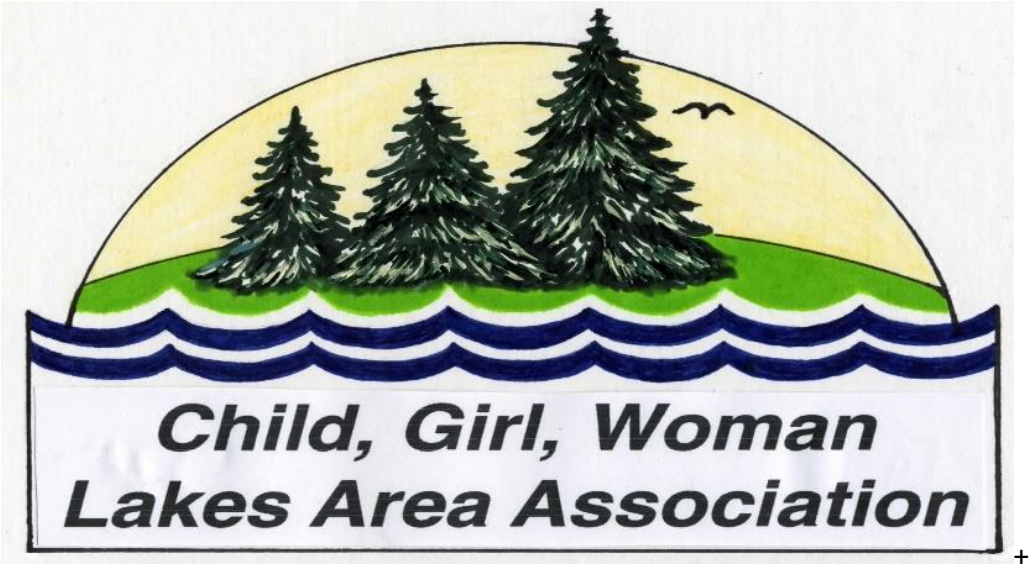
CHILD, GIRL AND WOMAN LAKES AREA ASSOCIATION

CHILD, GIRL AND WOMAN LAKE MANAGEMENT PLAN (Revised 6-17-23)



INDEX

TASK TEAM COMMITTEES

INTRODUCTION

HISTORY OF DEVELOPMENT/IMPACTS ON CHILD, GIRL AND WOMAN LAKE

The Woman Lake Association was founded in the summer of 1976 by a group of concerned citizens under the leadership of our first President, Mr. W. E. Peters. The association incorporated under the laws of the State of Minnesota as a non-profit corporation on June 18, 1976. The purpose of the corporation as stated in the articles shall be: "To provide for and to maintain the improvement of living, recreational, environmental and ecological conditions of the Woman Lake area, and to this purpose to enter into obligations or contracts and to do any acts incidental to the transaction of its business or expedient to the purpose stated and to exercise such authority as is granted by the provisions of Chapter 317 Minnesota Statutes". Child and Girl Lake joined the association in 1978. The association then became the Child, Girl and Woman Lake Property Owners Association, (CGWLPOA). In 2013 the By-Laws were changed so that anyone could become a member of the association without being a property owner. In 2015 the name of the association was changed to Child, Girl, Woman Lakes Area Association to reflect the change on the 2013 By-Laws.

This document is intended to create a record of historic and existing conditions and influences on Child, Girl and Woman Lake to identify the goals of the Child, Girl, and Woman Lake community. Ultimately it is meant to also help prioritize goals, and guide citizen action and engagement in the priority action areas. State agencies and local units of government also have a vital role and responsibility in managing surface waters and other natural resources. Above all else, this lake management plan is intended to be an assessment of how we, as citizens, can influence what our desired outcomes are and how we will participate in shaping our own destiny.

This Lake Management Plan is also intended to be a "living document". As new or better information becomes available and as we accomplish our goals or discover that alternative strategies are needed, it is our intent to update this plan so that it continues to serve as a useful guide to future leaders.

In discussing lake management issues, it is impossible to avoid all scientific and technical terms. We have tried to express our goals, measures of success and other themes as simply and clearly as possible and have included a glossary of common limnology terms at the end of the plan to assist the reader. Limnology is the state of lake conditions and behavior.

We would like to acknowledge that some of the material in this document was obtained from the Minnesota DNR, the Minnesota Pollution Control Agency, RMB Environmental Laboratories, Inc., Google Maps and the 2004 Child, Girl and Woman Lake Management Plan.

MISSION STATEMENT / BY LAWS

Mission Statement

The mission of the Child, Girl, Woman Lakes Area Association is to promote the improvement of living, recreational, environmental and ecological conditions on lakes and waterways served by the Association. The mission of the Association will be at all times carried out consistent with its purpose as stated in its Articles of Incorporation.

By Laws

This instrument constitutes the Bylaws of the Child, Girl, Woman Lakes Area Association adopted for the purpose of regulating and managing the internal affairs of the corporation.

Revised May 21, 2015

Membership

A. Eligibility
Anyone is eligible to join the Child, Girl, Woman Lakes Area Association including those who do not live on or own property on the Woman Lake chain. All members will have equal rights and privileges of membership including, but not limited to, the right to vote, receive the Association's newsletter and membership directory, and full participation in any of its programs. (see also Sections II B & C).

B. Voting
There will be one vote allowed for each paid-up membership.

C. Evidence of Membership
Membership in good standing shall be evidenced by the receipt of the annual membership dues payment.

D. Dues and Special Assessment

1) Dues:
Annual membership dues amount, frequency of assessment and method of collection will be established by the Board of Directors from time-to-time as necessary to meet financial obligations and to further the Association's purpose and mission.

2) Special Assessments:
In addition to dues, the Board of Directors may recommend from time to time special assessment(s) necessary to address a specific need, fund a special program, etc.

E. Membership Meetings

1) Annual Meeting:
The Board of Directors shall set the date, time and place of the annual membership meeting. Member notification of the above shall be made at least twenty (20) days, but not more than sixty (60) days, prior to the meeting date identified. Such notice will appear in a timely fashion in a Longville/Hackensack area newspaper. Also, when possible, notice may also appear in the Association's spring/summer newsletter. Normally, the Annual Meeting will be held the first Saturday in August at a facility in the Longville area. However, the Board of Directors may identify another date as circumstances dictate. All matters pertinent to the mission and purpose of the Association may be presented at the Annual Meeting for discussion or action.

2) Special Meetings:
Special membership meetings may be called by the President or by three other members of Board of Directors by filing a notice with the Secretary at least twenty (20) days prior to the meeting date requested. Such notice will state the time, place and general purpose of the special meeting. Special membership meetings may also be called by members in accordance with Minnesota Statue Section 317A.433.

It will be the duty of the Secretary to notify members of the special meeting at least fifteen (15) days prior to the date of the meeting. Such notice must contain the date, time, place and general purpose of the meeting. Proper notice will be made through a posting in a Longville/Hackensack area newspaper. Additionally, mail, e-mail, telephone or a combination of these methods may be used for notification purposes. Such notification will be directed to the members' permanent residences. Only such matters as pertain to the purpose of the meeting as stated in the notice may be considered at the special meeting.

3) Quorum:
A quorum at any meeting of members shall be those in attendance.

I. Organization

A. Officers

1) <u>Positions</u>:
The elected officers of the corporation shall be a President, Vice-President, Secretary and Treasurer.

2) Duties:
The duties of the officers of this corporation shall be:
   a. President: The President shall be the chief executive officer of the corporation and shall be responsible for the day to day operations of the corporation. The President shall have the duties as set out in Minnesota Statute Section 317A.305, as amended from time to time.
   b. Vice-President: The Vice-President shall assist the President in the business of the corporation. The Vice-President shall preside at meetings in the President's absence.
   c. Secretary: The Secretary shall attend all meetings of the Board of Directors and any member meetings, keep the minutes of such meetings, give notices, and keep records as assigned.
   d. Treasurer: The Treasurer shall have charge of the corporate treasury, receiving and keeping the monies of the corporation, and disbursing corporate funds as authorized. The Treasurer will have the duties as set out in Minnesota Statute Section 317A.305, as amended from time to time.
   e. Position Descriptions: From time to time the Board of Directors may add to, delete or otherwise amend the duties of the officers.
3) Board Membership:
The officers of the corporation shall be ex officio voting members of the Board of Directors.
4) Qualifications:
Officers must be voting Association members in good standing.
5) Term of Office:
Officers shall be elected by the membership at the Annual Meeting to serve for a term of two years. There shall be no limit on the number of terms that an officer may serve. The President and Secretary will be elected on odd numbered years. The Vice President and Treasurer will be elected on even numbered years.
6) Nominations:
See Section III.D.1.
7) Vacancies:
An officer vacancy occurring for any reason, including resignation, shall be filled by the Board of Directors through the appointment of any Association member in good standing. Such appointment will be for the balance of the officer's unexpired term.

B. Board of Directors
1) Number:
The affairs of the Association shall be managed by a Board of Directors. The number of directors comprising the Board of Directors shall be a minimum of nine (9). Five (5) directors will be elected at large by the members at the Annual Meeting. The other four (4) directors will be the officers of the Association. The chairs of any standing committees are ex officio directors in accordance with Section III.C.
2) Qualifications:
Directors must be voting Association members in good standing.
3) Duties:
The directors shall develop and carry out policies, programs and initiatives consistent with and supportive of the Association's purpose and mission.

