Management Plan for Rock Lake, Lake Mills







Jefferson County Land and
Water Conservation Department
Rock Lake Improvement Association
Joint Rock Lake Committee
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EXECUTIVE SUMMARY

Faced with an out-dated lake management plan, and a range of new and continuing concerns about the future vitality of Rock Lake, the Joint Rock Lake Committee and the Rock Lake Improvement Association decided to craft a new long range plan for the management of Rock Lake. In order to achieve this undertaking, a grant was obtained from the Department of Natural Resources, and professional expertise was requested from the Jefferson County Land and Water Conservation Department.

It was decided from the beginning that the public should be an integral part to the development of a management plan. This was achieved in a variety of ways. An Advisory Committee, made up of citizens representing a wide range of interests, was assembled to provide recommendations for the plan to the Joint Rock Lake Committee and the Rock Lake Improvement Association. The Advisory Committee met regularly for over a year, obtained information about the state of Rock Lake and the concerns facing it, debated over actions to take, and set forth goals and recommendations for Rock Lake. Along the way, the Advisory Committee benefited from the input of the public at their meetings, through a public survey, and at two public input sessions.

The Jefferson County Land and Water Conservation Department, in collaboration with the Rock Lake Improvement Association and the Joint Rock Lake Committee, wrote the lake management plan with the information presented to the Advisory Committee and the goals and recommendations of the Advisory Committee. There are three main sections of the plan: characteristics of Rock Lake and its watershed; factors impacting Rock Lake and its watershed; and goals, recommendations, and implementation.

It is important to highlight that the goals and recommendations that have been set forth in this plan by the Rock Lake community are to be implemented by the Rock Lake community. This community is made up of different levels of government (local, county, and state), lake organizations, educators, fisherman, boaters, farmers, lakeshore owners, businesses, and naturalists. Not only should this community implement the recommendations, but they should also encourage the other members of the community to take their part in the implementation of the lake management plan.

The goals and recommendations of the plan are contained below. In the body of the report, these recommendations appear again and include some details of action items and a timeline for implementation.

Goals and Recommendations of the Management Plan for Rock Lake

Goals

- Protect the quality of the lake by reducing the delivery of pollutants (e.g. sediment, phosphorus, etc.) to the lake and watershed.
- Protect the quality of the lake by reducing shoreland disturbances while allowing reasonable riparian access.

- Prevent the invasion and spread of invasive species.
- Maintain and improve the fish and wildlife habitat in Rock Lake and its watershed.
- Create safe recreation on the lake.
- Enhance enjoyment of the lake (e.g. aesthetics, noise, etc.)
- Minimize any negative ecological impacts caused by recreation.
- Maintain the lake level such that it benefits the aquatic environment, prevents shoreline erosion, and allows for recreational access.
- Educate the public so that they have a better understanding of Rock Lake, its watershed, the factors impacting the quality of the resources, and what the public can do to make a difference.

To attain each goal, any necessary data collection and research should be performed to establish baseline data, determine data trends, establish measures of success, and decide upon next steps in the planning and implementation process.

Recommendations in Priority Order

1. Reduce sediment and phosphorus inputs from City, Town, and County roads.

2. Reduce sediment and phosphorus inputs from west channel (adjacent to Cedar Lane).

3. Adopt Jefferson County's shoreland zoning ordinance in the City of Lake Mills so that the rules are consistent for the entire lake.

4. Reduce the spread of Eurasian water milfoil.

5. Pass an ordinance in the Town and City or the County that would prohibit the use of fertilizer containing phosphorus on public and private lawns unless a soil test reveals the need for phosphorus.

6. Gain a better understanding of water level management for Rock Lake and take appropriate actions.

7. At the North end and Sandy Beach boat launches, place informational signs/buoys indicating 100 feet from shore (for boats) and 200 feet from shore (for PWCs) to educate boaters how far the Slow-No-Wake zones are for boats and PWCs. Once implemented, the success of this practice should be assessed.

8. Conduct a study to determine the quality of the wetlands in the Rock Lake watershed because the large wetland complex is one of the main reasons that Rock Lake has good water quality. The study could define the steps to take to protect and enhance the wetlands.

9. Stop construction site erosion.

10. Initiate water quality monitoring at key locations within the Rock Lake watershed.

11. Make changes to the parking areas at the boat launches to reduce the boat traffic and possibility for accidents.

12. Encourage landowners to install native plantings in the shoreland area. This practice will create habitat, reduce the amount of nutrients entering the lake (which feed algae and nuisance plants), augment the native milfoil weevil population, and prevent geese from accessing the landowner's property.

13. Conduct aquatic plant surveys every 3-5 years on Rock Lake to keep track of community changes and the appearance or spread of invasive species.

14. Reduce the number of boat launches on the lake (currently 6).

15. Make direct, personalized contact with every farm and lakeshore owner in the Rock Lake watershed to communicate with them about conservation practices that are available to address erosion or pollution issues that may exist on the property.

16. Insure that lakeshore property owners are educated about the shoreland zoning rules.

17. Host a training session on shoreland zoning rules for building inspectors, planning and zoning committees, boards of adjustment, and contractors.

18. Add language to the Town ordinance that addresses trampolines and rafts:

19. Give the recreational rules packet to people obtaining season passes and put the packets at the launch sites.

20. Protect sensitive areas.

21. Enforce the current ordinance that states no one can operate or occupy a motorized vehicle upon the ice of Rock Lake between 9 pm and 6 am.

22. Initiate a lake education day for students and the public.

23. Post the boating and recreational ordinance and fines for violating ordinance on web sites.

24. Send out the shoreland packet when property changes hands.

25. Educate landowners about the availability of federal, state, and county money to help defray the costs of implementing conservation practices to prevent pollution and erosion and to increase shoreland habitat that benefits fish and wildlife.

26. Start a Clean Boats, Clean Waters program that educates boaters about invasive species.

27. Monitor the population of Curly-Leaf Pondweed and Rusty Crayfish and consult with the DNR regarding possible management actions.

28. Write and pass an ordinance that regulates the vehicle access to Rock Lake during ice cover that allows motor vehicles as long as they have flotation devices that will maintain buoyancy.

29. Increase the number of hours that officers are patrolling the lake. Weekends are often a hard time to find available personnel. A possibility is to inquire whether officers for the City of Lake Mills would be interested in taking some shifts.

30. Educate landowners about the aquatic plant removal laws.

31. Place woody structures in the lake to create more fish habitat (with proper permits). One idea under discussion with the DNR and the Land and Water Conservation Department is to have landowners sink Christmas trees under the piers – especially on the east side of Rock Lake where there is little fish habitat.

32. Determine how to offer an incentive to people to trade-up from older 2-stroke engines to newer and less polluting 2-stoke and 4-stroke engines.

33. Have lifeguards at Sandy Beach and Bartels Beach 7 days a week from Memorial Day to Labor Day.

34. Educate the public on garlic mustard so that they will know how to identify and control the species. The Friends of Korth Park could assist in education on controlling garlic mustard through their Adopt-A-Plot program to control invasives in the woods of Korth Park.

35. Have Town and City boat launch fees be consistent.

36. Monitor the success of the aquatic plant plantings at Korth Park and if successful, implement plantings in other locations.

37. Reduce the Canada geese population.

38. Coordinate with the Fish Hatchery to release walleye fry into the open water versus along the shoreline in order to increase survival.

39. Encourage people to take a boater safety course which can be taken as a class or over the internet**.**

40. Cut channels (perhaps manually with the use of divers) through the monotypic bands of Eurasian water milfoil found in the 9-14 foot water depths to improve habitat and predator-prey interactions.

41. Request that the DNR perform fish surveys in Marsh Lake.

42. Educate the public about the benefits of piers that are placed high above the water with narrow (as opposed to very wide) pier sections. This will allow light to penetrate under the pier so that the pier doesn't shade out important aquatic plant habitat.

43. Print a “Report on the Dam” in the paper to educate people about the water levels and explain the management of the dam.

44. Investigate the possible migration of fish between Marsh Lake and Mud Lake. Determine if it would it be beneficial to improve the migration route (perhaps though clearing the channel) so that fish can migrate to spawning beds in Mud Lake.

45. Have the City and Town have a common season pass for use at all launches. (There would have to be some agreement between the City and Town as to how to split those fees between them.)

46. Place an informational sign by the dam that shows the minimum and maximum water levels for the season, and an arrow can indicate the location of the current water level.

47. Educate the public about Columnaris (a naturally occurring bacteria that can lead to fish kills) in May so that people will know about the potential for fish kills before they happen.

INTRODUCTION

Rock Lake is a 1,371 acre lake located in Jefferson County. The east shore of Rock Lake is within the City of Lake Mills, while the remainder of the shoreline is in the Town of Lake Mills. The 15.1 square miles of Rock Lake's watershed is home to 4 lakes (Rock Lake, Mud Lake, Bean Lake, and Perch Lake) and a vast complex of wetlands. Rock Lake is a valuable natural resource offering a variety of recreational opportunities to the resident community and its visitors.

In 1995, a lake management plan was developed for Rock Lake and funded by a Department of Natural Resources (DNR) Lake Planning Grant. This plan provided the foundation for many subsequent lake management decisions including:

- acceptance of Rock Lake into the DNR Priority Lake Program, which concentrated on reducing nonpoint source pollution to the lake
- research into the possibility of forming a lake management district
- designation of "sensitive areas" in the lake and efforts to take additional steps to protect those areas

An update to the 1995 lake management plan is needed for several reasons:

- A re-assessment of lake and watershed data is important to understand the current state of Rock Lake and to reveal the historic trends. This assessment will shed light on the management needs of the lake.
- New challenges to the lake environment have been identified.
- With the completion of the Rock Lake Priority Lake Project in 2005, a new plan should be crafted to deal with current and future nonpoint source pollution concerns.
- A "lake classification" project was completed in Jefferson County in 2003. The recommendations of this report should be shared with the Rock Lake community because some of the recommendations may need to be adopted and implemented in the Rock Lake watershed.

Lake Management Planning Project

The Rock Lake Improvement Association received a Lake Planning Grant from the Department of Natural Resources in 2004 to develop a Lake Management Plan for Rock Lake. The purpose of this planning project was to develop a management plan with current scientific data and input from the Rock Lake community and resource experts. The result is this report which contains a set of recommendations that will guide current and future actions for protecting and enhancing Rock Lake and its many uses.

