

# Peppermill Lake District – Lake Management Plan

---



# About Peppermill Lake

---

Peppermill Lake is a spring-fed impoundment approximately 67 acres in size located in the southeast corner of Adams County in the Town of Jackson. It is a shallow lake with a trophic status ranging between mesotrophic to eutrophic. Supported in the past by 2 lake associations, popular support grew for the creation of a Lake District and in 2002, the Peppermill Lake Management District was formed.

Peppermill Lake has one public landing (owned by the Town) and one dam (owned by the County),

Peppermill lake is home to 17 aquatic plant varieties, turtles, blue gills, crappies, largemouth bass, northern pike, perch, and a robust Sandhill crane population.

# About Peppermill Lake - continued

---

## Peppermill Lake Milestones

- 1960's – Lake and subdivision established
- 1981 – Slow no-wake ordinance adopted by Town of Jackson
- 1992 – Aeration systems installed (in response to fish kills)
- 1998 – EWM identified
- 2002 – A full lake study was conducted
- 2002 – Lake District Established
- 2003 - First Annual Lake District Meeting
- 2005 – Lake Management Plan established
- 2006 – Critical Habitat Report submitted
- 2007 – Bathymetric Map created
- 2008 – Lake Classification Report submitted
- 2008 – AIS Grant awarded
- 2008 – Overhaul of winter aeration systems (in response to limited fish kill)
- 2009 - Pier installed at Public Landing

# Lake Management Plan Overview

---

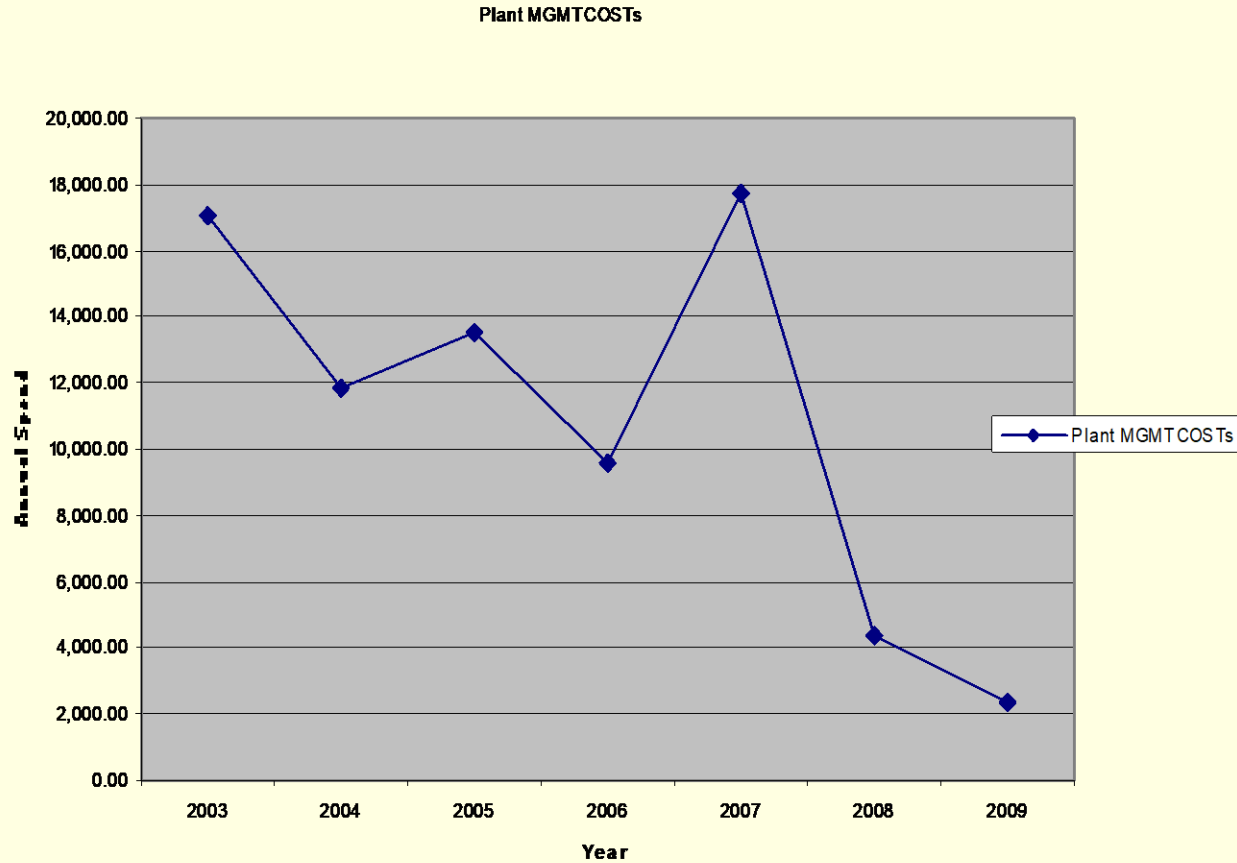
- Main Elements
  - Aquatic Species Management
  - Water Quality
  - Dam Management
  - Shoreland Protection
  - Recreational Uses
  - Education
  - Review Process