4) Term of Office:
   An at large director will be elected to serve for a term of two (2) years and may be re-nominated for additional terms in accordance with Section III.D.1. There shall be no limit on the number of terms that a director may serve.
5) Nominations:
   See Section III.D.1.
6) Vacancies:
   An at large director vacancy occurring for any reason, including resignation, shall be filled by a majority vote of the remaining Board of Directors through the appointment of any Association member in good standing. Such appointment will be for the balance of the director's unexpired term.
7) Chairpersons:
   The President and Vice-President shall serve as the Board of Directors chair and vice chair respectively.
8) Quorum:
   Fifty percent (50%) of all directors shall be sufficient to constitute a quorum necessary to conduct business at any meeting of the Board of Directors. The affirmative vote of a majority of the directors present at a duly held meeting shall be sufficient for any action.
9) Meetings of the Board of Directors:
   a. Frequency:
      The Board shall meet once a month from May through October at a date, time and place determined by the President, with the directors being notified accordingly.
      Special Meetings:
      Special meetings of the Board may be called at any time by the President or by three (3) other Board members upon giving five (5) days notice to all the Board members of the date, time and place of the meeting. This notice may be given by mail, telephone, electronic mail, facsimile communication or in person.
   b. Meeting Form:
      Board meetings may be conducted:
      i. on a face-to-face in person basis; or
      ii. by one or more means of remote communication through which all of the directors have the opportunity to participate in the meeting, if notice is given of the meeting required by Minnesota Statute Section 317A.231 subdivision 4, and if the number of directors participating in the meeting is sufficient to constitute a quorum at a meeting. Participation in a meeting by that means constitutes presence at the meeting. "Remote communication" means communication via electronic communication, conference telephone, video conference, the Internet, or such other means by which persons not physically present in the same location may communicate with each other on a substantially simultaneous basis.
   c. Board Actions Permitted Without Meetings:
      An action required or permitted to be taken at a meeting of the Board may be taken by written action signed, or consented to by authenticated electronic communication, by the directors in accordance with Minnesota Statute Section 317A.239.

C. Committees

1) General:
The Board of Directors may establish, organize, re-organize and disband committees at any time to further the purpose and mission of the Association. Such committees established by the Board will be designated as either a standing committee (objectives or purpose which are continuing in nature) or a special task team (usually established to perform a limited number of tasks in a specific time period and then de-commissioned). Both types of committees will have such authority and responsibilities as determined by the Board.

2) Committee Appointment:
The Board of Directors shall appoint standing committee chairs and task team leaders. The Board may periodically renew or vacate these appointments. Chairpersons and team leads may ask other Association members to serve with them on such committees A standing committee or task team chair position may be filled by an elected director or officer of the Association.

3) Board of Directors Membership:
Association members appointed chairs of standing committees shall be ex officio members of the Board of Directors with voting rights. Task team leaders are not members of the Board.

D. Other Organizational Considerations (Officers, Directors, Committee Members)

1) Nominations for elective positions (at-large Directors and Officers):
   a. Nominations for the at large directors and officer positions will be made by the Board of Directors at least thirty (30) days prior to the Annual Meeting. The nominees will be presented as one slate at the Annual Meeting. It is desired, but not a requirement, that three (3) of the director nominees represent Woman Lake that one (1) director nominee each will represent Child and Girl Lakes respectively.
   b. Nominations for directors and officers will also be taken from the floor at the Annual Meeting.
   c. All nominees for directors and officers must be members of the Association in good standing who have agreed to serve if elected.

2) Insurance:
The Board of Directors may, in its sole discretion, have the corporation buy and maintain insurance in the manner and to the full extent permitted by Minnesota Statutes Section 317A.521, subdivision 7, as amended from time to time.

3) Indemnification:
Minnesota Statutes Section 317A.521, as amended from time to time, shall govern the indemnification of persons made or threatened to be made a party to a proceeding by reason of the former or present official capacity (as defined in the statute) of the person in accordance with and to the full extent permitted by that statute.

4) Compensation:
Officers, Board members and committee members shall serve without compensation. Expenses incurred in carrying out the business of the Association will be reimbursed upon presentation of receipts.

II. Amendment of Bylaws

From time to time all or any of the Bylaws of this corporation, except to the extent prohibited by law, may be adopted, amended or repealed either by action of a majority vote of the Board of Directors

present at any regular or special meeting at which a quorum has been established or a majority vote of the membership present at any annual or special meeting.

III. Legal Compliance

If any provision of these Bylaws should be or become contrary to any applicable law, then these Bylaws will be amended only to the extent necessary to become compliant with the law and in all other respects will remain in full force and effect.

The President and Secretary of the Association do hereby attest that these Bylaws were duly approved and adopted in place of the Bylaws of the Association then in effect at the monthly meeting of the Board of Directors of the Association held on May 21, 2015.

Don Kruse _____

President

Date: May 21, 2015_____

Joyce Humphreys

Secretary

Date: May 21, 2015_____

Articles of Incorporation

Article I

The name of the corporation shall be Child, Girl, Woman Lakes Area Association

Article II

The Corporation is organized exclusively for charitable, educational, religious, or scientific purposes within the meaning of Section 501 © (3) of the internal Revenue Code.

Article III

This corporation shall not afford pecuniary gain, incidentally or otherwise, to its members.

Inurement of Income:

No part of the net earnings of the corporation shall inure to the benefit of, or be distributable to, its members, trustees, officers or other private persons except that the corporation shall be authorized and empowered to pay reasonable compensation for services rendered.

Legislative or Political Activities:

No substantial part of the activities of the corporation shall be the carrying on of propaganda or attempting to influence legislation and the corporation shall not participate in or intervene (including the publishing or distribution of statements) any political campaign on behalf of any candidate for public office.

Operational Limitation:

Notwithstanding any other provisions of these articles, the corporation shall not carry on any other activities not permitted to be carried on (a) by a corporation exempt from Federal Income tax under Section 501 (c) (3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United Sates Internal Revenue Law), or, (b) by a corporation, contributions to which are deductible under Section 170 (c) (2) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue Law).

Dissolution Clause:

Upon the dissolution of the corporation, the Board of Trustees shall, after paying or making provisions for the payment of all the liabilities of the corporation, dispose of all assets of the corporation exclusively for the purposes of the corporation in such manner, or to such organization or organizations organized and operated exclusively for charitable, educational, religious, or scientific purposes as shall at the time qualify as an exempt organization or organizations under Section 501 © (3) of the Internal Revenue Code of 1986 (or the corresponding provision of any future United States Internal Revenue Law) as the Board of Trustees shall determine. Any assets not so disposed of shall be disposed of by the Court of Common Pleas of the county in which the principal office of the corporation is then located, exclusively for such purposes or to such organization or organizations, as said Court shall determine, which are organized and operated exclusively for such purposes.

Amended and Adopted on the 27th of March, 2000.

In addition to President, Vice President, Secretary and Treasurer, the standing committees established in our original by-laws were:

1. Fish Propagation
2. Water Level
3. Water Pollution
4. Directory
5. Police and Fire Protection
6. Water Patrol
7. Snowmobiles
8. Tax equalization and benefits
9. Hunting

Standing committees in 2022 include:

1. Membership/Communication
2. Road Signs
3. Water Patrol
4. Fisheries
5. Newsletter
6. Aquatic Invasive Species
7. Water Quality Monitoring
8. Communications and Technology

Task Teams in 2022 include:

1. Adopt-A-Highway
2. Navigational Safety
3. Webmaster
4. Shoreline Buffer and Restoration Program

The present organizational structure has evolved over the years and is serving us well.


Google Maps
Ridgewood Golf Co
Rice Lake
Camp Tilton YMCA
Little Boy Lake
Wabedo
Longville
Gull Lake
Woman Lake
Google
Man Lake
Child Lake
Webb Lake
Map data ©2018 Google
2000 ft

Physical Characteristics and location of Child, Girl and Woman Lake

Child Lake (DNR ID Number 11-0263)

Girl Lake (DNR ID Number 11-0174)

Woman Lake (DNR ID Number 11-0201)

The lakes are located near Longville, Minnesota in Cass County.

The littoral zone of any lake is a measurement that has a depth of 15 feet or less.

Child Lake is a 285-acre lake with 158 acres in the littoral zone (50 percent). The maximum depth of Child Lake is 29 feet and the average water clarity is 12.3 feet.

Girl Lake is a 406-acre lake with 272 acres in the littoral zone (67 percent). The maximum depth of Girl Lake is 81 feet with average water clarity of 15 feet.

Woman Lake has a surface area of 5,519 acres, making it one of the largest lakes in the state. Approximately 1,953 acres (42 percent) of Woman Lake are in the littoral zone. The maximum depth is 64 feet and average water clarity is 12.8 feet.