Project Team

The Rock Lake Improvement Association (RLIA) and the Joint Rock Lake Committee were the Project Managers responsible for the overall management of the project. Staff from the Jefferson County Land and Water Conservation Department was the Project Leader responsible for planning and implementing the project. The RLIA Board and the Joint Rock Lake Committee discussed the plan development process at their regular monthly meetings.

Some combined meetings of the RLIA Board and the Joint Rock Lake Committee occurred when there were major decisions to be made.

An Advisory Committee of volunteer citizens was formed to work on the recommendations for the Management Plan. They communicated with the interests that they represented and with the public to get input on ideas for recommendations. The Advisory Committee had 15 meetings in 2004 and 2005. Members of the public attended the Advisory Committee meetings and were given time to provide ideas and comments to the committee.

Please see the list of people involved with the project at the beginning of this document.

Public Involvement

One of the most crucial components of any lake management plan is the involvement of the public in the planning process and the incorporation of their views into the final document. This objective was achieved through community input sessions and a mailed survey.

Two public input sessions were held at different stages of the project. The first session was held on August 25, 2004 and concentrated on obtaining the public's views on the assets of the lake, the things that they would like changed, and ideas for addressing their concerns about the lake. This input was considered by the Advisory Committee during their deliberations for proposing recommendations. The second session was held on August 20, 2005 to present some of the draft recommendations to the public and obtain their input. The Advisory Committee used the input from this second session to refine their recommendations. There were 32 people who attended the first session and 34 people who attended the second session. Notes from these sessions are contained in Appendix A.

A public survey was drafted, distributed, and analyzed to determine the lake concerns and wants and needs of Rock Lake users. A total of 2,394 surveys were distributed via the mail both to residents of the Rock Lake watershed and to recreational users. A total of 897 completed surveys were returned, representing a 37.5% return rate. A copy of the survey and the results are contained in Appendix B**.**

Development of Lake Management Plan

The Advisory Committee met over two years to learn about and discuss various lake topics including: invasive and exotic species, agricultural and urban nonpoint source pollution, recreation, shoreland zoning, water levels, fish, habitat, and wetlands. Each discussion involved options for management actions, legal changes, or educational initiatives to achieve improvements in the lake and watershed resources and recreational experience. Some options were advanced to a list of possible recommendations, and other options were not advanced.

Once all the topics were presented and discussed, the Advisory Committee decided upon a list of goals of the lake management plan. They also considered the list of recommendations to ensure that they were complete and accurately worded. Next, each committee member ranked each recommendation as High, Medium, or Low for each of the following criteria:

- Recommendation addresses one or more of the goals.
- Recommendation achieves environmental benefit.
- Recommendation addresses a major problem facing the lake.
- Recommendation establishes baseline measurement(s).
- Recommendation achieves consistent rules, guidelines, or cost structures.
- Recommendation meets public need or has positive impact on community.

A total ranking for each recommendation was determined by compiling the rankings from each committee member. In the end a prioritized list of recommendations was developed by the Advisory Committee and forwarded to the Project Managers.

The RLIA, the Joint Rock Lake Committee, and staff from the Jefferson County Land and Water Conservation Department considered the list of recommendations from the Advisory Committee and made no substantive changes. The Project Managers then developed a timeline for implementation of the recommendations. The recommendations and timeline are located in the Goals, Recommendations, and Implementation chapter of this report. Possible recommendations that were not advanced by the Advisory Committee are included in Appendix C.

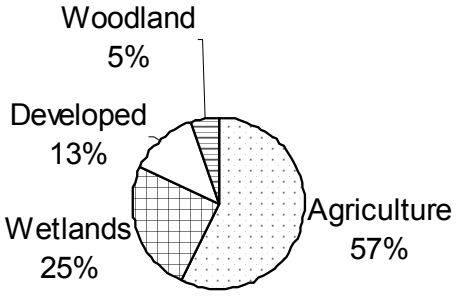
CHARACTERISTICS OF ROCK LAKE AND ITS WATERSHED

Rock Lake is 1,371 acres in size with a watershed of 15.1 square miles. The watershed consists of land in the Town of Lake Mills and the City of Lake Mills (Map 1). Rock Lake is a natural glacial lake formed as a large compound depression in the ground moraine. Rock Lake drains to Rock Creek which flows into the Crawfish River which flows into the Rock River.

Land Uses

Chart 1 displays the land uses in the Rock Lake watershed. Agriculture is the main land use in the watershed covering more than ½ of the land area in the watershed. The next dominant land use is wetlands representing a quarter of the total watershed area. The majority of the land in wetlands consists of a large wetland complex that surrounds the southern basin of Rock Lake and continues south along the main tributary to the lake (see Map 1).

Chart 1. Land Uses in the Rock Lake Watershed



Lakes in the Watershed

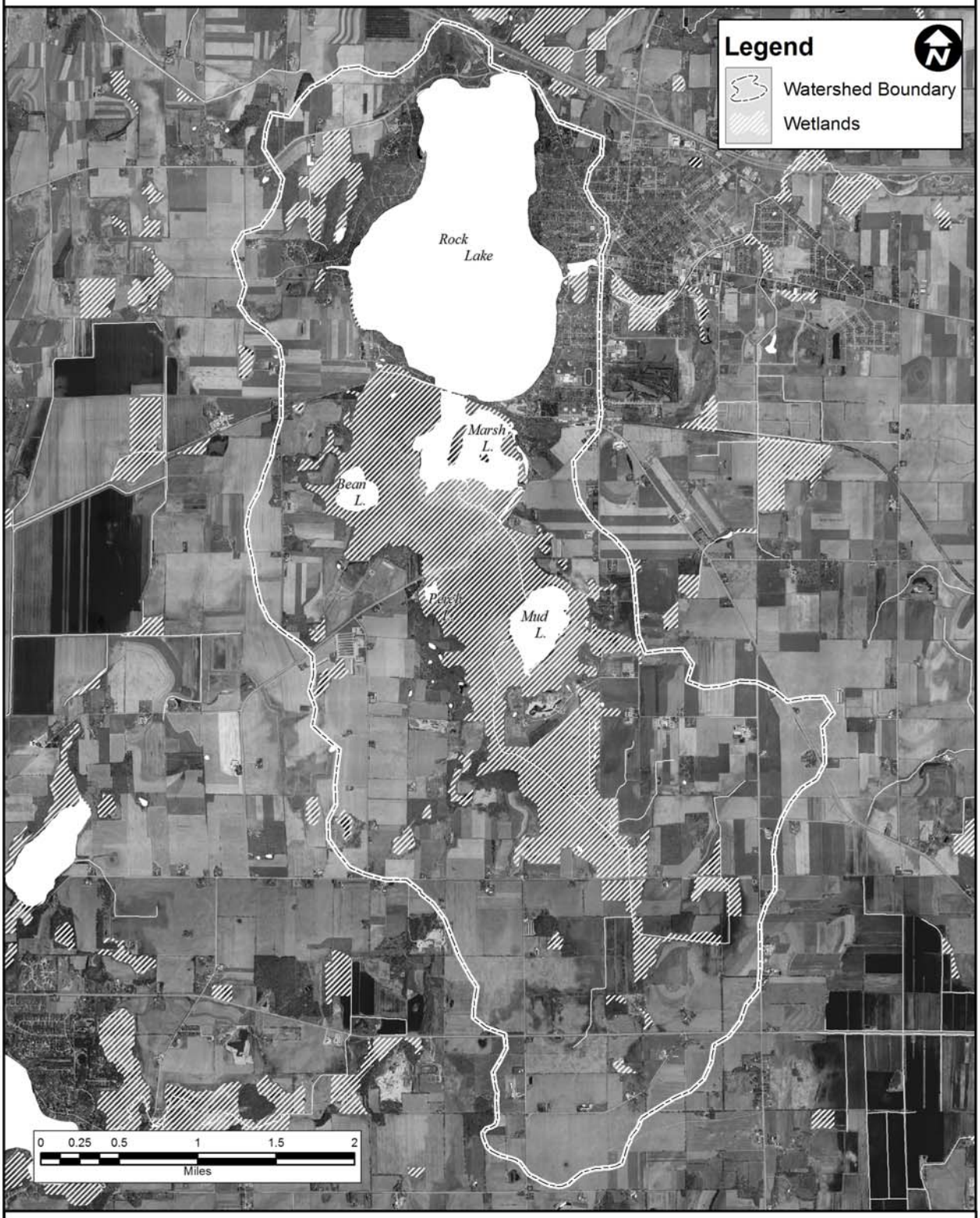
Besides Rock Lake, there are 3 other lakes within the watershed – Mud Lake, Perch Lake, and Bean Lake. The basic characteristics of each lake are detailed in Table 1. The southern basin of Rock Lake is known as Marsh Lake (210 acres).

Table 1. Lakes within the Rock Lake Watershed

	Surface Area (acres)	Maximum Depth (feet)	Mean Depth (feet)	Shoreline Length (miles)
Bean Lake	33	6	*	0.87
Mud Lake	95	22	*	1.67
Perch Lake	5	7	*	0.46
Rock Lake	1,371	56	16	11.9

* The mean depths of Bean, Mud, and Perch lakes have not been determined.

