some things that should be considered for accomplishment during the coming years. There is no ranking or priority to the list, but all should be pursued. If a specific agency or organization is the prime leader to such recommendations - it is listed.

Zoning and Regulations

1. Examine and evaluate present lakeshore zoning ordinances. Using a multi-disciplinary group (LCC, Zoning, DNR, lakeshore owners, realtors, contractors, general public, townships) periodically review and evaluate ordinances and consider the need for strengthening or changing an ordinance.

2. Require erosion control measures on all earth moving/exposing activities within (150? feet) of lakeshores. Put into building permit process.

3. Incorporate T&E species concerns into zoning and land use decision-making process.

4. Consider higher elevation needs, especially on seepage lakes. Will better protect water quality as well as landowner's property during periods of high water fluctuation.

5. When variances are requested for lakeshore zoning ordinances, approval could be tied with some mitigation to offset impacts. For example, if a variance is requested for the setback of a structure, restoration of riparian vegetation through plantings, or other riparian protection or improvements could be tied to issuance of variance.

The net impact may be offset or may even have a positive impact on the lake resource.

Boating, Safety, and Access

6. Townships consider adopting boating use regulations to create some additional "no motors" lakes in their townships. Water quality protection, maintenance of "wilderness values," wildlife protection, and providing unique boating experiences are some possible reasons. Some possibilities for adopting a "no motors" ordinance are:

- Lake of the Woods
- Anderson
- Chain (Lakeland)
- Little Spider
- Kidney
- Spider
- Wildcat
- Upper Waterman
- Mirror
- Dietz Lakes
- Little Bass
- Spirit
- Little Silver

Loon nesting lakes might have "speed limit" regulations, closures to motorized use, or certain area regulations during nesting or other critical periods.

7. Pursue public access.

- Loon
- Lake of the Woods
- Crystal
- Collingwood
- Skinaway

8. Improve boat ramp access on Spring Lake.

9. Pursue better "Danger" signs or buoys at shallow water areas on Red Cedar Lake. Several dangerous areas.

Land Purchase

10. Investigate the possibility of land purchase on Chain Lakes (Lakeland) and Little Silver by DNR to add to Grassy Lakes Wildlife Area to protect wilderness and T&E lake values.

Riparian Agreements

11. Pursue Riparian Management Agreements with landowners with grazing and barnyard problems.

- North Pine*
- North Chain (Twin)*
- Crystal*
- Greeley*
- Upper Vermillion*
- Beaver Dam
- Upper Turtle
- Anderson
- Buck
- Squirrel
- Firetag
- Fish
- Collingwood
- Ginder
- Raccoon
- Mosquito
- Mud (Almena)
- Fox
- Deer
- Pintail
- Little Mud
- Bullhead
- Fisher

* High priority lakes

12. Pursue the possibility of a "Riparian Agreements Incentive " program for riparian owners. Such a property tax incentive program could be structured after Wisconsin's "Managed Forest Law" where riparian agreements contracts would be developed to protect or restore riparian values to shorelines.

A plan would have to be developed and signed; and if the owner followed the plan, a property tax incentive (tax break) would be given yearly for the life of the contract. In return the public resources would be protected and/or restored, including water quality, wildlife and fish habitat, and scenic quality.

Adoption of uch a program would have to be examined by county and township taxing authorities, State of Wisconsin, general public, and others to implement.

13. Work with cropland landowners to develop stronger protection measures and practices near lakes. New techniques, no till, riparian restoration, grazing solutions are some aspects to consider. Stress cost share programs.

14. Continue Priority Watershed Program and encourage participation by landowners.

Maps and Lake Names

15. Resolve map names on county maps, platbook, USGS quads for following lakes:

- Hogback
- Little Spider
- Pine
- North Pine
- Mud (Ojaski)
- Lake of the Woods
- Couderay (spelling?)
- Chain or Twin (Cedar Lake Township)

16. Pursue the process for new lake names on the following:

- West Esker
- East Esker
- Wintergreen
- Lake 5
- Unnamed (Bear Lake Sec 5)
- Unnamed (Bear Lake Sec 8)
- Section 1 Maple Plain (Island Lake?)

Education/Awareness

17. Promote an educational program for lakeshore owners to improve and/or minimize impacts to lakes. Get folks interested and involved. Co-sponsor, along with associations and districts, an annual lake workshop.

18. Promote the protection of the many other values of our lakes - wildlife, T&E species, wilderness, better riparian protection, etc.

19. Develop an informational video on problems and solutions of living on a lake. Make it available to the general public, lakeshore property owners, groups, and public access TV.

Land Use

20. Consider the development of a county comprehensive land use plan.

Studies

21 Promote more intensive studies of lake problems and solutions. Deal with townships, communities, lake associations and districts, volunteers, etc. Seek lake grants from DNR for studies.