CURRENT STATUS

CHILD, GIRL AND WOMAN LAKE WATER QUALITY

Woman 11-0201-02

Lake Information

MN Lake ID: 11-0201-02
County: Cass
Ecoregion: NLF
Major Drainage Basin: UM
Latitude/Longitude: 46.94864369 / -94.28222869
Years Monitored: 2008 - 2022
Monitored Sites: 201,207

Physical Characteristics

Surface area (acres): 4701
Littoral area (acres): 1927
% Littoral area:
Max depth (ft): 60
Max depth (m):
Mean depth (ft): 18

Watershed size (acres): N/A
Aquatic Invasive Species:

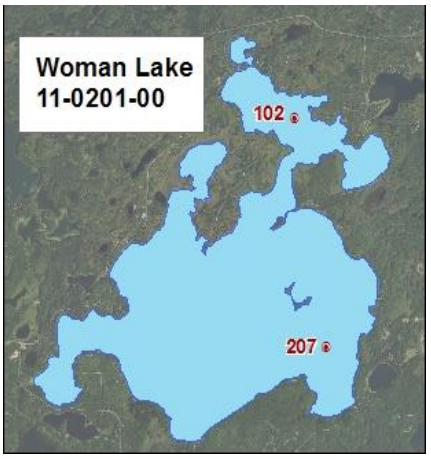
View MPCA CLMP Historical Secchi Data
MPCA Assessment Report
Search County Monthly Precipitation Data

View MN DNR Fisheries Report
View MN DNR Lake Level Report

Water Quality Characteristics

(data from RMB monitoring database only)

Parameters	Primary Site 207	Site 201
Total Phosphorus Mean:	14.5	14.4
Total Phosphorus Min:	6	14.4
Total Phosphorus Max:	26	14.4
Number of Observations:	72	1
Chlorophyll-a Mean:	5.8	6.2
Chlorophyll-a Min:	1	6.2
Chlorophyll-a Max:	76	6.2
Number of Observations:	72	1
Secchi Depth Mean:	12.7	12
Secchi Depth Min:	5	12
Secchi Depth Max:	25	12
Number of Observations:	72	1
Trophic State Index Mean:	42.5	43



Trophic State: Mesotrophic

Trends

(Primary site only. For detecting trends, a minimum of 8-10 years of consecutive data with 4 or more readings per season are recommended)
Trend analysis does not take into consideration aquatic invasive species. Species like zebra mussels can alter water chemistry over time.

Years Monitored: 2008 - 2022
Total Phosphorus: No significant trend exists.
Chlorophyll-a: Declining with 99% confidence.
Secchi Depth: Declining with 80% confidence.
Trophic State Index: Declining with 95% confidence.

Ecoregion Comparisons

(Primary site only. Comparisons are based on reference lakes)

Ecoregion: NLF
Total phosphorus: Within Expected Range
Chlorophyll-a: Within Expected Range
Secchi depth: Within Expected Range

Girl 11-0174-00

Lake Information

MN Lake ID: 11-0174-00
County: Cass
Ecoregion: NLF
Major Drainage Basin: UM
Latitude/Longitude: 46.98472222 / -94.22663889
Years Monitored: 2008 - 2022
Monitored Sites: 101

View MPCA CLMP Historical Secchi Data
MPCA Assessment Report
Search County Monthly Precipitation Data

Physical Characteristics

Surface area (acres): 376
Littoral area (acres): 222
% Littoral area:
Max depth (ft): 65
Max depth (m):
Mean depth (ft): 18
Watershed size (acres): N/A
Aquatic Invasive Species:

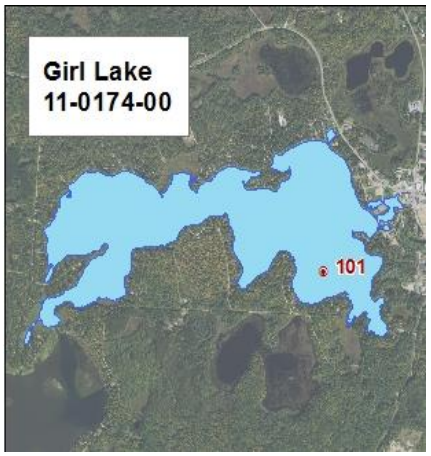
View MN DNR Fisheries Report
View MN DNR Lake Level Report

Water Quality Characteristics

(data from RMB monitoring database only)

Parameters	Primary Site 101
Total Phosphorus Mean:	13.8
Total Phosphorus Min:	7
Total Phosphorus Max:	50
Number of Observations:	75
Chlorophyll-a Mean:	3.8
Chlorophyll-a Min:	0.9
Chlorophyll-a Max:	8
Number of Observations:	75
Secchi Depth Mean:	14.9
Secchi Depth Min:	3
Secchi Depth Max:	24.5
Number of Observations:	70
Trophic State Index Mean:	40.6

Trophic State: Mesotrophic



Trends

(Primary site only. For detecting trends, a minimum of 8-10 years of consecutive data with 4 or more readings per season are recommended)
Trend analysis does not take into consideration aquatic invasive species. Species like zebra mussels can alter water chemistry over time.

Years Monitored: 2008 - 2022
Total Phosphorus: No significant trend exists.
Chlorophyll-a: No significant trend exists.
Secchi Depth: No significant trend exists.
Trophic State Index: No significant trend exists.

Ecoregion Comparisons

(Primary site only. Comparisons are based on reference lakes)

Ecoregion: NLF
Total phosphorus: Better Than Expected Ra
Chlorophyll-a: Within Expected Range
Secchi depth: Within Expected Range

Child 11-0263-00

Lake Information

MN Lake ID: 11-0263-00
County: Cass
Ecoregion: NLF
Major Drainage Basin: UM
Latitude/Longitude: 46.9475 / -94.34608333
Years Monitored: 2008 - 2022
Monitored Sites: 202

View MPCA CLMP Historical Secchi Data
MPCA Assessment Report
Search County Monthly Precipitation Data

Physical Characteristics

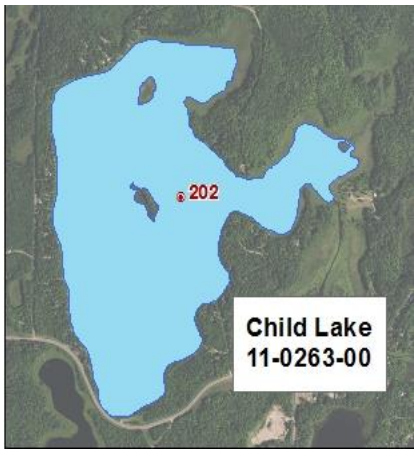
Surface area (acres): 313
Littoral area (acres): 157
% Littoral area:
Max depth (ft): 29
Max depth (m):
Mean depth (ft): 14
Watershed size (acres): N/A
Aquatic Invasive Species:

View MN DNR Fisheries Report
View MN DNR Lake Level Report

Water Quality Characteristics

(data from RMB monitoring database only)

Parameters	Primary Site 202
Total Phosphorus Mean:	24.4
Total Phosphorus Min:	5
Total Phosphorus Max:	407
Number of Observations:	73
Chlorophyll-a Mean:	4.4
Chlorophyll-a Min:	0
Chlorophyll-a Max:	13.8
Number of Observations:	73
Secchi Depth Mean:	12



Secchi Depth Min:	7
Secchi Depth Max:	18
Number of Observations:	70
Trophic State Index Mean:	43.2

Trophic State: Mesotrophic

Trends

(Primary site only. For detecting trends, a minimum of 8-10 years of consecutive data with 4 or more readings per season are recommended)
Trend analysis does not take into consideration aquatic invasive species. Species like zebra mussels can alter water chemistry over time.

Years Monitored: 2008 - 2022
Total Phoshporus: No significant trend exists.
Chlorophyll-a: No significant trend exists.
Secchi Depth: Declining with 80% confidence.
Trophic State Index: No significant trend exists.

Ecoregion Comparisons

(Primary site only. Comparisons are based on reference lakes)

Ecoregion: NLF
Total phosphorus: Within Expected Range
Chlorophyll-a: Within Expected Range
Secchi depth: Within Expected Range

Broadwater Bay 11-0201-01

Lake Information

MN Lake ID: 11-0201-01
County: Cass
Ecoregion: NLF
Major Drainage Basin: UM
Latitude/Longitude: /
Years Monitored: 2008 - 2022
Monitored Sites: 102

View MPCA CLMP Historical Secchi Data
MPCA Assessment Report
Search County Monthly Precipitation Data

Physical Characteristics

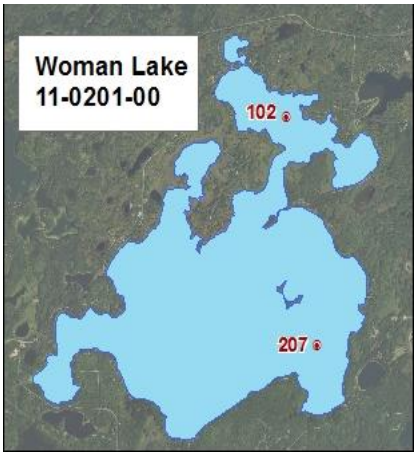
Surface area (acres): 714
Littoral area (acres):
% Littoral area:
Max depth (ft): 47
Max depth (m):
Mean depth (ft): N/A
Watershed size (acres): N/A
Aquatic Invasive Species:

View MN DNR Fisheries Report
View MN DNR Lake Level Report

Water Quality Characteristics

(data from RMB monitoring database only)

Parameters	Prmary Site 102
Total Phosphorus Mean:	14.2
Total Phosphorus Min:	8
Total Phosphorus Max:	22
Number of Observations:	69
Chlorophyll-a Mean:	4.8
Chlorophyll-a Min:	1
Chlorophyll-a Max:	12.5
Number of Observations:	69
Secchi Depth Mean:	12.8
Secchi Depth Min:	7.5
Secchi Depth Max:	19
Number of Observations:	66
Trophic State Index Mean:	42.4



Trophic State: Mesotrophic

Trends

(Primary site only. For detecting trends, a minimum of 8-10 years of consecutive data with 4 or more readings per season are recommended)
Trend analysis does not take into consideration aquatic invasive species. Species like zebra mussels can alter water chemistry over time.

Years Monitored: 2008 - 2022
Total Phosphorus: No significant trend exists.
Chlorophyll-a: No significant trend exists.
Secchi Depth: No significant trend exists.
Trophic State Index: No significant trend exists.