Map 1. Rock Lake Watershed & Wetlands



Aerial Photos Taken 2004 & 2005

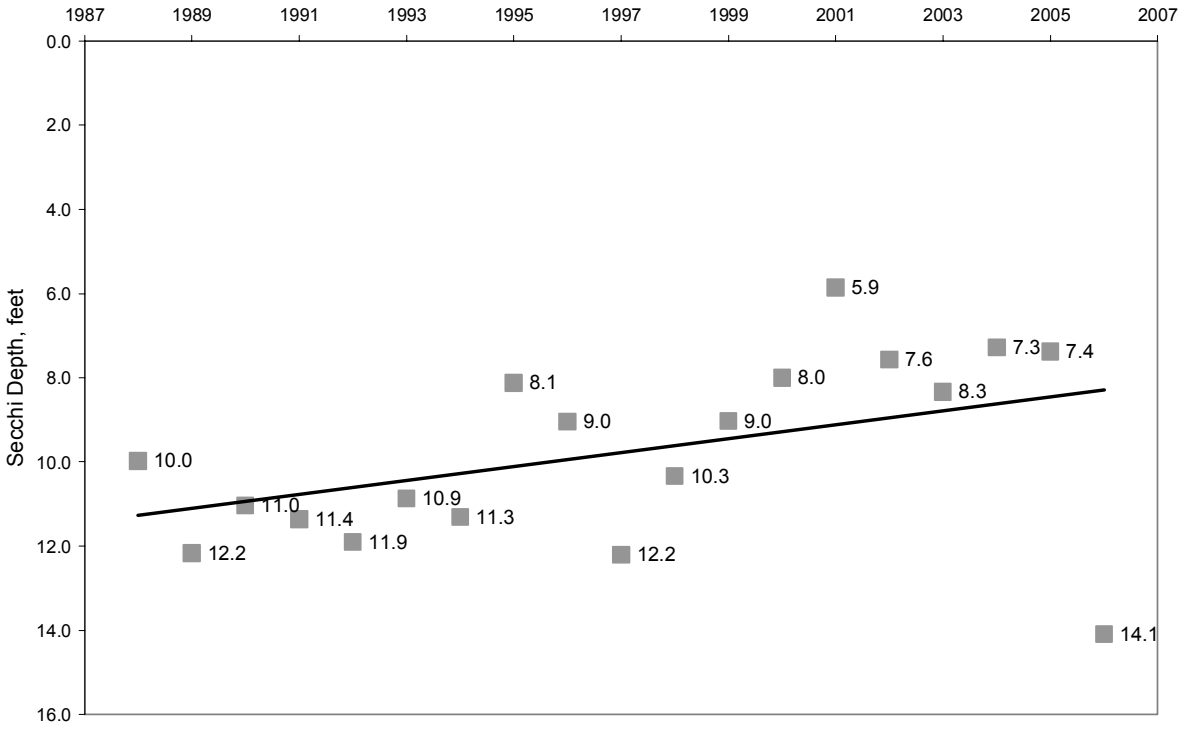
Compiled by the Jefferson County Land & Water Conservation Department

Water Quality – Rock Lake

Rock Lake is the only lake in the watershed that has had consistent, long-term water quality testing. Water clarity data, collected using a Secchi disc, have been collected every year since 1988 at the deepest point of the lake as part of the State's Self-Help Lake Monitoring Program. This data is collected by volunteers. Some earlier data exists in the early 1970s also. A Secchi disc is an 8-inch disc that is painted black and white. It is lowered into the water until it disappears from sight, then raised until it becomes visible – that depth is recorded as the water clarity reading.

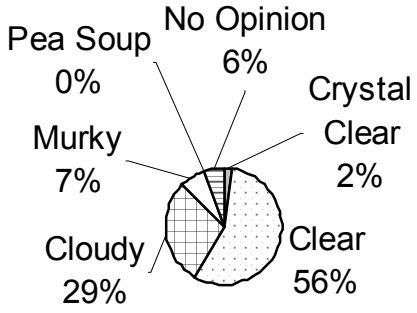
Materials suspended (especially algae) and dissolved in the water will impact the water clarity of a lake. Water clarity measurements can indicate the overall water quality of a lake. In Rock Lake, the average water clarity measurements in July and August over time have been declining (see Chart 2). This indicates that the water quality of Rock Lake has been declining over the past 17 years. Data from the early 1970s recorded average summer Secchi depths at 6.3 feet. This means that during that period of time, water clarity was worse that it is currently. However, it is also important to note that while variations in water quality parameters such as clarity occur from year to year, long-term data indicate the trends in the resource.

Chart 2. Average Water Clarity Measurements in Rock Lake during July and August (1988-2006)



The 2005 public opinion survey asked people their opinion on the overall water clarity of the lake. The majority of respondents considered the water clarity "clear" (please see Chart 3), which is in line with the data.

Chart 3. Opinion of Rock Lake's Water Clarity (source: 2005 public survey)



Trophic State

By determining a lake's trophic state, its water quality can be characterized as eutrophic, mesotrophic, or oligotrophic. These trophic states are based on water clarity, total phosphorus concentration, and chlorophyll *a* concentration.

Oligotrophic lakes are clear, deep, and free of weeds or large algae blooms. They contain low amounts of nutrients and therefore do not support large fish populations. However, they can develop a food chain capable of sustaining a desirable fishery of large game fish. Mesotrophic lakes have moderately clear water. They can have deep waters that are low in dissolved oxygen during the summer, and as a consequence, can limit cold water fish and cause phosphorus release from the bottom sediments. Eutrophic lakes are high in nutrients and support a large biomass that included weeds, or frequent algae blooms, or both. Rough fish are often common in eutrophic lakes. A natural aging process occurs in all lakes to shallower and more eutrophic lakes. It is important to point out that this aging process is accelerated by human activities that increase sediment and nutrient delivery to our lakes including agriculture, existing and new development, fertilizers, storm drains, etc.

The Trophic State Index is determined using mathematical formulas that convert Secchi disc, total phosphorus, and chlorophyll *a* measurements into a TSI score on a scale of 0 to 110. Lakes that are less fertile have a low TSI. The scale is described in Table 2.

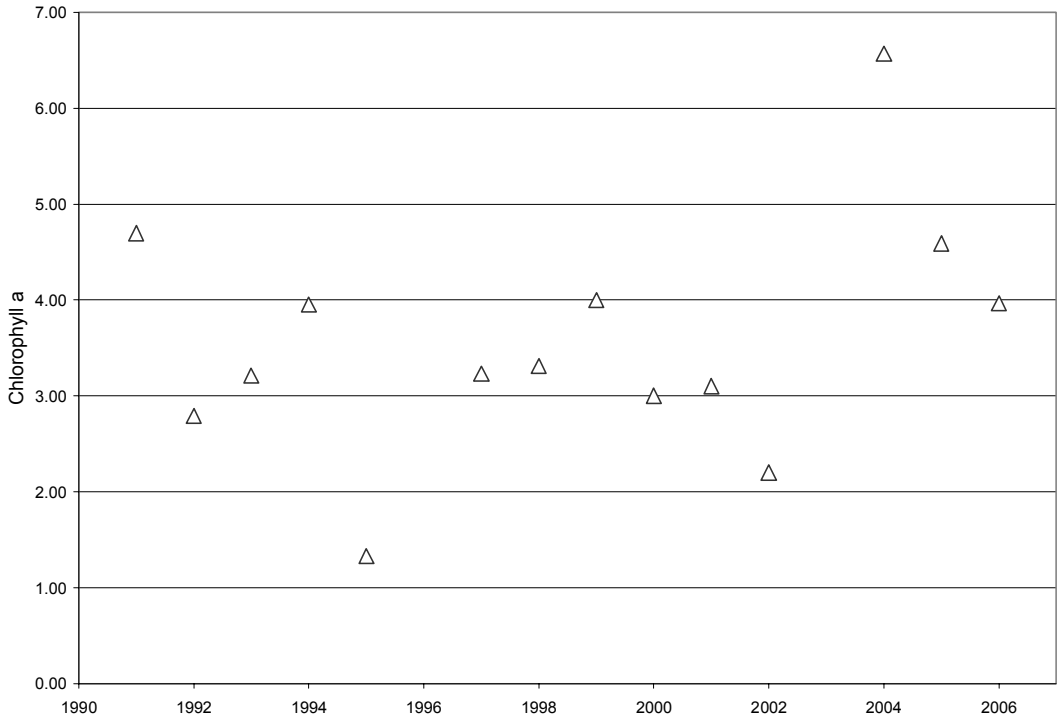
Chlorophyll *a* is the photosynthetic pigment found in plants. When filtered from lake water, it will signify the lake's algae biomass with higher concentrations indicating algal blooms. For most Wisconsin lakes, concentrations less than 7 µg/l indicate good water quality. Rock Lake's average summer (July-August) chlorophyll *a* concentrations from 1991 through 2004 are shown in Chart 4. The summer averages for Rock Lake are all under 7 µg/l.

Phosphorus is a nutrient that is often referred to as the "limiting nutrient" because its concentration in the water will affect the amount of algae and plant growth more than nitrogen. One pound of phosphorus delivered to a lake can produce up to 500 pounds of algae. Sources of phosphorus include runoff from farmland, animal lots, and lawns, as well as shoreline erosion.

Table 2. Description of the Trophic State Index Scale

TSI Score	Description
TSI < 30	Classical oligotrophic: clear water, many algal species, oxygen throughout the year in bottom water, cold water, oxygen-sensitive fish species in deep lakes. Excellent water quality.
TSI 30-40	Deeper lakes still oligotrophic, but bottom water of some shallower lakes will become oxygen-depleted during the summer.
TSI 40-50	Water moderately clear, but increasing chance of low dissolved oxygen in deep water during the summer.
TSI 50-60	Lakes becoming eutrophic: decreased clarity, fewer algal species, oxygen-depleted bottom waters during the summer, plant overgrowth evident, warm-water fisheries (pike, perch, bass, etc.) only.
TSI 60-70	Blue-green algae become dominant and algal scums are possible, extensive plant overgrowth problems possible.
TSI 70-80	Becoming very eutrophic. Heavy algal blooms possible throughout summer, dense plant beds, but extent limited by light penetration (blue-green algae blocks sunlight).
TSI > 80	Algal scums, summer fish kills, few plants, rough fish dominant. Very poor water quality.