# Aquatic Species - EWM

- First detected in the late 1990's
- Chemical treatment began around 2000
- In 2005, mechanical harvesting was introduced
- In 2007, peak costs incurred
- Severe 2008 winter coupled with aerator failure resulted in significant decline in EWM population (replaced by Chara)
- Severe 2008-2009 winter continued trend
- Littoral zone covers most of lake bottom



# Plant Management Costs 2003-2009



# Aquatic Species - Harvesting

| Task                                                             | Criteria                                                 | Owner                     | When      | Funding Source |
|------------------------------------------------------------------|----------------------------------------------------------|---------------------------|-----------|----------------|
| Machine Harvest plants for navigational purposes and EWM Control |                                                          | PLMD & Private Contractor | 2009-2012 | PLMD           |
|                                                                  | Early Spring/Late Fall – EWM only                        |                           |           |                |
|                                                                  | July – Sept, Navigational channels and chara mounds only |                           |           |                |
|                                                                  | 5 Harvests- max                                          |                           |           |                |

# Aquatic Species - continued

| Task               | Criteria                                       | Owner               | When                | Funding                     |
|--------------------|------------------------------------------------|---------------------|---------------------|-----------------------------|
| Chemical Treatment |                                                |                     |                     |                             |
|                    | Spot Treat in areas too shallow for harvesting | PLMD and Contractor | Annually, if needed | PLMD & AIS Grant(till 2011) |
| Hand-Pulling       | Two areas in shallow water                     | PLMD                | Annually, if needed | PLMD & AIS Grant            |