Ecoregion Comparisons

(Primary site only. Comparisons are based on reference lakes)

Ecoregion: NLF
Total phosphorus: Within Expected Range
Chlorophyll-a: Within Expected Range
Secchi depth: Within Expected Range

One application of Secchi disc transparency data is to convert the clarity measurements into a Carlson Trophic Status Index (TSI) score. The Carlson Trophic Status Index is a tool used to summarize several measurements of water quality into one index value, which can be used to compare a lake to other lakes, or to historic/future data as a measure of the potential for algal productivity. Since most people value lakes with low algae productivity, the lower the TSI value the healthier the lake. Specifically:

TSI Range	Trophic Status	Characteristics
0-40	Oligotrophic	Clear Lake
41-50	Mesotrophic	Temporary algae and aquatic plant problems
50-70	Eutrophic	Persistent algae & aquatic plant problems
Greater than 70	Hypereutrophic	Extreme algae and Aquatic plant problems

Water transparency depends on the amount of particles in the water. These particles can be algae or sediment from erosion, the more particles – the less water transparency. In other words, when the water is murky or cloudy and contains a lot of particles, the light cannot penetrate as deeply into the water column.

Water transparency is measured with a Secchi disk. A Secchi disk is a metal disk, 8 inches in diameter that is lowered into the water on a cord. The depth that the Secchi disk can no longer be seen through the water is the Secchi depth. When the water transparency is high, the Secchi depth is high. When the water transparency is low and cloudy, the Secchi depth is low.

Phosphorus is a nutrient important for plant growth. In most lakes, phosphorus is the limiting nutrient, which means that everything that plants and algae need to grow is available in excess (sunlight, warmth, water, nitrogen, etc.) except phosphorus. This means that phosphorus has a direct effect on plant and algal growth in lakes – the more phosphorus is available, the more plants and algae there are in the lake. Phosphorus originates from a variety of sources, many of which are related to human activities. Major sources include human and animal wastes, soil erosion, detergents, septic systems and runoff from farmland or fertilized lawns.

Chlorophyll-a is the pigment that makes plants and algae green. This pigment is what allows plants and algae to photosynthesize. In photosynthesis, plants use the sun's energy to convert carbon dioxide and water into oxygen and cellular material. Chlorophyll-a is tested in lakes to determine how much algae is in the lake. Algae is important in lakes because it adds oxygen to the water as a by-product of photosynthesis. On the other hand, if there is too much algae in a lake it can produce a foul odor and be unpleasant for swimming. Chlorophyll-a concentration can tell you a lot about the lake's water quality and trophic state. We can compare annual mean chlorophyll-a values to see if the amount of algae in the lake per year is increasing, decreasing, or staying the same. The amount of algal growth in a lake depends on many factors, including water transparency, water temperature, and predation by zooplankton, and the availability of nutrients, (especially phosphorus and nitrogen). There are natural seasonal variations in algal concentrations. In the spring, the water is transparent, and there are many nutrients available due to the spring turnover; however, the water is not very warm yet, which limits algal growth. As the water warms throughout the summer, algae grow to higher concentrations. When there is a heavy rain more nutrients get washed into the lake, fueling an algal bloom. As the algal concentration increases the water transparency decreases. This means that less light can penetrate through the water so the algae are only at the very top of the lake where there is enough light for photosynthesis.

CHILD, GIRL AND WOMAN LAKE FISHERY

Child Lake is a 285 acre lake located near Longville, MN. The lake has 4.56 miles of shoreline with a maximum depth of 29 feet. There is a user-developed earthen access on state-owned land on the south shore off Cass County Highway 5. Child Lake is also accessible from Woman Lake through the Boy River. The Minnesota Department of Natural Resources (MNDNR) has classified Minnesota lakes into 43 different classes based on physical, chemical, and other characteristics. Child Lake is in Lake Class 31; lakes in this class are generally clear, productive, and moderate depth. Child Lake is primarily managed for Northern Pike, Bluegill, Black Crappie, and Largemouth Bass, and secondarily for Muskellunge, Walleye, Tullibee (Cisco), and Yellow Perch. A 24- to 36-inch protected slot regulation on Northern Pike was implemented in 2003 with the objective of increasing size structure.

A creel survey and Walleye population estimate was conducted on the Woman Chain, including Child Lake in 2016. In order to coincide with Woman and Girl Lake sampling, the 2016 gill net assessment was conducted in the fall instead of the summer. Considerable movement of fish between Child, Woman, and Girl lakes occurs. For example, each spring large numbers of Walleye, White Sucker and Northern Pike are captured at the walleye spawn take trap in the Boy River between Child and Woman lakes. Other species observed at the trap site include Black Crappie, Yellow Perch, Bluegill, Bowfin, Muskellunge, Rock Bass, Bullhead spp., shiners and minnows.

The Northern Pike gill net catch rate was 6.17 fish per lift, which met the long-range management plan goal of 5-10 fish per lift. Northern Pike mean length and weight were 19.07 inches and 1.55 pounds, and the lengths ranged from 10.1 to 30.6 inches. These values were similar to past assessments prior to and after the implementation of the special regulation. The percent of Northern Pike greater than 24 inches was 8.1% (management goal 10%) and the percent greater than 28 inches was 5.4% (management goal 5%).

The Yellow Perch gill net catch rate was 4.33 fish per lift, which was below the long-range management goal of at least 5 fish per lift. Yellow Perch mean length was 6.64 inches and the lengths ranged from 5.4 to 8.9 inches. Growth was above average when compared to other Class 31 lakes. Mean length of Yellow Perch at age-4 was 6.17 inches and above the lake class 31 average of 5.77 inches at age 4.

The 2016 Walleye gill net catch rate was 1.33 fish per lift. This was up from the 2013 historic low of 0.67 fish per lift. Walleye sampled in gill nets ranged from 16.2 to 21.1 inches. Child Lake contains marginal walleye habitat compared to Woman and Girl lakes, and this limits Walleye abundance and fishing quality in Child Lake. Only 8.3% of the anglers surveyed in the 2016 creel survey reported targeting Walleye on Child Lake.

Other species sampled were Black Bullhead, Bowfin (dogfish), Brown Bullhead, Pumpkinseed, Rock Bass, White Sucker, and Yellow Bullhead.

Fish Stocked by Species Since 2007 in Child Lake.

Year	Species	Size	Number	Pounds
2023	Walleye	Fry	79,650	
2022	Walleye	Fry	79,000	
2021	Walleye	Fry	79,000	
2020	Walleye		0	0
2019	Walleye	Fry	80,240	
2018	Walleye	Fry	79,355	0.65
2017	Walleye	Fry	79,650	0.7
2016	Walleye	fry	80,215	0.7
2008	Muskellunge	fingerlings	98	9.8
2007	Muskellunge[1]	fingerlings	100	33.3

Girl Lake is a 406 acre lake located near Longville, Minnesota. Girl Lake has 9.36 miles of shoreline, and a maximum depth of 81 feet. Sixty seven percent of the lake is 15 feet deep or less. The Minnesota Department of Natural Resources has classified Minnesota's lakes into 43 different lake classes based on physical, chemical, and other characteristics. Girl Lake is in Lake Class 25. Lakes in this class are medium sized, moderately deep, irregularly shaped, and clear. A DNR owned public access is located on the east side of the lake in Longville.

A creel survey and walleye population estimate was conducted on the Woman Chain, including Girl Lake in 2016. In order to coincide with Woman and Child Lake sampling, the 2016 assessment was conducted in the fall instead of the summer and consisted of only gill net sampling and no trap nets. The Northern Pike gill net catch rate was 9.00 fish per lift, which is down from the record high in the 2012 sample (18.33 fish per lift) but more within the historical range and the management goal of 5 to 10 fish per lift. Northern pike mean length and weight were 18.05 inches and 1.38 pounds, respectively, and the lengths ranged from 10.2 to 31.4 inches. Northern Pike length based management goals were partially met with the 2016 gill net catch. The goal of having a minimum of at least 14% of the catch over 24 inches was not met with only 9.9% of the catch over 24 inches. The management goal of greater than or equal to 3% of the catch over 28 inches was met with 6.2% of the Northern Pike sampled being over 28 inches.

The Walleye gill net catch rate of 1.89 fish per lift was below the new long range management goal of 4 fish per lift. The goal includes fry stocking and 2016 was the first year of the new fry stocking plan. Those fish would not have been recruited to the gill nets yet. The historical walleye gill net catch rate has ranged between 1.00 and 3.00 fish per net with the exception of the 1974 assessment (6.67 fish per lift). Walleye mean length and weight were 18.88 inches and 2.43 pounds, respectively, and the lengths ranged from 13.6 to 24.3 inches.

The Yellow Perch gill net catch rate of 0.89 fish per lift was below the management goal range of greater than or equal to 5 fish per lift. Yellow Perch gill net catch rates have been highly variable between 1956 and 2016 with the two lowest catch rates occurring in 2016 (0.89 fish per lift) and 2007 (0.78 fish per lift) but have been as high as 22.22 fish per lift (1992). Since this is the first year of fall sampling for Yellow Perch more years need to be included to fully evaluate the Perch catch rates. Fall sampling has been done on Woman Lake and the gill net catch rates have shown a significantly lower catch rate in fall sampling when compared to summer samples. Yellow perch mean length and weight were 7.20 inches and 0.16 pounds, and the lengths ranged from 5.9 to 8.5 inches.

Other species sampled were Black Bullhead, Brown Bullhead, Yellow Bullhead, Bowfin (dogfish), Hybrid Sunfish, Pumpkinseed Sunfish, Rock Bass, and White Sucker.