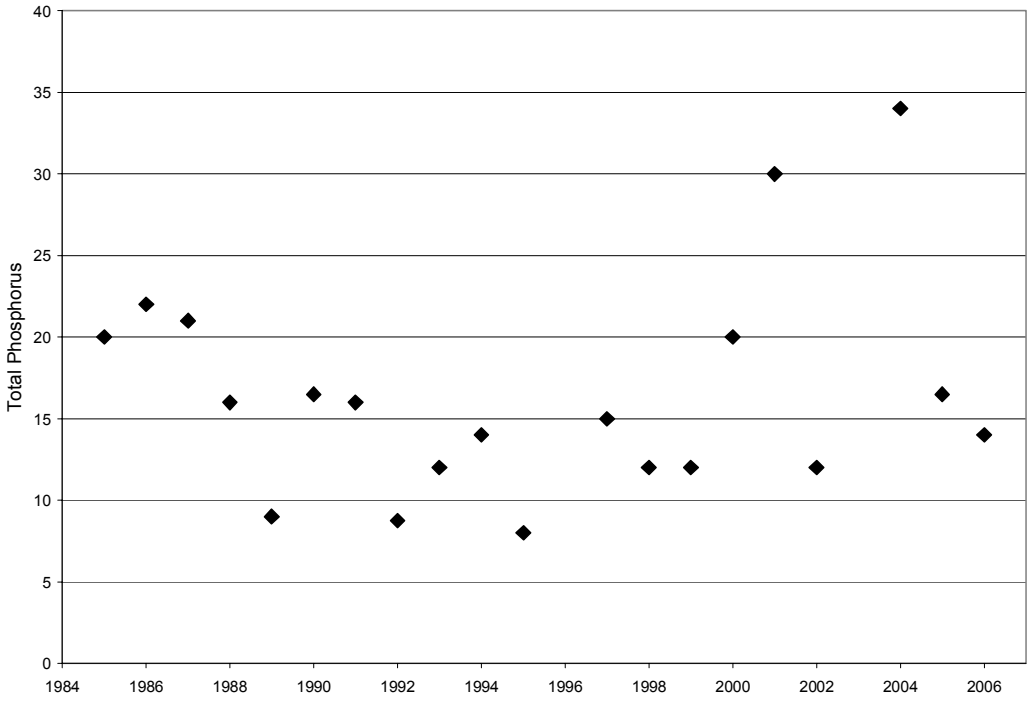
Chart 4. Average Summer Chlorophyll *a* Measurements for Rock Lake (1991-2006)



Phosphorus mostly is held in insoluble particles with calcium, iron, and aluminum. Rock Lake is a hard water lake that precipitates marl (or calcium carbonate) – often seen as a white substance in the sediment and white precipitate on plant leaves. By absorbing phosphorus in its particles, marl helps control algae growth in Rock Lake. Phosphorus is only released from

particle form when the water is anoxic (has no oxygen). Anoxic conditions occur in the bottom waters of deep lakes during the summer when dead plant and animal matter uses up the oxygen during decomposition. In Rock Lake, phosphorus release from the bottom sediments (also called internal phosphorus loading) was determined to be low compared with more fertile lakes. For example, summer (July and August) phosphorus concentration in the bottom waters of Rock Lake from 1986 through 1993 averaged 46 µg/l while concentrations in Lake Ripley, Jefferson County, and Fish Lake, Dane County, can exceed 200 µg/l and 300 µg/l respectively. During the summer, the phosphorus released from the sediments is held in the bottom waters and only enters the upper waters during strong winds that can mix the upper waters with the bottom waters. When the lake's water mixes in the fall, the phosphorus that had been contained in the bottom waters will mix with the surface water and cause fall algal blooms. Average summer phosphorus concentrations are shown in Chart 5.

Chart 5. Average Summer Total Phosphorus Measurements for Rock Lake (1985-2006)



The Trophic State Index for Rock Lake over time is displayed in Chart 6. It represents average July and August measurements of water clarity, total phosphorus, and chlorophyll *a*. Rock Lake is characterized as a Mesotrophic lake.

A water quality index was developed for Wisconsin lakes using data collected in July and August (Lillie and Mason 1983). Table 3 shows this index and contains the 2006 data on Rock Lake.

Chart 6. Trophic State Index for Rock Lake (Note: This chart does not contain the entire Trophic State Index scale. Not shown is classic oligotrophic of 0-30 and eutrophic scales of 60-70, 70-80, and greater than 80.)

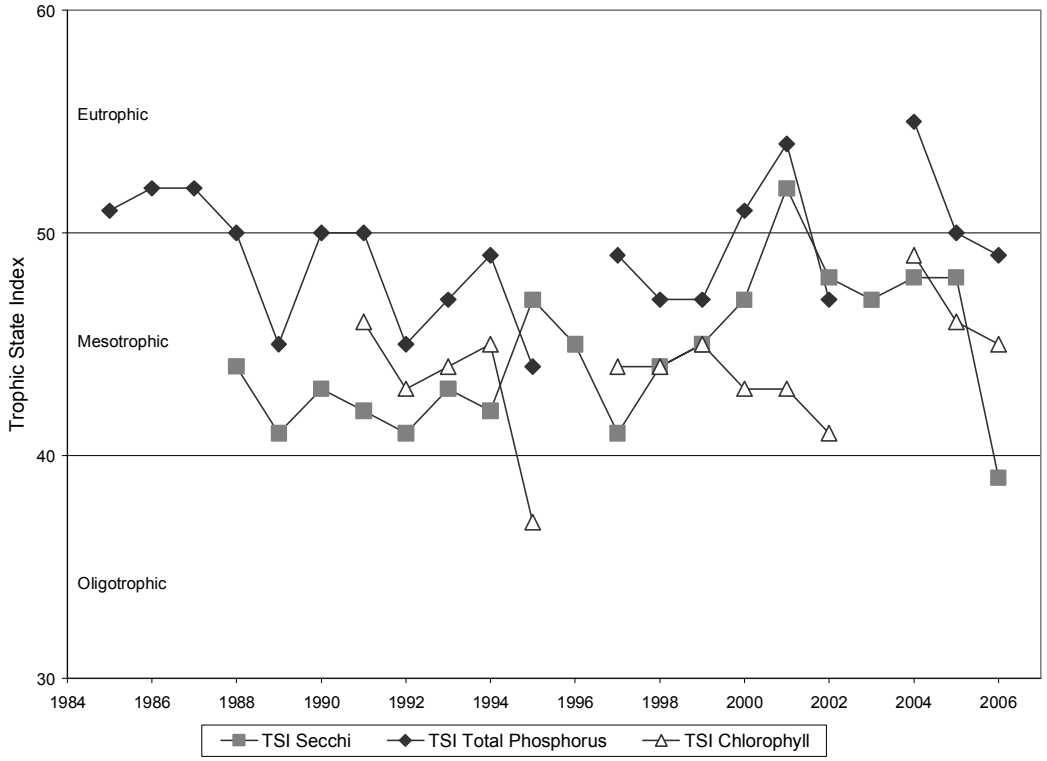


Table 3. Water Quality Index for Wisconsin Lakes with 2006 Rock Lake Data Indicated (adapted from Lillie and Mason 1983)

Water Quality Index	Secchi Depth (feet)	Chlorophyll a (ug/l)	Total Phosphorus (ug/l)
Excellent	> 19.7	< 1	< 1
Very Good	9.8-19.7 Rock Lake = 14.1	1-5 Rock Lake = 3.97	1-10
Good	6.6-9.8	5-10	10-30 Rock Lake = 14
Fair	4.9-6.6	10-15	30-50
Poor	3.3-4.9	15-30	50-150
Very Poor	< 3.3	> 30	> 150

pH

Hydrogen ion concentrations are measured as pH. Over the years, measurements of Rock Lake's pH have all been on the alkaline side of neutrality (pH of 7). In 1996, the pH in Rock Lake during spring mixing was 8.2, which is significantly higher than the statewide mean of 7.2 pH.

Alkalinity

Alkalinity in a lake is determined by the type of minerals in the soil and bedrock of the watershed, and the water's contact with these minerals. Alkalinity is a measure of calcium carbonate and indicates the buffering or acid neutralizing capacity of water. The mean alkalinity of Rock Lake over 11 years is 190 mg/l and reflects substantial calcium loading to the lake. The statewide mean is much lower at 52 mg/l. Hard water lakes such as Rock Lake tend to produce more fish and aquatic plants than soft water lakes.

Hydraulic Retention Time

The average length of time that it takes for a lake's total water volume to drain from the lake is called hydraulic retention time. Rock Lake's hydraulic retention time is 6.03 years. Residence times of natural lakes are commonly 1-10 years. Though nutrients can stay in the water longer with lakes with longer hydraulic retention times, lakes with long retention times tend to contain lower levels of phosphorus.

Paleoecology

A 169 cm sediment core was taken on Rock Lake on February 20, 1996 at the deepest part of the lake. Sediment cores can provide a historic look at a lake's water quality. Individual sections of the core are dated to determine when sediments were deposited into the lake. Chemical properties, and plant and animal remains in the sediment are analyzed. Diatoms are a type of algae that are made of silicon, a hard substance, and are present in the sediment core through time. Different types of diatoms have different silicon structures and different water quality requirements. Therefore, the types of diatoms present in the lake through time can indicate different water quality regimes. Below is a summary of the sediment core findings:

1830-1840's – European settlement began in the Rock Lake watershed. The sediment core at this time shows increases in aluminum indicating an increase in sedimentation due to establishment of farmland and associated soil erosion. Nutrient levels increased in the lake with more sedimentation causing an increase in algal production. An increase in algae in a marl lake like Rock Lake results in more calcium carbonate precipitated to the sediments; and this was the major cause of the increase sedimentation rate in the lake.

1870's – First significant decline in water clarity as indicated by a decline in the diatoms *Cyclotella michiganiana* and *Cyclotela* sp. 1. The first diatom was the most abundant and grows in the metalimnion of the lake and therefore needs good water clarity.

1880's – Development of moldboard plow increased soil erosion.

1880-1920 – Though soil erosion was increased with the moldboard plow, the sedimentation rate was near pre-settlement levels. This was the result of less calcium carbonate deposition perhaps as a result of decreased oxygen in the bottom waters. During anoxic conditions, the pH is lowered which results in the dissolution of precipitating calcium carbonate.

1880-1930 – The water clarity was good enough to allow good growth of the benthic diatom *Fragilaria*.

1930's – The sedimentation rate began to increase largely as a result of increased soil erosion as indicated by increased accumulation of aluminum. Diatom productivity

began to increase, although nutrient input to the lake only increased slightly. *Cyclotella michiganiana* declines and is replaced by diatoms that typically grow in the surface waters and are indicative of somewhat higher nutrient levels.