22. Promote urban stormwater studies at Rice Lake, Chetek, and Cumberland to see if problems exist and, if so, to seek solutions.

23. Promote and emphasize exotic plant and animal monitoring. (Eurasian milfoil, purple loosestrife, and zebra mussels)

24. Pursue septic system evaluations and monitoring on all lakes.

25. Evaluate possible water quality problems associated with Cumberland Drainage Ditch. Develop solutions if problems unacceptable.

Participation

26. Encourage more participation in Loon Watch Program. Educational programs, seasonal boating regulations on loon nesting lakes, and more monitoring of loons and nesting success by volunteers.

27. Develop a mailing list of all lakeshore property owners for all county lakes. Work with associations and Districts. The benefits of such a list could be better communications with property owners pertaining to lake issues.

28. Facilitate a meeting to consider a county-wide lake organization. Such an organization could improve communication between various lakes and place more emphasis on awareness and educational information about lakes and how to protect them. Members could be lake associations and districts, communities, townships, property owners, interested citizens, real estate people, contractors, etc.

29. Develop a county-wide lake improvement wish list. Interested people and organizations could participate in a discussion to develop such a list of things that could be done. After developing a list, the possible projects could be prioritized and a plan developed for accomplishment. If #27 is initiated, this could be one of their projects.

Misc.

30. Investigate the posssibility of proposing a new segment for the Ice Age Trail at Esker Lakes. Would need private landowners' cooperative agreement.

What can I do?

Lakeshore property owners and other people who value our lakes often ask the question: "What can I do to protect and improve our lakes?" We often think that "I am only one person, what can I possibly do to make a difference?"

The following list will hopefully begin to answer those questions:

1. Become better informed about lakes and how they function.

2. Learn all you can about your lake. Sources of information may be: DNR, Barron County Land Conservation Department, University of Wisconsin Extension (UWEX) or your lake district or association.

3. Join or start a lake association. The Wisconsin Association of Lakes (WAL) is a statewide organization that can assist you in doing this.

4. Get your children or grandchildren involved in lakes. Awareness leads to appreciation, and hopefully leads to action in the future.

5. Work toward making concerns for lakes a greater emphasis in your community or township.

6. Get folks interested and involved. Talk to your lakeshore neighbors about problems and solutions.

7. As a lakeshore property owner, continually ask yourself: "What can I do to protect or improve the quality of my lake?" Get your neighbors to do the same.

Some possibilities.

- Restore riparian vegetation along your lakeshore. Native vegetation is best. When selecting vegetation for your property, plant a variety (trees, shrubs, grasses, etc.) for all levels.

- Avoid the use of fertilizers and other lawn chemicals on areas close to the shoreline.

- If you think you might want to use fertilizers, first have your soil tested to see if fertilizers are needed and to determine proper application rates.

- When your home or cabin needs a paint job, use earth tone colors rather than white or other bright colors. "Blend in " rather than "stand out."

- Leave or restore beds of aquatic vegetation for fish and other aquatic wildlife.

- Have your septic system checked regularly to see that it is functioning properly. If not repair and bring up to code.

- Select earth tone colors for your boat house or boat hoist cover.

- Do not burn leaves near the lakeshore. Do not put leaves or grass clippings next to or into the lake.

- Learn about zoning and other requirements for activities on or near the shoreline.

- Protect any wetlands on or adjacent to your property. Wetlands provide valuable wildlife habitat, interesting plant communities, and are valuable for fish production too. Wetlands, also, are a benefit in providing clean, clear water for your lake.

- If your shoreline needs protection from wave action, ice action, or lake level fluctuations, use native plants as your first choice in shoreline protection.

Structures such as rip rap and wooden retaining walls change riparian habitat values, negatively impact wildlife habitat and wildlife movements, are expensive, require continual maintenance, and degrade visual quality. BCLCD or the DNR can assist in planning the project.

8. If your lake is home to loons, bald eagles, or ospreys, or any other unique wildlife or wildlife habitat, learn about them and their habitat needs. Work for better protection of their habitat, especially nesting habitat. Support efforts to protect and restore these unique species.

Note: Loon Watch, a loon protection organization at Northland College in Ashland, can help with information about loons. Loon Watch needs volunteers to assist in loon protection and monitoring activities.

9. When doing earth moving activities on your property, use erosion control measures, such as filter fences or straw bales, to minimize soil erosion impacts to your lake. Activity may need permit from Zoning Department - check with them.

10. Keep your eye out for activities on or near the shoreline. If you suspect problems, or negative impacts, contact DNR or Zoning departments immediately.