Fish Stocked by Species for the Last Five Years in Girl Lake.

Year	Species	Size	Number	Pounds
2023	Walleye	Fry	137,700	
2022	Walleye	Fry	136,000	
2021	Walleye	Fry	136,000	
2020	Walleye		0	0
2019	Walleye	Fry	136,000	
2018	Walleye	Fry	139,880	1.15
2017	Walleye	Fry	136,350	1.1
2016	Walleye	fry	136,760	1.1

Woman Lake is a 5,519 acre lake with a maximum depth of 64 feet located in northern Cass County about three miles west of Longville. Two Minnesota Department of Natural Resources (DNR) public accesses are located on Woman Lake. The DNR classifies Minnesota's lakes into 43 different lake classes based on physical and chemical characteristics. Woman Lake is in Lake Class 22, and this Lake Class can be characterized as very large, deep, and irregularly shaped lakes with clear water.

Woman Lake is a multi-species lake with something to offer a variety of anglers. Walleye catch rates tend to range between 7 and 10 fish per gill net. The 2017 survey was above this range with a gill net catch rate of 13.0 fish per gill net. Walleye average length was 14 inches and lengths ranged from 8 to 24 inches. Yellow Perch numbers were up slightly from the previous survey at 11.93 fish per net and perch up to 12 inches were sampled. Northern Pike numbers have been very consistent in Woman Lake and generally average around 5 fish per fall gill net. The 2017 sample was below the average with 4.13 fish per gill net lift. Northern Pike averaged 22 inches long and lengths ranged from 17 to 33 inches. There is currently a 24 to 36 inch protected slot on Northern Pike to protect the existing size structure. The status of Black Crappie and Bluegill populations in Woman Lake is not fully known because spring assessments targeting these species have not been done. The small sample of Black crappie from gill nets ranged in length from 5 to 11 inches long. The Bluegill sampled from gill nets averaged 5 inches long and lengths ranged from 4 to 10 inches. Largemouth Bass do not appear to be very abundant, but fish over 19 inches long were sampled from spring electrofishing in 2017. Smallmouth Bass sampled from gill nets averaged 12 inches long and lengths ranged from 7 to 18 inches; larger fish are known to be present based on tournament reporting.

Other fish species that anglers can expect to encounter include, Brown Bullhead, Hybrid Sunfish, Muskellunge, Pumpkinseed Sunfish, Rock Bass, Tullibee (Cisco), White Sucker, and Yellow Bullhead.

The DNR Section of Fisheries operates a walleye spawn take trap on Boy River upstream from Woman Lake. On average, about 20% of the adult walleye population in Woman Lake goes up the Boy River each year to spawn and the remaining 80% spawn in the lake. Walleye fry that result from eggs taken at the Boy River are stocked into other lakes that have little or no natural walleye reproduction.

An 8-year walleye fry stocking study in Woman Lake was completed in 2016 and the OTC marking of stocked fry has concluded. Annual sampling by the DNR with gill nets and electrofishing gear will continue to be utilized to collect information on the walleye population. Preliminary trends for Woman Lake indicate that lower total fry densities tend to result in better first year growth and survival of fry, which can translate into an average or above average year class. During the study fry stocking rates averaged 1,029 per littoral acre and wild fry production averaged 369 per littoral acre. Thus, the total fry density averaged 1,399 total fry per littoral acre. From 2008-2015 stocked fry in Woman Lake comprised an average of 73% of those surviving to young-of-the-year. From 2008-14, the hatch rate of wild fry in Woman Lake averaged 0.42%. The wild fry hatch rate in Leech Lake averaged 0.38% from 2005-14.

Walleye fry will be stocked at a rate of 500 per littoral acre in each lake. Child Lake has 158 littoral acres and Woman and Girl Lakes have 1,953 and 272, respectively. In 2017 Child Lake received 79,000 unmarked walleye fry, Woman 976,500 unmarked fry and Girl 136,000 unmarked fry.

Fish Stocked by Species for the Last Ten Years in Woman Lake.

Year	Species	Size	Number	Pounds
2023	Walleye	Fry	978,750	
2022	Walleye	Fry	976,500	
2021	Walleye	Fry	976,500	
2020	Walleye	Fry	0	0
2019	Walleye	Fry	980,650	
2018	Walleye	Fry	977,815	8.01
2017	Walleye	Fry	977,400	8.0
2016	Walleye	fry	977,045	8.2
2015	Walleye	fry	1,209,000	10.3
2014	Walleye	fry	699,400	5.9
2013	Walleye	fry	1,409,760	11.7
2012	Walleye	fry	3,259,002	26.9
2011	Walleye	fry	2,420,040	20.7

Woman Lake has an abundant population of rusty crayfish. Rusty crayfish, an exotic species, has been present since prior to 1984. It is unlawful to transport live crayfish to other waters or to use them as bait in waters other than where they were taken.

Woman Lake provides good to excellent fishing for many species of fish. During surveys of anglers in 1996, 1997, 2005, and 2006, most anglers targeted walleye or walleye in combination with other species, but yellow perch was the most commonly caught species. Other species popular with Woman Lake anglers are black crappie, largemouth bass, muskellunge, northern pike, rock bass, smallmouth bass, and sunfish.

A two-stage stratified random creel survey was conducted on the Woman Chain of lakes, Cass County, Minnesota from May 14 to September 30, 2016 to evaluate fishing pressure, catch, harvest, and angler demographics. The estimated fishing pressure on the chain was 114,439 angler-hours (18.25 angler-hours per acre); of which, 82% of the fishing pressure was exerted on Woman Lake. In total, 164,501 fish were caught (26.24 fish per acre), of which 36,539 (5.83 fish per acre) were harvested. Sunfish (i.e., Bluegill and Pumpkinseed Sunfish) were the most abundant fish caught (52,999 fish or 8.45 fish per acre) and harvested (11,816 fish or 1.88 fish per acre); however, Walleye produced the highest yield (7,555 pounds or 1.21 pounds per acre). Comparison of creel statistics from Woman Lake with previous surveys indicated angling pressure has increased and that catch and harvest rates have remained similar through time.

Minnesota DNR Lake Wide Management Plan

In late summer of 2015, the Walker area DNR fisheries office contacted a number of individuals to participate in an input group. The DNR contacted community members who represented business owners, resort operators, members of lake associations, and guides. The first meeting was held on October 1, 2015.

The input group met with biologists a total of three times during the fall and winter of 2015-16 and worked through fishery objectives, management activities and habitat restoration projects. Each topic of conversation was discussed until the group came to a consensus. Here are the highlights of the Woman Lake Management Plan Revisions:

- Child, Girl and Woman Lake are now all included with a revised management plan for each lake for the next 10 years (2015-2025);

- Based on recent studies a total of 1.2 million fry will be stocked annually in the chain at a rate of 500 per littoral acre in each lake;

- In 2022 a total of 79,355 walleye fry were stocked in Child Lake, 136,000 in Girl Lake and 980,650 in Woman Lake.

- Gill net assessments were conducted in each lake in 2016 and will be repeated every two years in Woman Lake and every 4 years in Child and Girl Lakes.

- Walleye goals were set at 4 fish per gill net lift in Child and Girl Lakes, and 6-10 per lift in Woman Lake;

- Goals for northern pike were set at 5-10 per net in Child and Girl Lakes, and 5-8 per lift in Woman Lake;

- Goals for yellow perch were set at 5 or more per lift in Child and Girl Lakes, and greater than 13 per lift in Woman Lake;

- Specific goals for other species will be set after targeted surveys have been completed.

CHILD, GIRL AND WOMAN LAKE AQUATIC VEGETATION

Child Lake - Submersed Plants (Plants with most leaves growing beneath the water surface) Elodea, Canadian waterweed, Water Stargrass, Mud Plantain ,Northern Watermilfoil, Whorled Watermilfoil, Bushy Pondweed, Common Naiad, Fries' Pondweed, Illinois Pondweed, White-stemmed Pondweed, Very Small Pondweed, Claspingleaf Pondweed ,Straightleaved Pondweed, Flatstem Pondweed, Common Sago Pondweed, Intermediate bladderwort, Lesser bladderwort, Greater bladderwort, Wild Celery, Eel-grass Floating-leaf Plants (Plants with leaves that float on the water surface) Yellow Water Lily, Large-leaved Pondweed, Cabbage, Variable Pondweed, Floating Leaf Pondweed Emergent Plants (Plants with leaves extending above the water surface) Lake Sedge, Small's Spikerush, Common reed grass, Cane, Hard-stem bulrush, Giant Burreed, Broad-leaved cattail, Wild rice Shoreline Plants (Plants associated with the wetland habitat) Speckled alder, Swamp milkweed, Red-osier dogwood Impatiens, Jewelweed, Spotted touch-me-not, Northern bugleweed.

Girl Lake - Submersed Plants (Plants with most leaves growing beneath the water surface) Water-marigold, Coontail, Elodea, Canadian waterweed, Water Stargrass, Mud Plantain Northern Watermilfoil, Bushy Pondweed, Common Naiad, Leafy Pondweed Fries' Pondweed Illinois Pondweed, White-stemmed Pondweed, Very Small Pondweed, Pondweed, Straightleaved Pondweed, Flatstem Pondweed Ranunculus. White water-crowfoot, Common Sago Pondweed, Greater bladderwort, Wild Celery, Eel-grass Free-floating Plants (Plants that float freely on the water surface) Ivy-leaved duckweed, Willow-Herb Impatiens Jewelweed,

Spotted touch-me-not Iris versicolor Blue Flag Mentha, Common mint Myosotis, Smaller forget-me-not, Reed canary grass, Dock; Sorrel ,Wool-grass, Marsh skullcap, Sow-Thistle Girl

Woman Lake - An aquatic vegetation survey of Woman Lake (11-0201-00), Cass County, Minnesota, was conducted between June 26 and July 10, 2006. The results of this survey were combined with emergent plant bed maps that were delineated in 2003 by DNR Fisheries staff.