After 1945 – Nutrient inputs greatly increased largely as a result of large scale application of commercial fertilizers and increased mechanization of agriculture. With increasing nutrients, algal production continued to increase even though soil erosion was declining. The increase in the diatom *Cyclotella glomerata* is another indication of the increased nutrient levels in the lake. Algal productivity continued to increase until it peaked in the mid-1980's.

After 1985 – Nutrient levels appear to have declined slightly as indicated by the decline in diatom productivity as well as a reduction in nutrient delivery to the sediments. The diatoms also indicate a slight increase in water clarity between 1985 and 1995. This is occurring despite a continued increase in the lake's sedimentation rate. This increased sedimentation rate is the result of increasing delivery of soil particles to the lake as well as increased calcium carbonate precipitation.

Water Quality – Bean, Mud, and Perch Lakes

Though there has not been any long-term data collection on Bean, Mud, and Perch Lakes, their physical characteristics can give some insight into the water quality of each lake.

Lake Type

Lakes are classified according to their water source and type of outflow. Both Rock Lake and Mud Lake are classified as drainage lakes. These types of lakes are fed by streams, groundwater, precipitation and runoff and are drained by a stream. Drainage lakes tend to be high in nutrients and the water quality for the most part is determined by activities in the watershed and the associated runoff. Bean and Perch Lakes are seepage lakes in that they are fed by precipitation, limited runoff, and groundwater, and they do not have a stream outlet. Seepage lakes tend to be acidic, and low in nutrients.

Watershed-to-Lake Ratio

The watershed-to-lake size ratio is used as a measure of the potential nutrient and pollutant loading to a lake from its watershed. If there are two lakes with the same surface acreage but one has a much larger watershed, then there is greater likelihood that the lake with the larger watershed will have more nutrient and pollutant loading from runoff. Runoff occurs when rainwater and snowmelt transport nutrients, sediment, and other pollutants to water. Lakes with watershed-to-lake size ratios greater than 10:1 are known to more often experience water quality problems when compared to lakes with smaller ratios. The watershed-to-lake size ratios for the lakes are as follows: Bean Lake = 25:1, Mud Lake = 56:1, Perch Lake = 13:1, Rock Lake = 7:1.

Stratification

Thermal stratification occurs during the summer in lakes that are more than 20 feet deep. The stratification is characterized by three distinct horizontal layers based on temperature and water densities. The upper layer, called the epilimnion, is characterized by warmer,

lighter surface water. The cold, dense bottom water is called the hypolimnion. Separating these two layers is the thermocline or metalimnion characterized by a temperature gradient.

Lakes that are deep enough to sustain their stratification in the summer typically have two times during the year where the lake water fully mixes: spring and fall. In the fall, the upper water will cool until it is similar to the temperature of the lower layer and mixing will occur. Over the winter, another stratification occurs that is characterized by a water temperature under the ice at about 32 degrees and 39 degrees near the bottom of the lake. Mixing does not occur because the ice shields the water from the wind. In the spring when the ice melts, the temperature and density of the water is consistent which allows the water to mix.

Lake stratification is important because water quality and sustainable fisheries can be impacted by the extent of stratification. During the summer in stratified lakes, algae, plant debris, and other organic material will fall to the bottom of the lake and decay. If the lake produces too much of this organic material, then the decaying process can deplete the oxygen in the hypolimnion causing unsuitable conditions for fish. If the oxygen is totally depleted, then phosphorus bound to sediment particles can be released into the water. Then when the lake mixes in the fall, algae blooms can occur due to the increase of phosphorus.

If a lake does not overproduce algae and plant debris, then the cold waters of the hypolimnion can contain more oxygen than the epilimnion and benefit cold water fish.

By looking at the temperature and dissolved oxygen profiles for Rock Lake throughout the year at the deep part of the lake, it has been determine that Rock Lake is a dimictic lake. This means that the water column stratifies in the summer and completely mixes two times during the year – in the spring and in the fall.

A temperature profile has not been performed on the other 3 lakes in the watershed. Therefore, the degree to which these lakes stratify can be determined by the stratification factor:

$$\text{Stratification Factor} = \frac{\text{Maximum Depth(ft) + 4.5}}{\text{Log of surface area (acres)}}$$

Higher ratios indicate more stratification, with ratios of 13.5 and higher being more strongly stratified. Lake that are more strongly stratified are more sensitive to additional nutrient inputs then lakes that do not sustain stratification. The stratification factors for the lakes are: Bean Lake = 6.9, Mud Lake = 13.4, Perch Lake = 16.5, and Rock Lake = 19.3. It seems unlikely that Perch Lake would sustain stratification throughout the summer because of its shallow depth (maximum 7 feet). Temperature profiles would have to be done to confirm the degree of stratification for Bean, Mud, and Perch Lakes.

Mud Lake

It has been theorized that because Mud Lake is located upstream from Rock Lake, it acts as a sediment trap for Rock Lake. Therefore, less sediment is transported into Rock Lake than would otherwise because of the existence of Mud Lake. Over time, lakes that act as sediment traps reach their capacity and more sediment will be discharged from the lake. In

turn, the water quality of Rock Lake would be affected. The extent of Mud Lake's sediment trapping capacity is not know because sampling of the lake has not occurred in the past.

Lost Lake

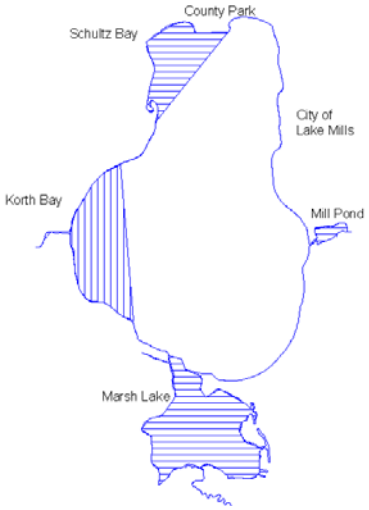
Lost Lake is located west of Shorewood Hills Road and just north of the stream that outlets adjacent to the Town's Miljala Shores Park. This lake is actually technically defined as an emphemeral wetland. Information on Lost Lake is contained in the section on Wetlands contained below.

DNR Designated Sensitive Areas

Defined in Wisconsin Administrative Code Chapter 107, Sensitive Areas are areas of aquatic vegetation identified by the Department of Natural Resources as offering critical or unique fish and wildlife habitat, including seasonal or life-stage requirements, or offering water quality or erosion control benefits to the body of water. There are 4 areas in Rock Lake that were designated by the DNR as sensitive areas: Korth Bay, Schultz Bay, Marsh Lake, and the Mill Pond. These areas are shown in Map 2 and are legally described as follows:

Korth Bay: from T7N R13E Section 10 Lot 43-2 & Lot 43-12 (White Oak Drive) to T7N R13E Section 15 Lot 42-24 & Lot 42-12
Schultz Bay: from T7N R13E Section 2 Lower Rock Lake Park & Lot 33-28 to T7N R13E Section 10 Ferry Park & Lot 41-31
Marsh Lake: entire lake
Mill Pond: entire pond

Map 2. DNR Designated Sensitive Areas in Rock Lake



The sensitive areas in Rock Lake are protected in various ways. Buoys have been placed to delineate their boundaries and to indicat that watercraft cannot travel faster than slow-no-wake speeds within those boundaries. DNR permits also may be necessary for certain activities located in sensitive areas. For instance, the manual removal of nuisance aquatic plants in front of a riparian's property requires a permit in sensitive areas. (Please see more information in the section on aquatic plants.)

Fish

Over the years, 33 fish species have been identified in Rock Lake. This diverse fishery consists of popular panfish and gamefish species, as well as non-sport species. Table 4 lists all the fish found in Rock Lake and their importance to the lake. In the 2005 public opinion survey, respondents preferred to catch walleye, bluegill, largemouth bass, smallmouth bass, and northern pike in that order. Two Special Concern species, the lake chubsucker and least darter, have been found in Rock Lake. However, the lake chubsucker has been absent from fish surveys since 2001. Special Concern species are those species in which some problem of abundance or distribution is suspected but not yet proven. The main purpose of this category is to focus attention on certain species before they become threatened or

Table 4. Fish of Rock Lake

Fish Species	Importance
Rock bass – *Ambloplites rupestris*	incidental panfish catch
Bowfin – *Amia calva*	"living fossil", ecological balance
Goldfish* – *Carassius auratus*	escaped/released pet, destroys habitat
White sucker – *Catostomus commersoni*	gamefish food, major bait species
Common carp* – *Cyprinus carpio*	destroys habitat, under-utilized food
Lake chubsucker – *Erimyzon sucetta*	rare species, biodiversity
Grass pickerel – *Esox americanus*	biodiversity, ecological balance
Northern pike – *Esox lucius*	popular gamefish
Iowa darter – *Etheostoma exile*	gamefish food, biodiversity
Least darter – *Etheostoma microperca*	rare species, biodiversity
Banded killifish – *Fundulus diaphanous*	gamefish food, biodiversity
Blackstripe topminnow – *Fundulus notatus*	gamefish food, biodiversity
Black bullhead – *Ictalurus melas*	common sport fish
Yellow bullhead – *Ictalurus natalis*	common sport fish
Brook silverside – *Labidesthes sicculus*	gamefish food
Longnose gar – *Lepisosteus osseus*	"living fossil", ecological balance
Bluegill – *Lepomis macrochirus*	popular panfish
Pumkinseed sunfish – *Lepomis gibbosus*	popular panfish
Green sunfish – *Lepomis cyanellus*	incidental panfish catch
Smallmouth bass – *Micropterus dolomieui*	popular gamefish
Largemouth bass – *Micropterus salmoides*	popular gamefish
Golden shiner – *Notemigonus crysoleucas*	gamefish food
Pugnose shiner – *Notropis anogenus*	threatened species, biodiversity
Emerald shiner – *Notropis atherinoides*	gamefish food
Blackchin shiner – *Notropis heterodon*	gamefish food
Blacknose shiner – *Notropis heteroloepis*	gamefish food
Mimic shiner – *Notropis volucellus*	gamefish food
Yellow perch – *Perca flavescens*	popular panfish
Bluntnose minnow – *Pimephales notatus*	gamefish food
Fathead minnow – *Pimephales promelas*	gamefish food, major bait species
Black crappie – *Pomoxis nigromaculatus*	popular panfish
Walleye – *Stizostedion vitreum*	popular gamefish, compete with bass
Central mudminnow – *Umbra limi*	gamefish food

*nonnative species

endangered. Rock Lake contains one Threatened Species, the pugnose shiner. Threatened species are those that have a chance of becoming endangered species. The pugnose shiner has been collected during 2005, 2004, and 2003 fall electrofishing surveys.