11. Review zoning ordinances in your county and township, and, if needed, work to improve ordinances for the future. Are they strict enough for your lake? Do they need improvement? Are they being enforced? Work with city, township, county, and state officials to make improvements in lake - protection ordinances.

12. Do not take your lake or other lakes for granted. They are a precious resource and need special attention and care.

13. Participate in local or regional water quality protection organizations that work toward solutions to local and regional water quality problems. One such example is the Red Cedar River Basin Project. Contact Renee Lauber - Project Coordinator, Biology Department UW-Stout, Menominie, WI.

14. Encourage local schools to participate in lake activities such as Adopt-a-Lake program or other lake studies in their science programs. Lake awareness for young people can begin a path down the road to better lake management in the future.

15. Attend a "lake fair" or a Wisconsin Association of Lakes conference and/or sponsor a lake appreciation or lake awareness day in your community or area.

16. If your lake has problems, seek advice on what to do to begin working on solutions. Contact lake professionals for evaluations and recommendations. Government agencies are there to help but it often requires local initiative to begin the process. Remember the old adage: "The squeaky wheel gets the grease."

Where Can I Get Help?

The following list of agencies and organizations can help with questions and concerns about your lake and your property:

Wisconsin Department of Natural Resources

Lake Management Section
Bureau of Water Resources Mgmt.
PO Box 7921
Madison, WI 53707
608-266-0502

Northwest Area Headquarters
Lake Specialist
Hwy 70 W, PO Box 309
Spooner, WI 54801
715-635-2101

Barron Area Office
1418 E. La Salle Ave
Barron, WI 54812
715-537-5046

Cumberland Area Office
1341 2nd Ave
Cumberland, WI 54829
715-822-3590

Barron County

Barron County Zoning Department
Paul Flottum - Administrator
Courthouse
Barron, WI 54812
715-537-6375

Barron County Land Conservation Dept.
Dale Hanson - County Conservationist
Courthouse
Barron, WI 54812
715-537-6315

University of Wisconsin Extension (UWEX)

Lake Management Specialists
College of Natural Resources
UW - Stevens Point
Stevens Point, WI 54481
715-346-2116

Don Drost - County Agent
UWEX
Courthouse
Barron, WI 54812

Wisconsin Association of Lakes, Inc.
PO Box 2064
Madison, WI 53701
1-800-543-5253 or 608-233-2227

Local Contacts

Nancy Bentz
1830 Hines Lakeview Drive
Cumberland, WI 54829
715-822-4783

Jim Bakken
New Auburn High School
New Auburn, WI 54757

Barron County Lake Districts

Beaver Dam Lake District
Jim O'Keefe
Cumberland, WI 54829

Dallas Millpond District
Dave Hoveland
PO Box 236
Dallas, WI 54733

Dummy Lakes District

Cumberland, WI

Kirby Lake District
Bill Bay
425 27 1/4 Avenue
Cumberland, WI 54829

Rice Lake District
Lester Litscher
112 Monroe Ave
Rice Lake, WI 54868

Staples Lake District
Bill Newstrand
104 McMenemy
St Paul, MN 55127

Lower Turtle Lake District
Richard Fields
2348 Timberlea Drive
Woodbury, MN 55125

Lake Associations

Bear Lake Association
Martin Brosik
2947 16th
Haugen, WI 54841

Chetek Lakes Protective Committee
Jerry Zehner
768 N. Lakeview Drive
Chetek, WI 54728

Desair Lake Association
Rod Olson
1841 24th Ave
Rice Lake, WI 54868

Horseshoe Lake Association
(Almena and Beaver Townships)
John Plaschko
1672 16 1/2 Avenue
Turtle Lake, WI 54889-9618

Loon Lake Association
Thomas Kromer
126 18 1/4 Avenue
Turtle Lake, WI 54889

Red Cedar Lake Association
Mary Hele
3550 Edmund Blvd.
Minneapolis, MN 55406

Sand Lake Association
Box 1053
Cumberland, WI 54829

Silver Lake Association
??

Other Organizations

Poskin Lake Sportsman's Club

Publications of Interest

Life on the Edge - Owning Waterfront Property, Michael D. Dresen and Robert M. Korth, University of Wisconsin - Extension, July 1994.

Understanding Lake Data, Byron Shaw, Christine Mechenich, and Lowell Klessig, UWEX

Lakes of Wisconsin Wisconsin DNR 1995 _____

Surface Water Resources of Barron County, Wisconsin Conservation Department, 1964.

Wisconsin - A Great Place to Fish, WDNR Publication FM-744-93

Ice Age Trail - National Scenic Trail, National Park Service USDI - pamphlet/poster.