# Aquatic Species - Monitoring

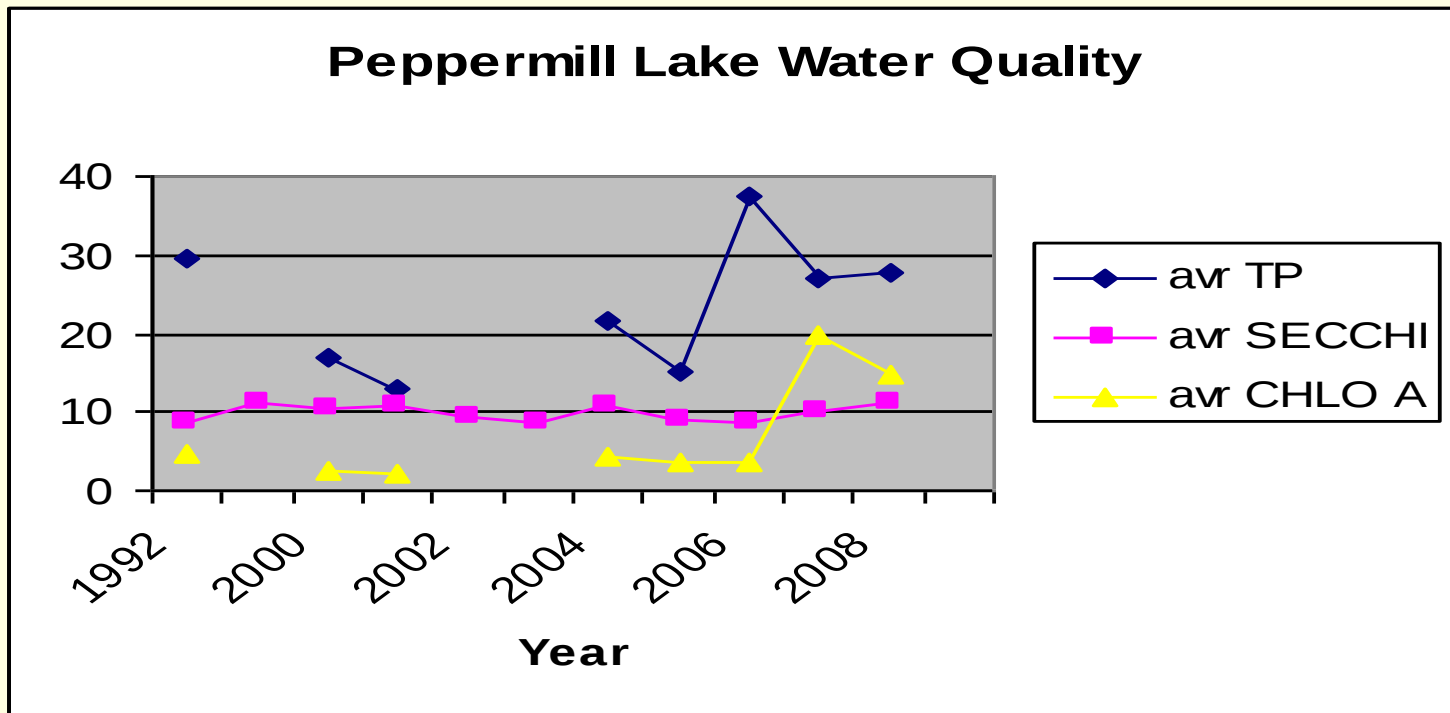
| Task                    | Criteria                                   | Owner      | When                     | Funding |
|-------------------------|--------------------------------------------|------------|--------------------------|---------|
| Monitor Harvesting      |                                            | PLMD       | Annually                 | PLMD    |
|                         | PLMD Inspection of Harvests                | PLMD       | Per Harvest              |         |
|                         | Contractor to record poundage removed      | Contractor | Per Harvest              |         |
|                         | Plants samples sent to lab for PH analysis | PLMD       | Per Harvest              |         |
| Zebra Mussel Monitoring | Two Locations                              | PLMD       | Annually (began in 2008) | PLMD    |

# Water Quality

---

- Lake Surface Watershed – 972 Acres
  - 53.4% woodlands
  - 36.2% residential
  - 6.9% water
  - 3.5% agricultural
- Groundwater watershed – 4715 acres
- As of 2002 Phosphorus and Nitrogen levels were at manageable levels
- 75 riparian owners
  - Septic systems on east properties are oldest (30 plus years)
  - 2002 Chloride levels indicated minimal septic tank impact

# Current Water Quality



# Water Quality

| Task                                                                    | Criteria                                                   | Owner              | When                         | Funding |
|-------------------------------------------------------------------------|------------------------------------------------------------|--------------------|------------------------------|---------|
| Monitor water for TP, Secchi, and Chlor A in East and West ends of lake | Add monitoring in So. Bay and North finger toward Fish Ave | PMLD               | Annually                     | PMLD    |
| Model Phosphorus loading based on plant samples removed                 |                                                            | PMLD               | Annually, after each harvest | PMLD    |
| Harvest plants to limit nutrient release through decay                  |                                                            | PMLD               | Annually                     | PMLD    |
| Work with Town and County on proper zoning uses                         |                                                            | PMLD, Town, County | Annually                     |         |
| Barley Bags for algae control                                           |                                                            | PMLD               | Annually                     | PMLD    |
| Determine if dredging is necessary, as a result of sedimentation        |                                                            | PMLD               | 2011                         | PMLD    |

# Dam Management

| Task           | Criteria                             | Owner | When      | Funding |
|----------------|--------------------------------------|-------|-----------|---------|
| Dam Management |                                      |       |           |         |
|                | Annual Inspections per DNR standards | LWCD  | Annually  | County  |
|                | Operation and maintenance of Dam     | LWCD  | Weekly    | County  |
|                | Emergency Action Plan                | LWCD  | 2010      | County  |
|                | Electrical Generation options        | LWCD  | 2010-2011 | County  |

# Shoreland Protection

---

In 2007, in conjunction with the County, several shoreline restoration projects were initiated and funded partially through grants.