Bowfin (dogfish) and longnose gar are two fish in the lake that are considered "living fossils." Both species have characteristics found in their 200 million year old relatives, including functional lungs. Besides their historic significance, these fish prey on carp and over populated panfish.

Carp and goldfish are the only non-native species in the lake.

Fish Surveys

Approximately every 5 years, a comprehensive fish survey is performed in Rock Lake. The last one was done in 2000 and the summary report is included in Appendix D.

Fall electrofishing is conduced on an annual basis on Rock Lake. A large boomshocker boat is used in the fall to allow for collection of young-of-the-year (YOY) walleye and adult bass that are often under-sampled by other gear types.

In 1974, near-shore fish seining was done on Rock Lake as part of the Wisconsin Fish Distribution Study. To determine if changes occurred in the population or species mix of near-shore fish, the seining was repeated in 2004 and 2006. The 2006 survey was completed during the same month as the 1974 survey in order to obtain a better comparison. These surveys were done on 13 lakes in southeast Wisconsin. The results of the seining events for Rock Lake are contained in Table 5.

These sampling events identify non-game species and juvenile gamefish that inhabit the shallow zones of the lake. Intolerant species are fish that are more sensitive to environmental changes than popular gamefish. Declines of small darters, topminnows, and minnows can reveal problems in lakes before gamefish growth rates and abundance are affected.

Results of the seining surveys in the 13 lakes reveal statistically significant declines in numbers of both native species and environmentally sensitive nearshore species. Species such as least darters, pugnose shiners, blacknose shiners, and banded killifish are sensitive to aquatic vegetation loss. The decline of blacknose shiners and banded killifish in Rock Lake may reflect aquatic vegetation loss from the cumulative effects from numerous types of development.

In 2004, pugnose shiner, blackchin shiner, and least darter were found in 3 of 12 sampling sites on Rock Lake. All of the 3 sites were located within designated Sensitive Areas. Banded killifish and blacknose shiners have not been found in Rock Lake since 1974.

Table 5. Near-Shore Fish Seining Data for Rock Lake

Species	Designation	May 1974	July 2004	May 2006
Longnose Gar		0	3	0
Golden Shiner		1	1	0
Pugnose Shiner	intolerant, threatened	2	40	3
Emerald Shiner		1	0	0
Blackchin Shiner	intolerant	0	27	14
Blacknose Shiner	intolerant	15	0	0
Mimic Shiner		354*	0	0
Bluntnose Minnow		144	23	30
Black Bullhead		0	3	0
Yellow Bullhead		0	1	0
Tadpole Madtom		0	0	1
Banded Killifish	special concern	5	0	0
Blackstrip Topminnow		3	0	0
Brook Silverside		36	97	1
Northern Pike		0	0	1
Rock Bass	intolerant	4	14	1
Pumpkinseed		16	1	32
Bluegill		102	484* (600)	160* (227)
Smallmouth Bass	intolerant	1	21	1
Largemouth Bass		9	185	35
Black Crappie		0	1	1
Iowa Darter	intolerant	4	115	10
Least Darter	intolerant, special concern	2	7	33
Yellow Perch		60	62	0
Total Species Numbers		17	17	14
Total Fish Collected		759*	1085* (1211)	323* (389)

* In 1974, catch counts for a particular species at a particular site were truncated at 99. An asterisk indicates totals that include one or more truncated counts. In 2004 and 2006, all captured fish were counted but for comparative purposes, totals have been calculated with counts truncated at 99, indicated by an asterisk. The actual 2004 and 2006 totals are given in parentheses.

Fish Stocking

One of the State fish hatcheries is located in Lake Mills. This has been a benefit for Rock Lake not only because stocked fish are not transported long distances, but also because if the hatchery has excess fish, then they are released in Rock Lake. Rock Lake's fish stocking information is contained in Table 6.

In September 2001, there were 11,463 extended-growth walleye fingerlings (6.8 inch average size) stocked into Rock Lake. In the 2002 electrofishing survey, only eight 2-year old walleye were caught. These eight fish potentially represented the 2001 extended-growth walleye that were stocked in Rock Lake. While this is a slight improvement over one and two-year old walleye collected in 2001, the total number of young-of-the-year (YOY) walleye in Rock Lake

is well below the statewide average of 20 YOY per mile of shoreline sampled during fall electrofishing. In 2002, 1.4 YOY walleye per mile were collected, and .48 YOY walleye per mile of shoreline in 2001. Walleye reproduction in Rock Lake continues to struggle, despite the shift from stocking walleye fry and small fingerling walleye to larger, extended-growth fingerlings.

Table 6. Fish Stocking in Rock Lake

Year	Species	Age Class	Number Stocked
1974	walleye	fingerling	105,000
1976	walleye	fingerling	137,280
1977	walleye	fry	3,000,000
1984	largemouth bass	fingerling	1,260
1987	largemouth bass	fingerling	1,170
1989	walleye	fingerling	7,800
1991	walleye	fingerling	50,032
1992	walleye	fry	240,100
1993	yellow perch	fingerling	1,495
	walleye	fingerling	231
1994	walleye	fingerling	76,200
	northern pike	fry	20,000
1995	walleye	fry	176,000
1996	walleye	fry	100,000
	walleye	fingerling	2,912
	yellow perch	fingerling	183
1997	walleye	small fingerling	59,176
	walleye	large fingerling	29,588
1998	walleye	small fingerling	11,340
	northern pike	fry	15,000
1999	walleye	small fingerling	122,351
	walleye	fry	87,400
	northern pike	fry	100,000
2000	walleye	small fingerling	33,217
	walleye	fry	372,000
2001	walleye	small fingerling	2,386
	walleye	large fingerling	11,463
2002	walleye	small fingerling	60,550
2003	walleye	small fingerling	70,362
2004	walleye	small fingerling	32,457
	walleye	fry	520,000
2005	walleye	fry	499,200
2006	walleye	fry	251,600

Fishing

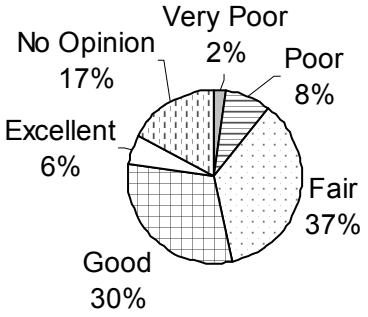
Many anglers enjoy fishing Rock Lake. Fishing tournaments are held on the lake throughout the year. When asked their species preference when fishing on Rock Lake, respondents of the 2005 public opinion survey answered the following with the number of responses in parentheses: walleye (366), bluegill/sunfish (361), largemouth bass (267), smallmouth bass (257), and northern pike (202). (Note: The survey asked for the top 3 choices for species preference and the responses in parentheses correspond to the number of times that a fish was ranked as one of the top three choices.) Table 7 displays the responses for the average size of fish caught in Rock Lake from the 2005 survey. The minimum length required to keep a fish caught in Rock Lake by State fishing regulations is also included in the table.

Table 7. Average Size of Fish Caught in Rock Lake (source: 2005 public survey)

Fish Species	Average Size Caught in Rock Lake (inches)	Minimum Length Allowed to Keep Fish (inches)
Walleye	14.2	15
Bluegill	6.6	none
Largemouth Bass	12.3	14
Smallmouth Bass	11.7	14
Northern Pike	21.9	26

The 2005 survey also asked people how they would rate the quality of fishing on Rock Lake. The majority of respondents considered the fishing quality good or fair (please see Chart 7).

Chart 7. Opinion of Fishing Quality on Rock Lake (source: 2005 public survey)



Fish Kills

In May and June of 2004 and 2005, there were reported fish kills. The cause of the fish kills was a naturally occurring bacterium called columnaris (*Flavobacterium columnare)*. Columnaris is present in lakes and rivers when water temperatures reach 65-70º F. This occurs in Rock Lake in May and early June. The columnaris thrive in the water when rain carries organic matter to the lake. Fish that are undergoing stress due to spawning have a lowered immune system and are affected by the columnaris that will attack the gills. The species that are affected include bluegills, crappies, yellow perch, and bullhead. Though it

may be shocking to see a large number of dead fish, fishery biologists agree that columnaris will not have a detrimental impact on the overall fish population in the lake.

It is important to note that columnaris is not harmful to people. However, when disposing of dead and decaying fish, it is a good idea to wear gloves.

Fish Consumption Advisory

Fish, when prepared properly, provide a source of nutrition that is low in fat and high in protein. But fish can take in contaminants from their environment and these contaminants will be transferred to people if ingested. Wisconsin issues fish consumption advice to reduce people's risk of exposure to these contaminants.

Polychlorinated biphenyls (PCBs) and mercury are the two primary contaminates that drive the fish consumption advisories. Health problems which can result from contaminants found in fish range from subtle effects that are hard to detect, to birth defects and cancer.

The fish consumption advisory for inland Wisconsin waters, including Rock Lake, is listed below.

Women of childbearing years, nursing mothers and all children under 15 may eat:
- 1 meal per week of bluegill, sunfish, black crappie, white crappie, yellow perch, or bullheads, and
- 1 meal per month of walleye, northern pike, smallmouth bass, largemouth bass, channel catfish, flathead catfish, white sucker, drum, burbot, sauger, sturgeion, carp, white bass, rock bass, or other species.
- Muskies should not be eaten by this group of people due to high mercury content.

Women beyond their childbearing years and men may eat:
- Unlimited amounts of bluegill, sunfish, black crappie, white crappie, yellow perch, or bullheads, and
- 1 meal per week of walleye, northern pike, smallmouth bass, largemouth bass, channel catfish, flathead catfish, or other species.

Aquatic Plants

Aquatic plants are an essential part of a lake's ecosystem and vitality. Aquatic plant sampling in Rock Lake has been performed in 1990, 1991, 1996, and 2001 in the main basin of the lake (does not include Marsh Lake). All sampling efforts were conducted by the Department of Natural Resources (DNR) except for the 2001 effort which was conducted by the Jefferson County Land and Water Conservation Department (LWCD). An informal aquatic plant survey in Marsh Lake was conducted in 1992 by the DNR. Table 8 lists the aquatic plants found in the lake as well as their ecological significance.