Ice Age - National Park Service and WDNR - pamphlet/poster

Shoreline Zoning - What the Landowner Needs to Know WDNR Publ-WZ009 Rev 93, pamphlet

Lakeshore Zoning Ordinance _____,
Barron County Zoning Department,

Many lake names have been changed so as to accomodate a Wisconsin name list. For example it is preferable to have a name such as Lake Chetek to be named Chetek Lake to accomodate an alphabetical listing. Lakes with a ' are discouraged, such as: Buck's Lake would be better named Buck Lake. Lake with names of living landowners are discouraged. Lakes with more than one name such as Lake of the Woods, or Town Line Lake are discouraged as well.

It appears that common local names have been changed over the years to accommodate these name preferences. Those who have been involved in naming lakes have probably run out of lake names and have named a particular lake either Bass Lake or Mud Lake two popular names.

Chapter 9

Lake Names and Map Errors

The names of lakes in Barron County come from a variety of sources. Some are from original names used by native Americans, some are named after early Barron County residents or landowners, some are named for their shape, size, location, or character, and others are named from plants and animals of the area.

Over the years names may change. This is especially true for the smaller lakes. On occasion map errors occur, or local names become the common name of a lake. Landowners may change giving the lake a new name. Change seems to be the rule rather than the exception regarding lake names.

For interest sake alone, the history of lake names has been examined to determine the reasons for those names. Historical publications, old maps, and platbooks were examined to get a feel for some of the history of lake names and how they have changed over time. Historical publications and other references used are listed in the reference section page __)

This chapter discusses

- some of the names of lakes,
- the history of lake names,
- some interesting facts about our lakes,
- some proposed names for unnamed lakes,
- and some suggestions for a resolution of names for lakes having more than one name.

Names of georaphical features have to be approved by the Wisconsin Geographical Names Committee. This group meets annually to approve or disapprove geographical names. The following are some general rules for names considered by the committee:

- Features, such as lakes, cannot be named after living people.
- Names have a better chance of approval if local governments, such as town boards, recommend the name.
- Names that reflect some local features are preferred.
- Lakes smaller than 10 acres are not considered for names unless they are popular lakes with the public.

(see Appendix __ for the guidelines and forms for proposed names.)

Lake Names

The lakes of Barron County have a colorful collection of names. Some lakes are named after a one time landowner or other influential person. Some are from names given by the Chippewa people who lived in the county. Others are named after the fish, animals, and plants that reside in Barron County. Quite a few lakes are named after logging operators of the Knapp Stout a& Co. logging firm.

The 176 named lakes of the county have been categorized into the following name groups:

- fish names - 10 lakes
- bird names - 15 lakes
- animal names - 16 lakes
- plants, trees, or related - 17 lakes
- Indian origins - 5 lakes
- people - 38 lakes
- geological - 4 lakes
- shape/size/character/places - 27 lakes
- other - 39 lakes

Historical Lake Names

Several historical publications were researched to see if the original lake names could be determined. Much of this information was gathered from a 1922 publication by Newton S. Gordon called History of Barron County. The following lists past names found as well as some interesting trivia about our lakes. Platbooks and atlases often had different names from one year to another. The year of the platbook, where the lake name was found, is presented in parentheses.

Anderson - Named after landowner Christ Anderson (1927 Barron County Platbook.) The lake at that time was named Perch Lake.

Bailey Lake - Not sure who Bailey is, but there was a Dr. Abel Bailey who was one of the first physicians in Chetek. He started his practice in 1881.

Bass Lake - There are four Bass Lakes in Barron County.

Bass Lake (Bear Lake) - Bass Lake was the name in 1927, but was changed to Cub Scout Lake (1961). Changed back to Bass Lake by 1973.

Bass Lake (Chetek) Has always been named Bass Lake.

Bass Lake (Turtle Lake) Spring Lake (1961).

Bass Lake (Cedar Lake) Stout Lake (1961) Bass Lake (1973).

Bear Lake - An Atlas of Wisconsin from 1850 identifies this lake as Ashkakwah Lake. This is the Chippewa term for _____.

Beauty Lake - Coot Lake (1961). Note: In the 1961 Platbook Beauty Lake was the name of a different lake which is presently unnamed lake in Section 1, Maple Plain Township.

Beaver Dam Lake - The Chippewa named the lake *Che-wa-cum-ma-towan-gok* or "lake made by the beavers." Another reference says that the Chippewa name was *Way-ko-ne-ma-daw-wang-gog*, meaning the same thing. Two long points, just south of Eagle Point, are called the "beaver dam" as their shape resembles such a structure. These points are most probably a result of glacial meltwater action and subsequent ice action.

Bloomquist Lake - When Maple Plain township was first organized, a man named Bloomquist was one of the first town supervisors.