A total of 42 native aquatic plant taxa were recorded, making Woman Lake among the richest lake plant communities in the state. Non-native aquatic plants were not found. Plant growth was sparse in the main lake but within Broadwater Bay, Lantern Bay and Bungey Bay, 70 percent of the sites were vegetated.

Approximately 180 acres of wild rice, 17 acres of bulrush (and 16 acres of mixed waterlily beds occurred within Lantern Bay and Broadwater Bay. Submerged plants occurred to a depth of 23 feet but were most common from shore to a depth of 15 feet. Common submerged plants included muskgrass , narrow-leaved and broad-leaved pondweeds, wild celery, Canada waterweed, and coontail.

AQUATIC INVASIVE SPECIES

Invasive species are species that are not native to Minnesota *and* cause economic or environmental harm or harm to human health. There are both aquatic and terrestrial invasive species. This section of the plan will focus on aquatic invasive species.

The Minnesota DNR lists a total of **1203** infestations with aquatic invasive species through July 9, 2021. In Cass County there is a total of **21** infested bodies of water including named lakes and streams, and unnamed ponds, streams and wetlands. The invasive species in Cass include *zebra mussels, Eurasian watermilfoil, flowering rush, faucet snail, starry stonewort, and the spiny waterflea.*

At the time of the 2004 Lake Management Plan rusty crayfish were known to occur in the chain and also purple loosestrife along the shoreline. Since that time Child, Girl and Woman Lake have been very fortunate in that no new infestations were known to have occurred through 2015. This, in part, was likely due to persistent efforts by the CGWLAA.

In 2011, eleven ‘Stop Aquatic Hitchhiker’ signs were obtained by the CGWLAA from the DNR and distributed to resort owners in the chain for posting at their launch ramps.

A grant was also secured from the Minnesota DNR in 2011 to conduct up to 200 hours of watercraft inspections at the County 5 ramp on Woman Lake with a commitment of $1,500.00 from CGWLAA.

In 2012, over 500 CDs informing the public about aquatic invasive species were purchased from the DNR and sent to every member household at a cost of $1,227.19.

In 2012 a Watercraft Inspection Grant was awarded by the MN DNR at a matching cost of $670.38 to the CGWLAA.

In 2013 the CGWLAA co-hosted a Crayfish Boil along with Kare 11's Ron Schara. A total of 214 pounds of rusty crayfish were harvested from Woman Lake and served at the boil under the motto: if you can't beat'em, eat'em. A total of $1,000.00 was raised to help fight invasive species.

Also in 2013 after the old Woman Lake launch ramp was closed the CGWLAA helped restore the access to natural conditions again and also blocked the area to prevent further unauthorized launches.

In 2014 an additional $2,250.00 was received from companies associated with the Crayfish Boil and $1,000.00 was given to Cass County to conduct watercraft inspections. The County was the recipient of statewide monies provided by the Minnesota Legislature to combat invasive species beginning in 2014.

Cass County subsequently developed an AIS management plan by 2015 and began to take over the watercraft inspections.

In both 2016 and 2017 Cass County conducted all of the watercraft inspections at the County 5 ramp on Woman Lake. The CGWLAA contributed $1,000.00 to the Cass County AIS plan in 2015. In 2015 a grant was also received by the CGWLAA from the DNR for up to 375 hours of inspections. The 50% match required from the CGWLAA towards the DNR grant was picked up by Cass County.

And in 2016, CGWLAA donated $300.00 to the Association of Cass County Lakes to support a gathering of Cass County resort owners to support them in helping to prevent the introductions of invasive species at their ramps.

Unfortunately, in late July of 2017 the invasive aquatic Eurasian watermilfoil was reported in the Girl Lake channel near the Longville City ramp. The CGWLAA contacted the Regional Aquatic Invasive Species Specialist who verified the Eurasian watermilfoil and conducted a wide survey of the area in Girl Lake. The Specialist recommended the aquatic herbicide to be used and the CGWLAA contacted PLM Lake and Land Management in Brainerd to purchase the chemical. PLM offered to re-survey the area, determine specifically where the treatment was necessary, and treat the area with Triclopyr which is very specific for Eurasian watermilfoil. The affected area was treated in late August at a cost of $510.00 to CGWLAA for both the chemical and the labor. Subsequently, the City of Longville and the Longville Chamber of Commerce both donated $250.00 to CGWLAA to help cover the cost of the treatment. A follow up examination of the treated area two weeks after the treatment indicated that a strong and specific kill of the Eurasian watermilfoil had occurred. The CGWLAA will monitor the site in the future to determine if any further treatment is required. The Longville City Ramp on Girl Lake was

permanently closed on September 22, 2017 following the opening of the new DNR Ramp two blocks west on County 5.

Upon continued monitoring of the Longville City Dock area in 2018, Eurasian watermilfoil was again discovered growing in the channel. Since our permit had been kept active, PLM Lake and Land Management was notified and treated the channel area on August 16th with Triclopyr. Fortunately, only a few individual plants were found during their survey of the affected area and the entire area was treated as a precaution. The cost of treatment was $510.00 and was paid for by the CGWLAA.

In 2019, in addition to the City docks, Eurasian watermilfoil was also found in the nearby Long Birch Lodge harbor. Both areas were treated with Triclopyr by PLM Lake and Land Management at a cost of $998.98. The city of Longville and Nathan and Mandy Tabaka contributed $250.00 each to support the treatments.

In 2019 PLM also conducted surveys at all four launch areas on Child(1), Girl(1) and Woman Lakes(2) on two separate occasions during the summer at a cost of $600.00. No AIS were collected or observed at any of the sites.

Eurasian watermilfoil was found in 2020 in Girl Lake at the City Docks and in Long Birch Harbor. PLM treated these two sites on July 30, 2020 with ProcellaCOR herbicide. The cost of the treatments was $1,014.36. Once again Nathan and Mandy Tabaka contributed $250.00 to support the cost of the treatments.

In 2020 PLM also conducted surveys at all four launch areas on Child(1), Girl(1) and Woman Lakes(2) on two separate occasions during the summer at a cost of $600.00. No AIS were collected or observed at any of the sites.

In July 2020 the first zebra mussel was discovered in Woman Lake on the west shore north of the Boy River. A total of 4 zebra mussels (3 adults and 1 young) have been found this year on the southeast and east shores. Although a zebra mussel veliger (larvae) survey was conducted in Child, Girl, and Woman Lake on August 3, 2021, by RMB Environmental Labs at a cost of $1,208.10, no veliger's were collected. However, the presence of the adults and one young suggests that the population is increasing and at least some veliger's were produced.

In 2021 AIS Consulting Services conducted a Eurasian watermilfoil (EWM) survey of the entire shoreline in Girl Lake out to a depth of 15 feet at a cost of $913.00. EWM was found only at the City docks and no other AIS were detected in the littoral zone survey of the lake.

In 2021 PLM treated the City docks area with ProcellaCOR at a cost of $431.25. PLM also conducted surveys at all four of the public launch sites on the lake at a cost of $600.00 and discovered no AIS. The Minnesota DNR provided a grant of $2,806.25 for the Girl Lake EWM survey and the treatment of the EWM at the City docks.

CGWLAA also purchased ten zebra mussel settlement plates from Science Interactive at a cost of $461.50. These were distributed to members on both Broadwater and Girl Lakes to help detect if any zebra mussels had reached these downstream areas.

In 2022 No Eurasian watermilfoil was observed at Long Birch Harbor or at the City Docks and no treatments were necessary. PLM conducted a survey of these areas at a cost of $155.00. However, a zebra mussel was found on a settlement plate in Girl Lake for the first time. Fortunately, Girl Lake was already posted as an infested lake because it is downstream from Woman Lake.

PLM conducted AIS surveys at the four public launch ramp areas at a cost of $620.00 and no AIS were detected. Cass County provided a grant of $387.50 to CGWLAA to reimburse the Association for 50% of the cost of the PLM surveys ($775.00).

Terrestrial Invasive Species

There are also invasive plants and animals that occur on land in Minnesota. Some of the plants include Buckthorn, Creeping Charlie, Garlic Mustard, Reed Canary Grass and Wild Parsnip. Some of the animals include the Asian Long-Horned Beetle, Earthworms, Gypsy Moth and the Emerald Ash Borer. Like Aquatic Invasive Species all of these are difficult to control and it is always best to keep them out of your area. More information about Terrestrial Invasive Species can be found on the Minnesota DNR website.

AIS RESPONSE PLAN

Mission Statement

The mission of the Child, Girl, and Woman Lakes Area Association is to promote the improvement of living, recreational, environmental and ecological conditions on lakes and waterways served by the Association. This Aquatic Invasive Species Response Plan is intended to serve as an attachment to the Child, Girl and Woman Lake Management Plan to support the overall mission by providing an important step-by-step process to prevent, detect, report, verify and respond to an invasive species discovered in these lakes.

Prevention

Support and work with Cass County to maintain their watercraft inspection program with trained inspectors, and to secure and maintain decontamination services from local watercraft businesses and lake service providers.

Work with the Association of Cass County Lakes and with other Lake Associations to obtain decontamination equipment for public use in our area, and to collectively develop AIS Response Plans.