Since then two significant pieces of legislation have passed, the Adams County Shoreland Protection Act, and the Wisconsin Act 9, banning the use of fertilizers. Both laws will have a significant impact on completing initiatives stated in the Lake Management Plan.

In 2005, Tree Drop program began with 2008 being the only year with fewer than 8 trees being felled.

# Shoreland Protection

| Task                                                     | Criteria | Owner                         | When      | Funding   |
|----------------------------------------------------------|----------|-------------------------------|-----------|-----------|
| Inventory/map septic systems in PMLD                     |          | PLMD/LWCD and Planning/Zoning | 2010      | ?         |
| How do other LD's regulate septic systems (san dist.)    |          | PMLD                          | 2010-2011 | PMLD      |
| Educate riparian owners on buffer/erosion mgmt           |          | PMLD & LWCD                   | 2010-2013 |           |
| Develop packet on best practices for owners and realtors |          | PMLD                          | Completed |           |
| Enforce County Ordinance                                 |          | PMLD                          | Annually  |           |
| Educate on NR115                                         |          | PMLD/LWCD                     | 2010      | PMLD/LWCD |
| Post Critical Habitat Map at Landing                     |          | PMLD                          | 2010      | PMLD      |
| Explore North Shore Conservancy                          |          | PMLD                          | 2010-2011 |           |

# Recreational Uses

---

- In 1981 the Town of Jackson adopted a slow no-wake ordinance for Peppermill Lake.
- In the 1970's-1980's there were 4 fish kills, 1 in the late 1990's and one in 2008. Winter aeration began in 1992 and all systems were overhauled in 2008, adding a new system in the south bay.
- Mechanical harvesting for navigational purposes began in 2005.
- In 2002-2003 one fish stocking occurred (bass fingerlings).
- Tree drops began in 2005 as a means to augment fish habitat.
- Boat launch fee was established in 2008 by Town of Jackson.
- Boat launch pier installed in 2009 through boat launch fee funds.

# Recreational Uses

| Task                                                     | Criteria           | Owner       | When      | Funding |
|----------------------------------------------------------|--------------------|-------------|-----------|---------|
| Evaluate fish stocking based on DNR recommendation       |                    | PMLD        | 2009-2010 | PMLD    |
| Explore Cnty-wide ord. increasing bass size limit to 18" | Tie to Fish Survey | PMLD & LWCD | 2010-2011 |         |
| Place 8 trees within littoral zone for fish habitat      |                    | PMLD        | Annually  | PMLD    |
| Conduct Fish Survey                                      |                    | LWCD & DNR  | 2010      | ?       |
| Aerator Operation                                        |                    | PMLD        | Annually  | PMLD    |
| Conduct survey of lake users (compare to 2004)           |                    | PMLD        | 2010      | PMLD    |

# Education

---

- In conjunction with the Peppermill Lake Association, a new homeowners handbook was created containing information on best practices. Handbook was also delivered to local Realtors
- In 2008, through AIS grant assistance, a Clean Boats, Clean Water program was started. In 2008, 3 weekends were covered. In 2009, 10 weekends were covered. Part of this program included outreach to local schools.
- Lake District Board continues to issue a quarterly newsletter and maintain a website, [www.peppermilllake.com](http://www.peppermilllake.com)
- Peppermill Lake is an active supporter of the Adams County Lake Alliance.

# Education and Outreach

| Task                                          | Criteria | Owner | When     | Funding          |
|-----------------------------------------------|----------|-------|----------|------------------|
| Clean Boats, Clean Water (2/mo May-September) |          | PMLD  | 2010     | PMLD & AIS Grant |
| Quarterly Newsletter                          |          | PMLD  | Annually | PMLD             |
| Website                                       |          | PMLD  | Annually | PMLD             |

# Plan Review Process

---

- Public meeting (advertised) soliciting citizen comment is held annually
- Lake District Board reviews all recommended changes
- Plan is reviewed at Lake District Annual Meeting for comment
- Plan is posted at LWCD website and at [Peppermillake.com](http://Peppermillake.com)