Bowman Lake -

Buck Lake - At one time Buck Lake was called Amber Lake. During the logging era of the region, lakes and streams were dammed to provide sufficient water to float logs downstream. Buck Lake was dammed by a logging supervisor named Buck Harrington and was named Buck's Lake.

Bullhead Lake - Once named Partridge Lake (1961).

Canthook Lake - A canthook is a logging tool used to move and roll logs.

Chain Lakes - There are two Chain Lakes in Barron County, one in Lakeland Township and the other in Cedar Lake Township. The Cedar Lake Chain Lakes is also known as Twin Lakes. The 1922 History of

Barron County identifies these lakes as Twin Lakes. Upper Twin and Lower Twin were the names in 1961. Twin Lakes is preferred and is the name on the sign at the public boat landing. County Highway V dissects the lower lake actually making 3 different lakes. At one time three of the small lakes on Boy Scout property at Camp Phillips were called Chain Lakes (1927).

Lake Chetek - There are several stories or legends about the name Chetek.

- One states that Chetek is a Chippewa name that refers to *jede-saigaigon. Sede* is the term for "swan" and *saigaigon* is the term for "inland lake." (Another source says "island lake.") How this translates to Chetek is a mystery.
- A second story says that *sheetak* is a long-legged rice bird or little pelican. Lake Chetek was a favorite rice gathering lake for several Indian peoples. The bird could possibly be a bittern or egret.
- A third unsubstantiated version is that the Chetek area is called "The Valley of the Souls," but it doesn't necessarily mean that this is the meaning of Chetek.
- A fourth says that the Knapp Stour & Company named it after a Chippewa chief whose name has had several spellings - Shetek, Shetack, Shetuc, and Chetack.
- Still another source says that the Chippewa name for Chetek was *Sha-da-sag-i-e-gan* meaning Pelican Lake.

Collingwood Lake - Collingwood Lake is located at the south end of Cumberland and is named after Jack Collingwood, an early Cumberland resident who operated the first hotel in Cumberland and later built the Collingwood House.

Couderay - This small lake takes on the same name as a Sawyer County lake and is derived from the French terms "court oreilles," meaning "short ears." Indians living around the Hayward lakes region were known as the Ottawa Indians. They were called "short ears" as they did not wear heavy earrings like other Indian people, and as a result didn't have stretched ear lobes. Other spellings Coudray, Coudrey, and Little Couderay. How this Barron County lake acquired the name is unknown?

Cranberry Creek Flowage (Cameron Flowage) Dam constructed by Knapp Stout & Co. in 1868.

Cranberry Lake - Panfish Lake (1961).

Crooked Lake - This small lake on Boy Scout property was once named Chain Lakes (1927) and Girl Scout Lake (1961). At one time it had road access and a public boat landing on the west shore. The west shore of this lake is on public property.

Crystal Lake - Most probably named after the once crystal clear waters.

Crystal Bay Lake - Hanson Lake (1961).

Dallas Flowage - An impoundment on the Pine River in the community of Dallas. Dallas was the name of the county before becoming Barron County in 1869. It was created by a dam on the North Pine Creek. The dam was constructed to power a "grist " (flour) mill and constructed in ____.

Deer Lake - Otter Lake (1961).

Desair Lake - A former property owner on this lake was named Nels Desair. Desair was a woods foreman for the Knapp Stour & Co. lumbering firm and logged in the Bear Creek vicinity in 1875-76. He established his homestead in Section 6 of Rice Lake Township at what is today called Desair Lake. One source says that the name was spelled Desere at one time. Another local name of this lake was French Lake. French Creek is the outlet of the lake toward Bear Creek.

Dietz Lakes - Four small relatively wild lakes between Rice Lake and Cameron. John Dietz Sr. built a cabin on Dietz Lake #3 and started his homestead in 1869.

John sr. had three sons Henry, William, and John Jr. Henry was a farmer, William Dietz was the Sheriff of Barron County elected in 1880, 1891, and 1899 and was also a Rice Lake sheriff. John Jr. is the more famous of the Dietz brothers as he was involved in a severe conflict with a lumber company who flooded his land to float logs down the Thornapple River. Dietz stopped them at Cameron Dam on the Thornapple and caused quite a stir at the time.

Dummy Lakes - Legend has it that in the late 1800s there was a large fellow living on this lake northeast of Cumberland, who happened to be a deaf-mute. When he came to town people would ask who this big man was. He acquired the name "the Big Dummy," and so did the lake he lived on. Of course, today such a name would be considered derogatory. He later drowned in Big Dummy Lake.