Detection

Support and secure trained Individuals to conduct field inspections and accurately identify aquatic invasive species. This can be accomplished through training provided by the Minnesota Aquatic Invasive Species Research Center at the University of Minnesota who have also published an Aquatic Invasive Species Identification Guide which can be ordered from the University of Minnesota or purchased from the Association of Cass County Lakes for $37.95.

Field surveys should be discussed to determine who should do them, where they should be done, how they should be done and how often. Initial high priority areas are public and private launch ramps.

Sampling equipment must be secured for detectors and should include:
A weed rake with long handle;
A weighted rake with throwing line;
A map of our lake chain showing priority inspection sites;
Data sheets on which to record date, location inspected, GPS, depth, substrate and species collected both native and invasive;
An Aquatic Invasive Species Identification Guide.

Professional services are also available for site inspections and the Association should consider retaining their experience and expertise:
PLM Lake and Land Management Corporation (Brainerd, 866-687-5253) can inspect specific sites for AIS twice each season for approximately $120.00 per site;

RMB Environmental Laboratories can sample for zebra mussel veliger's at one site in Child Lake, 4 sites in Woman Lake and 2 sites in Girl Lake.

Option 1) RMB Field Team Collects Samples at 7 sites in late June at an approximate cost of $1,024.00 plus sample processing costs. Sample processing costs are extra at approximately $90.00 per sample = $630.00. **Total cost = $1,654.00.**

Option 2) CGWLAA Volunteers Collect Samples at 7 sites using same protocol at an approximate first time cost of $1,163.00 due to the cost of training by RMBEL($400.00) and purchasing 7 zooplankton nets at $109.00 each ($763.00) plus $630.00 sample processing costs. **Total cost = $1,793.00.** Subsequent annual cost is $630.00 for sample processing only.

Reporting

Individuals finding a potential invasive species should take a good picture(s) and contact:

CGWLAA AIS Committee Chair;
MN DNR Regional AIS Specialist, Park Rapids, 218-732-8960
DNR Walker Area Fisheries Office, 218-547-1683
EDDMapS Midwest, www.eddmaps.org/midwest, (Note: a user name and password are required).

Verification

The MN DNR needs to verify the identification of any invasive species. A more extensive field survey of the area is required to determine the distribution and potential treatment area.

Response

Actions should be taken immediately to control the invasive based upon recommendations from the DNR (chemical, biological or mechanical methods). Necessary permits should be secured from MPARS on the Minnesota DNR website under Aquatic Invasive Species, Training and Permits. CGWLAA members, resorts, Cass County, the City of Longville, ACCL and the public should be notified of the species and location(s). Invasive species alert signs (infested waters) from the DNR should be posted.

Communication responsibilities are as follows:

CGWLAA President:

CGWLAA members and the City of Longville, 218-363-2022
Woman and Girl Lake Resorts:

Woman Lake:
All Seasons, 3539 State Highway 84 NE, Longville, 218-363-2030
Broadwater Lodge, 4588 Timber Dr. NW, Hackensack, 218-682-2552
Green Roof Lodge, 945 County Road 5 NW, Hackensack, 218-682-2399
Kee-Nee-Moo-Sha, 4308 Timber Dr. NW, Hackensack, 218-682-2362
Minne Teepee, 870 County Road 11 NW, Hackensack, 218-682-2485
Woman Lake Lodge, 914 County 5, Hackensack, 218-682-2426

Girl Lake:
Longville Campground, P.O. Box 404, 1367 County Road 5, Longville, 218-363-2610
Long Birch Lodge, P.O. Box 166, Longville, 218-363-2371
Pine Ridge, 1056 Sarajac Road NE, Longville, 218-363-2828

AIS Committee Chair:
Cass County, Environmental Services, Soil and Water Conservation District, 218-547-7241
Association of Cass County Lakes, www.acclakes.org
Pine Cone Press Citizen, 218-363-2002
The public will be notified via a notice in the Pine Cone Press Citizen and the MN DNR website.

Treatment

Secure the necessary funds required for treatment. The Association should consider either allotting such funds annually to the AIS Committee or increasing the Contingency component of the CGWLAA budget. Since invasive aquatic plant treatment costs are approximately $1,600.00 per acre, a minimum of $2,000.00 should be immediately available at all times. Determine if treatment can be done locally or should be contracted to professionals.

AIS Service Providers

Clarke (provides AIS treatment)
Rob Olson, Control Consultant
Rolson@clarke.com

PLM Lake and Land Management Corp. (provides surveys and AIS treatment)
David Hillstrom, Regional Manager
DavidH@plmcorp.net

Limnopro Aquatic Science, Inc. (provides surveys and AIS treatment)
Daniel McEwen, Owner/Operator
dan@limnopro.com

RMB Environmental Laboratories, Inc. (provides surveys and monitoring)
Phillip Oswald
Phillip.oswald@rmbel.info

Monitoring

Trained individuals should monitor the treatment area in the future to determine if the invasive is still present and further notification and treatment are necessary.

PUBLIC WATER ACCESS

Research has shown that Minnesotans rely heavily upon public access sites to access lakes and rivers. A 1988 boater survey conducted by the University of Minnesota showed that three-fourths of the state's boat owners launch a boat at a public water access site at least once a year. In addition, over 80 percent of boat owners report using public water access sites for recreation activities other than boating.

The primary agency responsible for public water accesses in Minnesota is the Minnesota Department of Natural Resources, Trails and Waterways Unit. They are responsible for the acquisition, development and management of public water access sites. The DNR either manages them as individual units or enters into cooperative agreements with county, state, and federal agencies, as well as local units of government such as townships and municipalities. The DNR's efforts to establish and manage public water access sites are guided by Minnesota Statutes and established written DNR policy. The goal of the public water access program is free and adequate public access to all of Minnesota's lake and river resources consistent with recreational demand and resource capabilities to provide recreation opportunities.

According to the 2000 Minnesota Department of Natural Resources Fisheries Survey, there are multiple points of public access on Woman, Girl and Child Lakes, as shown below.

Public Access Information

Ownership	Type	Description
Minnesota DNR	Concrete	From Longville, 5 M. West on Co. #5
Minnesota DNR	Concrete (new)	Girl Lake-Longville-Co. #5 Navigable to Woman Lake Chain
Other	Sand	Woman Lake at northeast end of Lantern Bay

At the present time there does not seem to be a concern over public access on the chain. Neither the 2003 property owner's survey nor the Aug. 2004 "Visioning" meeting indicated that it was a concern. The new Public Landing in Longville provides public access to the chain on the Girl Lake side. Local boat dealers and marine repair businesses can also use the landing for business purposes. There are docks in the channel of the Boy River that give boaters a place to tie up in the city of Longville for shopping, business and entertainment. The local garden club also beautified the area around the docks.

The public landing 5 miles west of Longville on highway # 5 also is an excellent facility serving a definite need. It is located on the middle of the west shore of the big body of water on Woman Lake. It has a large public parking area, bathroom facilities as well as an excellent dock. It is well maintained by the DNR.

The other landing listed is used very little. The two landings described above seem to serve the chain well.

STANDING COMMITTEES

GOALS AND OBJECTIVES

MEMBERSHIP

Goal:

To maintain a current and accurate directory of active members of the Association.

Objectives:

Send out membership renewals to all current members and applications to new members;

Receive all membership dues and provide them to the Treasurer for deposit into the Association's bank account;

Provide information from the membership directory to officers and directors and to Committee Chairs as necessary to conduct the Association's business;

Distribute the spring and fall newsletters in a digital format to members having email addresses;

Mail newsletters to those members not using an email address;

Purchase stamps, envelopes, computers, software and other office supplies necessary to maintain the member directory;

Work with the President of the Association to establish a budget for the Membership Committee.

Pick up mail from the association PO Box.

Attend monthly meetings.

Evaluation:

All objectives are being met

NEWSLETTER

Goal:

Write, organize and edit 2 newsletters a year in spring and fall.

Objectives:

Collect articles from board members on current issues.

Collect articles from volunteer writers.

Edit all articles.

Send newsletter for review to President.

Send newsletter to Printer.

Have membership committee send mailing info to the Printers

Have extra copies sent to membership chairperson

Attend monthly meetings.

Evaluation: All objectives are being met.

FISHERIES

Goal

Establish a relationship with the Walker Area Fisheries Office in order to establish and maintain effective and consistent lines of communication regarding their management actions on the Woman Lake Chain.

Objectives:

Obtain annual reports from the DNR's assessment gill nets placed in the chain to monitor the relative abundance and size of fish species in the chain.

Obtain the number of walleye fry stocked annually by the DNR into the Woman Lake Chain.

Obtain the annual data from the electrofishing assessments conducted by the DNR in the chain to assess the relative abundance, size and origin of the young-of-the-year walleye collected.

Obtain progressive and final reports regarding any research or management projects conducted on the chain such as the fry stocking study and tagging of adult walleyes to develop population estimates.

Work with the DNR on the walleye trap annually placed in the Boy River just upstream from Woman Lake to assist with their egg taking operations.

Obtain the annual report from the DNR on the number of eggs collected and the number, size and sex of the walleye taken in the trap.

When requested provide articles covering the fishery in the chain for the CGWLAA newsletters.

Attend monthly meetings.

Evaluation:

All objectives are being met.

AQUATIC INVASIVE SPECIES

Goal:

To work with governmental and non-governmental entities to help prevent and control the spread of invasive species.

Objectives:

Keep the Board of Directors and the membership up to date on invasive species in our region and statewide.

Investigate reports of potential invasive species in our immediate area and contact the Minnesota DNR to verify their identity.