Table 8. Ecological Significance of Aquatic Plant Species Present in Rock Lake

Aquatic Plant	Plant Type[a]	Native or Exotic	Ecological Significance[b]
Ceratophyllum demersum, coontail	S	N	Good shelter for young fish, supports insects valuable as food for fish and ducklings, and fruit eaten by waterfowl
Chara vulgaris, muskgrass	S	N	Excellent producer of fish food, especially for young trout, bluegill, smallmouth and largemouth bass; food for waterfowl; stabilizes bottom sediments; has softening effect on water by removing lime and carbon dioxide
Elodea canadensis, waterweed	S	N	Shelter and support for insects valuable as fish food, food for muskrats and waterfowl
Isoetes sp., quillwort	S	N	Food for wildlife
Myriophyllum sibericum, northern water milfoil[c]	S	N	Shelter, valuable food producer for fish supporting many insects, roots provide nesting habitat for fish, leaves and fruit eaten by waterfowl
Myriophyllum spicatum, Eurasian water milfoil	S	E	Waterfowl eat fruit and leaves to a limited extent, habitat for insects but not as good as other plants
Najas flexilis, bushy pondweed	S	N	Food for waterfowl, some marsh birds, and muskrats; cover for young largemouth bass, northern pike, small bluegills, and perch; food for fish
Najas marina, spiny naiad	S	N	Good food and shelter for fish and food for ducks
Nitella sp., stonewort	S	N	Good food and cover for fish, sometimes eaten by waterfowl
Nuphar variegata, spatterdock	FL	N	Leaves, stems, and flowers are eaten by deer; roots eaten by beaver and porcupine; seeds eaten by wildfowl; leaves provide harbor to insects; shade and shelter for fish
Nymphaea tuberose or *odorata,* white water lily	FL	N	Shade and shelter for fish; seeds eaten by waterfowl; rootstocks and stalks eaten by muskrat; roots eaten by beaver, deer, moose, and porcupine
Potamogeton crispus, curly-leaf pondweed	S	E	Food, shelter, and shade for some fish, food for wildfowl, habitat for invertebrates
Potamogeton gramineus, variable pondweed	S	N	Cover for panfish, largemouth bass, and northern pike; bluegills nest near them and eat insects on leaves; supports insects valuable as food for fish and ducklings; fruit and tubers eaten by waterfowl
Potamogeton illinoensis, Illinois pondweed	S	N	Cover for panfish, largemouth bass, and northern pike; nesting grounds for bluegill; supports insects valuable as food for fish and ducklings; fruit eaten by ducks and geese
Potamogeton natans, floating-leaf pondweed	S	N	Food for trout and wildfowl, fruit eaten by ducks and geese, shade and foraging opportunities for fish
Potamogeton pectinatus, sago pondweed	S	N	Most important pondweed for ducks, food and shelter for young fish, fruit and tubers are critical food for migrating waterfowl
Potamogeton praelongus, white-stemmed pondweed	S	N	Food for ducks and geese
Potamogeton pusillus, small pondweed	S	N	Food for ducks and geese, food and shelter for fish
Potamogeton richardsonii, Richardson's pondweed, clasping-leaf pondweed	S	N	Cover for panfish, largemouth bass, and northern pike; bluegills nest near them and eat insects on leaves; supports insects valuable as food for fish, ducklings, and geese

Aquatic Plant	Plant Type[a]	Native or Exotic	Ecological Significance[b]
Potamogeton zosteriformis, flat-stemmed pondweed	S	N	Some cover for bluegills, perch, and northern pike; food for waterfowl; supports insects valuable as food for fish and ducklings
Ranunculus aquatilis and *flabellaris*, water buttercup[c]	S	N	Fruit and foliage eaten by waterfowl, habitat for invertebrates
Sagittaria latifolia, arrowhead[c]	E	N	Tubers eaten by migrating waterfowl; seed eaten by ducks, geese, marsh birds, and shorebirds; shade and shelter for young fish
Scirpus acutus, hardstem bulrush	E	N	Habitat for insects; shelter for young fish, especially northern pike; nutlets food for waterfowl, marsh birds, and upland birds; stems and rhizomes eaten by geese and muskratsl; nesting material and cover for waterfowl, marsh birds, and muskrats
Typha angustifolia, narrow-leaved cattail[c]	E	N	Supports insects; stalks and roots important food for muskrat and beaver; attracts marsh birds, wildfowl and songbirds; spawning grounds for sunfish; shelter for young fish; habitat for marsh birds
Typha latifolia, broad-leaved cattail[c]	E	N	Nesting habitat for marsh birds, spawning habitat and shelter for fish, habitat for invertebrates, shoots and rhizomes eaten by muskrats and geese
Utricularia vulgaris, bladderwort	FF	N	Good food and cover for fish
Vallisneria americana, wild celery or eel grass	S	N	Good shade, shelter, and food for fish; supports insects; food for waterfowl, especially canvasback ducks, marsh birds, and shore birds

[a] Plant type codes: S = submerged, FL = floating leaf, E = emergent, FF = free floating

[b] Information obtained from "A Manual of Aquatic Plants" by Norman C. Fassett, "A Guide to Wisconsin Aquatic Plants" by Wisconsin Department of Natural Resources, and "Through the Looking Glass: A Guide to Aquatic Plants" by Wisconsin Lake Partnership.

[c] Present in the lake but not recorded in an aquatic plant survey.

Hardstem bulrush sampling in Korth Bay was performed in 1998 by the DNR and in 2002 by the DNR and the LWCD. The average stem density for the bulrush bed was determined to be 3 stems per square meter in 1998 and 3.4 stems per square meter in 2002. The 2002 survey included a delineation of the circumference of the bulrush bed using GPS so that it can be determined if the size of the entire bed changes in the future.

Upon completion of the 2001 aquatic plant sampling, the Land and Water Conservation Department prepared a report entitled "Rock Lake: Aquatic Plant Inventory and Management Plan." This report should be consulted for more detailed information than is contained in this lake management plan.

Looking at the data trends, the plant communities in the lake have been somewhat diverse throughout the years. In 2001 the diversity increased slightly to seven aquatic plant communities – one more community compared with previous years. Over the 10-year period of record, the distribution of the plants has become less uniform. This shift is likely due to changes occurring within the aquatic plant community, as the mean density of aquatic plants

has increased over this period. Comparing the data from the 2001 survey to those data acquired during the previous surveys conducted indicates that aquatic plants in Rock Lake have become more abundant.

The majority of respondents to the 2005 public survey think that the aquatic plant growth in Rock Lake is moderate (48.1%) when given the choice between light, moderate, heavy, dense, choked, or no opinion.

Eurasian Water Milfoil

Eurasian water milfoil, sago pondweed, and wild celery all appear to have increased in relative frequency of occurrence. The increase in Eurasian water milfoil is a concern because this exotic species can threaten the diversity of the aquatic plant community in the lake. It tends to crowd out native aquatic plant species so that there is a monoculture of Eurasian water milfoil and a reduction in the diversity of plants in a lake. Milfoil in dense stands can provide a refuge for panfish and thus interferes with predator-prey interactions. The results can be over-populated, slow growing panfish and slow growing gamefish. Dense stands of milfoil can also hinder the movement of larger fish. In addition, milfoil can adversely effect recreational uses by hindering boating, swimming and fishing and impair the aesthetic quality of the lake.

Each aquatic plant survey in Rock Lake has recorded the presence of Eurasian water milfoil. The growth of the milfoil has predominantly been in the deeper waters of 9-15 feet in depth. The trend has been toward increasing abundance of the milfoil in the lake. At the same time, the diversity of native plants has remained mostly constant and the abundance of native plants has increased. So, the milfoil does not seem to be causing a reduction of native species.

Eurasian water milfoil mainly reproduces via plant fragments that are separated from the main plant naturally or augmented by boat propellers. Riparians who cut or rake aquatic plants in front of their lots may also disperse plant fragments. These cleared areas more likely than not will be re-vegetated by Eurasian water milfoil. (Please see section on aquatic plant laws below.)

In the past couple of years, there has been some boat passage issues associated with Eurasian water milfoil in the area near the channel inlet in Korth Bay. It is theorized that this increase in growth may be due to the nutrient transport from the stream/channel into the lake with sediment during rain storms.

A summary of advantages and disadvantages of Eurasian water milfoil control options is contained in Table 9.

Table 9. Advantages and Disadvantages of Eurasian Water Milfoil Control Options

Manual Control	
Advantages	**Disadvantages**
- usually very simple and inexpensive - immediate removal of plants and associated nutrients - improves recreational access	- labor and time intensive - disposal of plants is required - only suitable for small areas - multiple treatments throughout the growing season are required - desired species may be removed - potentially can remove beneficial animals - can disturb bottom sediments - treated areas are prone to the establishment of invasive species
Mechanical Harvesting	
Advantages	**Disadvantages**
- immediate removal of plants and associated nutrients - cuts plants within 5 feet of surface, thus improving recreational access - some species selectivity if timing and location of cutting is done correctly - reduces the potential for floating plant debris caused by motors	- short-term control because plants continue to grow (not as effective on fast-growing plants) - multiple treatments throughout the growing season are required - disposal of plants is required - uncollected plants will re-root in other areas - desired species may be removed also - may benefit disturbance-tolerant species - potentially can remove beneficial animals - can disturb shallow sediments – and should only be performed in depths greater than 3-5 feet - high initial cost for acquiring the equipment - yearly costs for equipment maintenance, storage, insurance, labor, etc.
Chemical Control	
Advantages	**Disadvantages**
- some herbicides can be species specific to some extent - proper timing can result in good effectiveness and reduced side effects - proper doses will generally not result in fish toxicity - treatment of large areas in small amount of time	- plants differ in their susceptibility to chemicals - generally, application must be repeated either seasonally or annually - chemical drift can cause damage to desired species - plants are not removed, and their decomposition may result in depleted dissolved oxygen, nutrient release, and silt accumulation - long-term risks of some chemicals are not known - some water activities may be restricted following a chemical application - treated areas are prone to the establishment of invasive species

In terms of biological control, there is a native milfoil weevil (*Euhrychiopsis lecontei*) that might adversely influence the growth of Eurasian water milfoil. This insect has been shown

to actually prefer Eurasian water milfoil over native milfoil plants. It burrows inside the milfoil stem and damages the plant causing it to collapse and die. Research has shown that the milfoil weevil is effective at some sites, but ineffective at other sites. Unfortunately, the research is not refined enough to predict when, where, and how weevils will be effective at controlling Eurasian water milfoil.