In History of Barron County by N.S. Gordon and published in 1922, there is a reference to the Dunning Lakes in Lakeland Township. These may be today's Dummy Lakes, but it is not known for sure. Little Dummy has been named Otter Lake (1927) and Dipper Lake (1961) and Little Dummy (1973).

Echo Lake - This lake just north of Turtle Lake was once known as Bear Lake by the early settlers. During the logging era the lake had numerous wigwams and was inhabited by Indians who worked for the logging companies.

Elbow Lake - Named after its shape.

East and West Esker Lakes - A proposed name after the long glacial ridge separating the two lakes.

Eyk Lake - An impoundment on a tributary of Moose Ear Creek. Helen Eyk (1961) was the landowner. Another Miss Eyk was a teacher in the Thompson School near Chetek during the nineteenth century.

Fawn Lake - One of the Lindberg Lakes was at one time Fawn Lake, but is presently unnamed.

Firetag Lake - A derived name after the landowners, the Feiertag family.

Fox Lake (Cumberland)- This was the name of a small lake along Highway 48 one half mile from Cumberland. At the present time it is unnamed. According to an adjacent landowner the little kettle lake is 40 feet deep. At one time there was a fox farm in the vicinity.

Fox Lake (Lakeland) - A small lake southeast of Barronett and near the headwaters of the Yellow River.

Gates Lake - Named after landowner George W. Gates (1927).

Ginder Lake - John Ginder was a surveyor and timber cruiser for the Knapp Stour & Co. He had his homestead in Section 7, Rce Lake Township which is just to the east of Ginder Lake.

Goose Lake - The existing Goose Lake was once named Maple Lake (1922 and 1961). A small unnamed lake between the present Goose Lake and Spawn Lake was once named Goose Lake (1961). This could possibly be a map error

Granite Lake - Granite Lake was also a small community along the railroad four miles north of Cumberland.

Greeley Lake -

Hemlock Lake - Named Pokegama Lake on a 1914 Wisconsin map.

Hilman Lake -

Hogback Lake - Hogback is a small hill, shaped like the back of a pig.

Horseshoe Lake - There are two Horseshoe Lakes in Barron County, both named after their shape. The Horseshoe Lake in Almena Township was once known as Big Horseshoe and is shared with Polk County. The 1961 Platbook identifies the Maple Plain Horseshoe Lake as North Horseshoe.

Jacobson Lake - Named after Louie Jacobson (1927).

Kelley's Lake - Kelley (first name unknown) was a logging camp boss for the Shell Lake Lumber Company in 1895. His logging camp was near Kelley Lake. Also named Lake Seven (1961).

Kelly Lake - Charles Kelly was a logging camp boss for the Shell Lake Lumber Company in 1897. His camp was near Kelly Lake. Also named Bass Lake (1973).

Kidney Lake - Named after its shape.

Kirby Lake (Maple Plain) - There was a L. Kirby who was a city alderman in Cumberland in 1891, but whether he was the Kirby the lake is named after is unknown.

Kirby Lake (Bear Lake) - Lake 8 (1961).

Lake 5 - A proposed name for a small lake located in Section 5 of Maple Plain Township. Too small for an official name.

Lake of the Woods - Known on some maps as Bass Lake. An adjacent landowner, who has farmed in the area for his entire life, says that the lake has always been called Lake of the Woods and that he doesn't know how it ever got the name of Bass Lake. It was Lake of the Woods in the 1961 Platbook. Lake of the Woods is the preferred name.

Larson's Lake - A small lake south of Chetek that is more a cattail marsh than a lake. Named after landowner Louis Larson (1961).

Lindberg Lakes - There are twenty small wilderness lakes, known as the Lindberg Lakes, on DNR land just south of Loon Lake. 17 of these lakes are within the Loon Lake State Wildlife Area, and three are on private land. Lake acreage totals 86 acres, of which 70 acres is on public land. Arnold and Alice Lindberg were the landowners in the 1961 Platbook prior to its becoming public land. In the 1927 platbook the owners of this property were the Trustees of Northwest College.

Little Lake - Adjacent to the Barron Golf Course, it probably got its name from its size.

Little Bass - According to the adjacent landowner, whose father purchased the land next to Little Bass Lake in the 1920s, a Chippewa Indian of the area told her father that the lake was called, *Aushagakanick,* or "lake teeming with bass," in the Ojibwa language.

Little Dummy - Otter (1927), Dipper (1961)

Little Granite - Trout Lake (1961 & 1973)

Little Silver - Forest Lake (1961)

Loch Lomond - Dace Lake (1961)

Long Lake (Crystal Lake) - Swampy Lake (1961).

Minnow Lake - Minnow (1961), Dimon Lake (1966), Minnow (1973).