Pursue the treatment of aquatic invasive species verified in our chain to initiate control measures; monitor the chain for any recurrences and take appropriate action.

Provide an up to date annual summary regarding invasive species in our area and statewide at the Annual Meeting of the CGWLAA.

When requested prepare informational articles on invasive species for the CGWLAA newsletters.

Work closely with Cass County and the Soil and Water Conservation District to deploy trained watercraft inspectors at public launch ramps on our chain.

Work with the Association of Cass County Lakes to develop collaborative efforts to help prevent new introductions of invasive species in Cass County, and to develop an effective monitoring and response plan.

Attend monthly meetings.

Evaluation:

All objectives are being met.

WATER PATROL

GOAL:

To conduct water safety patrols in a patrol boat provided by the Cass County Sheriff in support of their watercraft safety program.

Objectives:

Check for compliance with general boating regulations including PFD requirements, fire extinguishers, throwable floatation devices, current boat registration decals.

Confirm that a boat is being operated in compliance with generally accepted boating rules and regulations.

If a violation is observed, the boater is informed that he or she is in violation of a boating regulation and a suggestion as to how to correct the violation is given.

A patrol log is filled out during a patrol that indicates the time and location on the lake.

These log forms are submitted to the Cass County Sheriff at the end of the season.

Children 10 and under are given a certificate to Frosty's for an ice cream cone or Bear Paws Theater for a small popcorn.

To secure volunteers to conduct water safety patrols.

To maintain a roster of current volunteers and alternates with their email addresses and phone numbers.

Attend monthly meetings.

Evaluation: All objectives are being met.

ROAD SIGNS

Goal:

To provide a name to be put on the association road standard.

Objectives:

Receive notice of new member wanting name.

Order the name.

Put up the name.

Keep standards up to date with current members each spring.

Keep standards and area of standards in good condition.

Attend monthly meetings.

Evaluation:

Objectives have been met annually.

WATER QUALITY MONITORING

Newsletter articles to keep membership informed.

Monitor 4 sites 5 times a year.

Turn in water samples to laboratory to check the phosphorus and chlorophyll-A levels.

Preform a secchi disk reading at each site.

4 sites – Woman, Broadwater Bay, Child and Girl.

Create a base line of at least 8 years at each site.

Attend monthly meetings

Communications and Technology

Goal:

Maintain, edit and post to Facebook and any other relevant social media platform previously approved by the Board of Directors in order to interact with current and future lake association members.

Objectives:

Work closely with membership, website, Facebook, newsletter, and other areas, as needed, to address areas such as member privacy and security, member engagement, use of surveys, and adding a donate button to Facebook as a few examples.

Post information about current lake association events and issues, links to meeting minutes and newsletters and call for assistance or volunteers.

Post information on lake association membership and how to join.

Post other information that caters to a variety of interests but maintains the integrity of our lake association.

Monitor visitor posts and photos.

Monitor member inquiries via Facebook Messenger and respond to the question and/or forward to the appropriate lake association board member.

Invite users to like or follow our page.

Enlist other committee members to post photographs or information about local activities and events.

Attend lake association meetings.

Evaluation:

New committee members have not yet been recruited but all other objectives are being met.

TASK TEAMS

To perform a limited number of special tasks

NAVIGATIONAL SAFETY

Keep patrol boat in working order.

Keep boat lift in working order.

Keep buoys in good condition or replace.

Lighted and unlighted buoys marking danger areas on the chain are placed, retrieved and maintained.

ADOPT-A-HIGHWAY

Keep supplies for road clean up volunteers.

Contact road clean up volunteers.

WEBMASTER

Keep website current.

Contact committee chairs to submit updates annually.

SHORELINE BUFFER AND RESTORATION PROGRAM

Goal:

Protect the shorelines and reduce the negative impacts of water runoff on the lakes and waterways served by the Association

Activities:

- Manage the annual plant purchase and distribution program, which provides a limited number of plants, free of charge, to Association members, to be used by members to meet Program goals
- Provide information and print materials, as available, to educate members on practices that protect the shoreline and reduce the negative impacts of water runoff
- Interact with Cass County Environmental Services to stay informed on issues that may impact shorelines and control water runoff
- Provide updates on Program activities to the Association Board for their monthly meetings
- Attend monthly membership meetings, and any additional Board meetings as requested

Evaluation:
Objectives have been met annually.

Glossary

Aerobic: Aquatic life or chemical processes that require the presence of oxygen.

Algal bloom: An unusual or excessive abundance of algae.

Alkalinity: Capacity of a lake to neutralize acid

Anoxic: The absence of oxygen in a water column or lake; can occur near the bottom of eutrophic lakes in the summer or under the ice in the winter.

Benthic: The bottom zone of a lake, or bottom-dwelling life forms.

Best Management Practices: A practice determined by a state agency or other authority as the most effective, practicable means of preventing or reducing pollution.

Bioaccumulation: Build-up of toxic substances in fish (or other living organism) flesh. Toxic effects may be passed on to humans eating the fish.

Biological Oxygen Demand: The amount of oxygen required by aerobic microorganisms to decompose the organic matter in sample of water. Used as a measure of the degree of water pollution.

Buffer Zone: Undisturbed vegetation that can serve as to slow down and/or retain surface water runoff, and assimilate nutrients.

Chlorophyll a: The green pigment in plants that is essential to photosynthesis.

Clean Water Partnership (CWP) Program: A program created by the legislature in 1990 to protect and improve ground water and surface water in Minnesota by providing financial and technical assistance to local units of government interested in controlling nonpoint source pollution.

Conservation Easement: A perpetual conservation easement is a legally binding condition placed on a deed to restrict the types of development that can occur on the subject property.

Cultural eutrophication: Accelerated "aging" of a lake as a result of human activities.

Epilimnion: Deeper lakes form three distinct layers of water during summertime weather. The epilimnion is the upper layer and is characterized by warmer and lighter water.

Eutrophication: The aging process by which lakes are fertilized with nutrients.

Eutrophic Lake: A nutrient-rich lake – usually shallow, "green" and with limited oxygen in the bottom layer of water.

Exotic Species: Any non-native species that can cause displacement of or otherwise threaten native communities.

Fall Turnover: In the autumn as surface water loses temperature they are "turned under" (sink to lower depths) by winds and changes in water density until the lake has a relatively uniform distribution of temperature.

Feedlot: A lot or building or a group of lots or buildings used for the confined feeding, breeding or holding of animals. This definition includes areas specifically designed for confinement in which manure may accumulate or any area where the concentration of animals is such that a

vegetative cover cannot be maintained. Lots used to feed and raise poultry are considered to be feedlots. Pastures are not animal feedlots.

Groundwater: Water found beneath the soil surface (literally between the soil particles); groundwater is often a primary source of recharge to lakes.

Hardwater: Describes a lake with relatively high levels of dissolved minerals such as calcium and magnesium.

Hypolimnion: The bottom layer of lake water during the summer months. The water in the hypolimnion is denser and much colder than the water in the upper two layers.

Impervious Surface: Pavement, asphalt, roofing materials or other surfaces through which water cannot drain. The presence of impervious surfaces can increase the rates and speed of runoff from an area, and prevents groundwater recharge.

Internal Loading: Nutrients or pollutants entering a body of water from its sediments.

Lake Management: The process of study, assessment of problems, and decisions affecting the maintenance of lakes as thriving ecosystems.

Littoral zone: The shallow areas (less than 15 feet in depth) around a lake's shoreline, usually dominated by aquatic plants. These plants produce oxygen and provide food, shelter and reproduction areas for fish & animal life.

Local Unit of Government: A unit of government at the township, city or county level.

Mesotrophic Lake: A lake that is midway in nutrient concentrations (between a eutrophic and oligotrophic lake). Characterized by periodic problems with algae blooms or problem aquatic vegetation.

Native Species: An animal or plant species that is naturally present and reproducing.

Nonpoint source: Polluted runoff – nutrients or pollution sources not discharged from a single point. Common examples include runoff from feedlots, fertilized lawns, and agricultural fields.

Nutrient: A substance that provides food or nourishment, such as usable proteins, vitamins, minerals or carbohydrates. Fertilizers, particularly phosphorus and nitrogen, are the most common nutrients that contribute to lake eutrophication and nonpoint source pollution.

Oligotrophic Lake: A relatively nutrient-poor lake, characterized by outstanding water clarity and high levels of oxygen in the deeper waters.

pH: The scale by which the relative acidity or basic nature of waters are accessed,

Photosynthesis: The process by which green plants use sunlight, water and carbon dioxide to synthesize foods and generate oxygen as a byproduct.

Phytoplankton: Algae – the base of the lake's food chain, it also produces oxygen.

Point Sources: Specific sources of nutrient or pollution discharge to a water body, i.e., a storm water discharge pipe.

Riparian: The natural ecosystem or community associated with river or lake shoreline.

Secchi Disc: A device measuring the depth of light penetration in water.

Sedimentation: The addition of soils to lakes, which can accelerate the "aging" process by destroying fisheries habitat, introducing soil-bound nutrients, and filling in the lake.

Spring turnover: After ice melts in the spring, warming surface water sinks to mix with deeper, colder water. At this time of year all water is the same temperature.

Stratification: During summertime deeper lakes stratify by temperature to form three discrete layers.

Thermocline: The middle layer of lake water is known as the thermocline.

Trophic Status: The level of growth or productivity of a lake as measured by phosphorus, content, algae abundance, and depth of light penetration.

Watershed: The surrounding land area that drains into a lake, river, or river system.

Zooplankton: Microscopic animals.