Mitchell Lake - Located on lands owner by the Blue Hills Council of the Boy Scouts of America, Mitchell Lake is within the Boy Scout camp, known as Camp Phillips. Chain Lakes (1927), Boy Scout Lake (1961). Mitchell ____.

Montanis Lake - In History of Barron County this lake is called Mountain Lake. It was once a popular wild rice lake used by native peoples. In the early 1700s a French fur trading post was located on this lake. One spelling was Lake Moontanyss (1892). Montanis was also the name of a daughter of Na-non-ga-be, a leading Chippew chief of the area. It isn't known if the lake was named after her or vice versa. Her Chippewa name was As-sha-way-gee-she-go-qua. Other lake name: Kagema.

Big and Little Moon Lakes - L.P. Moon was a Knapp Stout & Co. foreman who logged in the Silver Creek area and the Big and Little Moon Lakes area. He constructed a dam near the outlet of Big Moon Lake for log drives of the areas harvest.

Moose Ear Lake - Today's Moose Ear Lake (1973) is a small lake located along Moose Ear Creek upstream from Lake Chetek. Many local people call the bay in which Moose Ear Creek enters Lake Chetek as Moose Ear Lake. Moose Ear Lake is probably named after its shape. Moose Ear Lake was known as Taber 's Lake (1927 and 1961).

Mosquito Lake - Musket Lake (1927).

Mud Lake - There are 7 Mud Lakes in Barron County.

Mud Lake (Ojaske) - Many local people of the Chetek area consider the name Mud Lake a derogatory name and have been calling this lake, Ojaske Lake. Ojaske was _____. Spellings have been Ojaske and Ojaski.

Mud Lake (Crystal Lake) - Doars Lake (1927) after the landowner and Ogren Lake (1961) after Donald Ogren, landowner.

Mud Lake (Turtle Lake) - Mill Lake (1961).

Mud Lake (Sioux Creek) - Sioux Lake (1927).

Mud Lake (Section 30 Bear Lake) - Town Line Lake (1961).

Nelson Lake - Named after Al Nelson, the landowner and a local bait shop owner, who raised minnows there (1961).

North Lake - Called Wickerts Lake in 1927 Platbook.

Pine Lakes - There are two lakes identified on maps as Pine Lake in Lakeland Township. Both adjacent landowners refer to "their" lake as Pine Lake. Emmet Huston, who lives next to the southerly of the two lakes, says that there was once a Pine Hill School named after the southerly lake. To eliminate this confusion, the northerly of the two lakes is called North Pine in this publication. This lake was once called Deer Lake (1961).

Pea Viner Lake - Named after a pea-vining operation that once was located near this lake.

Peterson Lake - After Mrs. Carl Peterson (1927) or John and Mabel Peterson (1961). Once called Sisters Lake and also Three Sisters Lake.

Pintail Lake - Once known as Redman Lake after the landowner, William Redman (spelled Rebman in 1927 Platbook).

Pokegama Lake - Pokegama is from the Ojibwa language and has several similar meanings: "water at the side of a river," "the water divides," water turns off to one side," or the "confluence of two rivers."

Poskin Lake - Poskin was the name of the first wife of Andrew Tainter, who started logging near Turtle Lake in 1848. She wa the daughter of Na-non-ga-be the leading Chippewa chief who was headquartered at Long Lake. Na-non-ga-be was a signer of the 1854 Treaty. Andrew Tainter later joined the lumber firm of Knapp & Wilson Company which later became Knapp Stout & Co., the largest lumbering firm in the world at the time. A lumber mill was located on this lake and Tainter named it named in honor of his wife, Poskin Prior to this name it was McGuire's Lake.

Prairie Lake - Another important wild rice lake in the Chetek Chain of Lakes. Prairie Lake was at one time called Prairie Rice Lake, and its Chippewa name was *Mush-ko-da-mun.* Much local Indian history centers around Prairie Lake having had many battles between the Chippewa and Sioux there, one noted in 1798.

A passage from William Bartlett's book History, Tradition and Adventure in the Chippewa Valley, Wisconsin (1929) refers to the importance of Prairie Lake to the Indians as a source of food. *The lake being miry bottomed and shallow is almost entirely covered with wild rice, and so thick and luxuriant does it grow, that the Indians are often obliged to cut passage ways through it for their bark canoes.... (The wild rice of) this lake alone would supply a body of two thousand Indians.*

With such abundance of the winter food supply, one can appreciate the importance of these rice lakes to the Indian people.

Red Ribbon Lake - Local name of this bog lake. Not on maps. Too small to have official name.

Red Cedar Lake - Also called Cedar Lake. At one time the Red Cedar River was the Menomonie River but the name was changed to eliminate confusion with the Menoninie River (different spelling) in far eastern Wisconsin. *Manomin* is the Chippewa word for wild rice and the root of Menomonie. Such a name illustrates the importance of the lakes and rivers in the Red Cedar watershed as providers of wild rice to the Indian people.

Rice Lake - Rice Lake, prior to the construction of the dam on the Red Cedar River in 1868 (another source says 1864), was a shallow lake long used by native peoples for the collection of wild rice. Newton Gordon in his 1922 History of Barron County says that the lake was a "*favorite resort of Indians every fall when wild rice was collected for their winter supply.*" James Doty, secretary of the Cass-Schoolcraft expedition in 1820, wrote that "*the Indians in the month of September repair to Rice Lake to gather their rice. In no place does it grow in such large quantities as there. The water is not over five feet deep and its surface is almost entirely covered with rice.*"

The Knapp Stout & Co. lumbering firm built a dam on the Red Cedar River in 1864, thus flooding the wild rice beds. This was a great disappointment to the Indian people who had been gathering rice there for generations. Wild rice gathering was one of the "guarantees" to the Chippewa people in the 1837 Treaty in which the Chippewa gave up their northern Wisconsin lands to the United States government.

Robinson Lake -

Round (Bear Lake) - Once Chain Lakes (1927) and Eagle Scout Lake (1961)

Ruddick Lake - Named after landowner, R.L. Ruddick (1927) prior to the time Barron County acquired the land. Ruddick Lake (1961).

Sand Lake - Named Clear Lake on 1914 Wisconsin map. Also referred to as Clear Lake in History of Barron County, 1922.

Scott Lake (Crystal Lake) - One reference to a "Scott's Pond" in History of Barron County indicated that a logging camp or mill was located there. Whether this is the Scott Lake of today is unknown. Also referred to as Scott's Lake.

Scott Lake (Maple Plain) - Another Scott Lake that was called Indian Lake in the 1961 platbook.

Silver Lake - Probably named in reference to its "sterling" water clarity.

Skinaway Lake - An Ojibwa chief who signed the 1854 treaty between the United States and the Chippewa people of northern Wisconsin was named *O-ske-naw-way*. He was referred to as Skinaway.

Spider Lake - Named after its appearance and shape.

Spring Lake - Bryer Lake (1961), Spring Lake (1973).

Squirrel Lake - A reference indicated that this lake was once known as Bullhead Lake .

Staples Lake - Winn Staples was a logger who had a reputation for his logging of the pineries of the St. Croix River watershed.

Sweeney Pond - Robert Sweeney was a foreman with the Knapp Stout & Co. He probably logged the Sweeney Pond/Sweeney Creek area and drove logs down Sweeney Creek.

Sylvan Lake - Sylvan is a word meaning "abounding in woods, groves, and trees." In 1932 the Methodist Ministers Retreat purchased land on the lake. There was some confusion over whether the lake was Pipe Lake or Little Pipe Lake. They changed it to Sylvan to eliminate confusion.

Ten Mile Lake - An arm or bay of Lake Chetek with its own identity. Named after Ten Mile Creek, a tributary stream.

Thompson Lake - Named after the family that farms the area surrounding the lake.

Turtle Lakes - Named by surveyors in 1862, who found many turtles laying their eggs on the shoreline.

Tuscobia Lake - Tuscobia is believed to have been derived from the Chippewa term *tuscola*, meaning "a level place."

Unnamed (Maple Plain Section 1) - Beauty Lake (1961).

Upper Spirit - Once named Bullhead Lake (1961).

Vermillion Lakes - Vermillion is a French term for a bright red or reddish orange color. This is completely conjecture, but Upper Vermillion and Lower Vermillion Lakes seemed to have a reddish hue in the water color, possibly from organc stains from adjacent bogs andswamps.

Waterman Lakes - Sidney H. Waterman worked for the Beaver Dam Lake Logging Co., and in 1885 he founded the Hardwood Lumber Mfg. Co. that logged around the Sand Lake area. Waterman was a prominent resident of Cumberland who at different times was the mayor (1898), an alderman (1885), founder of the Cumberland Telephone Company (1898), and President of the Cumberland Hotel Company.

An interesting observation about the Waterman Lakes is that their names do not fit their relative location in the watershed. Upper Waterman, the northern of the two lakes is actually "lower" in the drainage. Lower Waterman is upstream in the watershed. Whether this is a map error or just a mistaken name, is unknown. Other names: Upper Waterman - Lake 5; Lower Waterman -Weilmuller Lake (1961). Present names are in the 1973 Platbook.

Wickerts Lake - Referred to as Weckert Lake in the 1922 History of Barron County."

Wildcat Lake - Sandpiper Lake (1961). Another presently unnamed lake just to the southwest of Wildcat Lake was also called Wildcat Lake at one time.

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