Rock Lake is known to have a native population of milfoil weevils. A few of the important factors to a healthy population of weevils are adequate over-wintering habitat (natural shoreline vegetation, not lawns), low predation pressure, and abundant food. Sunfish have been shown to include milfoil weevils as a part of their diet. Rock Lake has a population of pumpkinseed which is a sunfish. If weevil densities in the lake are low, then predation would probably be a significant limiting factor to the insect's population. Alternatively, if weevil densities are moderate or high, then sunfish would have little effect on the populations. Finally, milfoil populations and distribution throughout the lake may impact the number of weevils present in the lake. Some biological control of the Eurasian water milfoil by the native milfoil weevil might already be happening in Rock Lake. However, it might be beneficial to release more native weevils.

At this time, the opinion of the Department of Natural Resources and the Jefferson County Land and Water Conservation Department is that the Eurasian water milfoil population is not at a point where mechanical and chemical control techniques are warranted. Diversity and abundance of aquatic plants have increased – so the milfoil doesn't seem to be "crowding out" other species. In addition, it is thought that *Chara vulgaris* (muskgrass) may be preventing the milfoil from expanding because *Chara* grows in a dense mat on the lake bed.

As long as the diversity of the aquatic plants in Rock Lake remains high, mechanical harvesting of Eurasian water milfoil should not be considered. There is too much risk of making the problem worse with this technique since cut plants that are not collected can spread to new locations.

In the future, chemical treatment should not be undertaken in Rock Lake unless the following circumstances are met:

- there is no other management alternative
- treatment will not result in the loss of native species
- it can be shown that chemical treatment will result in an improvement to the aquatic ecosystem
- recreational uses are significantly hampered by the nuisance species

Even if chemical treatment is used in the future, chemical treatments should not be undertaken in designated sensitive areas.

Curly-Leaf Pondweed

Curly-leaf pondweed is another exotic species found in Rock Lake. It was first found during the 2001 aquatic plant survey, but only at one sampling point out of 132. It was found in Shultz Bay which is just west of the north end boat launch. Because curly-leaf pondweed dies back in mid-July, future plant surveys should be done before the middle of July.

Curly-leaf pondweed actually grows under the ice and starts growing its spring and summer foliage in May. Because of this growth pattern, curly-leaf pondweed provides habitat for fish and insects in the winter and spring – a time when other plants are dormant. However, when curly-leaf pondweed dies-off in mid-July, it creates a sudden loss of habitat. When it dies off it can also cause algal blooms and turbid water conditions. In addition, curly leaf pondweed interferes with recreational activities in the spring because it grows to the surface.

Aquatic Plant Laws

The Department of Natural Resources regulates the removal of aquatic plants through chemical, mechanical, biological, and some manual means. Approved chemicals can be applied to control nuisance aquatic plants but only after obtaining a permit. The DNR has not been approving the use of chemicals in Rock Lake because of its good water quality and diversity of aquatic plants.

Mechanical harvesting of nuisance plants requires a permit from the DNR. This activity includes the use of a harvesting machine designed specifically to cut plants or use of mechanical means to cut or remove plants from the water. An aquatic plant management plan that sets out a plan for mechanical harvesting is more than likely a requirment before such a permit will be considered.

A DNR permit is not required for manual cutting and raking (no external or auxiliary power can be used) if the area of plant removal is a single area with a maximum width of no more than 30 feet along the shoreline and the area is not in a designated sensitive area. Any piers, boatlifts, swim rafts, and other recreational and water use devices must be located within that 30 feet. All cut plants must be removed from the water. A permit is required if the plant removal area is more than 30 feet wide along the shoreline or the area is within a designated sensitive area. People living in one of the designated sensitive areas in the lake (Korth Bay, Shultz Bay, Mill Pond, Marsh Lake) are required to obtain a permit for manual aquatic plant removal.

In some cases, there are biological controls for the control of exotic invasive species. A DNR permit is necessary for this means of control.

In 2001, a law was passed in Wisconsin that makes it illegal to launch boats or boating equipment or trailers in navigable water that has aquatic plants or zebra mussels attached. Boaters must remove all aquatic plants and zebra mussels from their boat, trailer, and boating equipment. This includes draining water from live wells, bilges, and bait wells, as well as disposing of leftover bait in the trash. The fine for first time violations are $200, and fines for a second violation can be $700 to $2,000 or include jail time.

The DNR should be consulted about permit requirements if aquatic plants are planted in Rock Lake.

Wetlands

There are approximately 1,950 acres of wetlands representing 25% of the land uses in the Rock Lake watershed (Map 1). Much of this acreage is owned by the Department of Natural Resources. Three features define a wetland: hydrology (water is present either at the surface or within the root zone), soil (there are certain classification of wetland soils), and vegetation (plants adapted to permanent or semi-permanent wet conditions). The wetland communities in the watershed include tamarack swamp, shrub carr (mostly tall shrubs), sedge meadow (more than ½ the community is sedges rather than grasses), calcareous fen (shrub-herb community on a wet and springy site with an internal flow of alkaline water), and shallow marsh.

Wetlands have many functions that contribute many ecological, social, and economic benefits.

- Filter pollutants, nutrients, and sediment from water before it enters the lake
- Store runoff to reduce flood potential and damage
- Provide habitat (feeding, breeding, resting, nesting, escape cover, and travel corridors for many animals) and spawning ground for fish
- Protect shorelands from erosion
- Recharge and discharge of groundwater
- Aesthetics, recreation, education, and science

The majority of the wetlands are south of Rock Lake. Because of their location in the watershed, the wetlands act as a filter for the water entering the lake. Degradation or reduction of the wetlands could very likely cause a negative impact on Rock Lake. There has not been any assessment to determine the state of the wetlands in the Rock Lake watershed.

There is a wetland complex that is west of Rock Lake that includes an ephemeral wetland known as “Lost Lake.” An ephemeral wetland typically holds water in the spring and early summer and is dry in mid to late summer. Because of this water regime, this type of wetland does not contain fish and is a highly important habitat for amphibians, reptiles, and migrating waterfowl. Because these species also rely on upland areas, the land surrounding ephemeral wetlands are important to protect.

In the past few years, there have been approximately 5 acres of wetlands in the watershed restored through federal and state funding programs. Out of these 5 acres, 3.5 acres are located on private land and 1.5 acres are located at Korth Park. An additional wetland restoration at Korth Park is planned in the future near the stream that discharges to Rock Lake near Cedar Lane. In addition, a farm on Mud Lake Road has a contract through the federal Wetland Reserve Program to convert 125 acres of cropland into wetland acres. This area is adjacent to the large wetlands complex south of the lake.

Wetland Laws

There are federal, state, and local laws that protect wetlands.

- Section 404 of the Clean Water Act requires a permit from the U.S. Army Corps of Engineers for the discharge of dredge and fill materials into wetlands. There are some exemptions including farming activities.
- Wisconsin has what is called "Water Quality Certification" of 404 permits. This certification enables the state to determine if the proposed activities violates state water quality standards; and in essence gives the state veto authority over 404 permits.
- Wisconsin has water quality standards for wetlands under Administrative Code NR 103. The DNR will determine if a proposed project will impact wetlands and decide whether the project should be permitted or not. The 4 main steps in the NR103 process include the following questions: 1) Will the project affect a wetland? 2) Is the proposed activity wetland dependent? 3) Does a practicable alternative exist? 4) Will the project have significant adverse impacts on wetland functional values?
- Counties, villages, and cities in Wisconsin are required by state law to regulate activities in shoreland wetlands. Towns may also choose to regulate activities. The wetlands that are covered are on the Wisconsin Wetland Inventory map (usually wetlands 5 acres or more); and are within 1,000 feet of a navigable lake or pond and within 300 feet of a navigable river or stream or to the landward side of the floodplain, whichever distance is greater.

The local regulations include the following permitted uses: hiking, fishing, trapping, hunting, swimming, and boating; harvesting of wild crops; silviculture; pasturing of livestock; cultivation of agricultural crops; construction and maintenance of duck blinds; construction and maintenance of certain non-residential buildings; construction and maintenance of piers, docks, walkways provided that no filling, flooding, dredging, draining, ditching, or excavating is done; establishment and development of public and private parks, recreational areas and boat access sites; construction of electric, gas, or other utility lines; construction and maintenance of railroad lines; and maintenance and repair of existing town and county highways and bridges.

Local governments must adopt the minimum standards, but can choose to be more restrictive than the state. Jefferson Country requires the issuance of a zoning permit for the construction and maintenance of roads for silviculture activities; construction and maintenance of nonresidential buildings used solely for raising waterfowl, minnows, or other wetland or aquatic animals, or used solely for another purpose which is compatible with wetland preservation; establishment and development of public and private parks and recreation areas; construction and maintenance of utility lines and related facilities; and the construction and maintenance of railroad lines.

For proposed developments that have not been platted, the Jefferson County Zoning Department requires a 75 foot building setback from wetlands.

Biodiversity

From "Rock Lake Priority Lake Project Water Resources Appraisal", July 1997, Department of Natural Resources:

"The representative fish and aquatic plant species….comprise only a small fraction of the plant and animal communities that reside in the Rock Lake Watershed. The watershed includes a variety of aquatic and riparian habitats and species adapted to them. In Rock Lake alone, fish depend upon the complex food web including freshwater mussels, crustaceans, micro-crustaceans, aquatic insects, plants, waterfowl, and heptiles."

"To the scientist, biodiversity means the entire spectrum of life forms and the many ecological processes that support them. For many people, biodiversity is not a scientific concept but rather a part of the lake experience. Gazing at schools of minnows, basking turtles, leaping frogs or hovering dragonflies are examples of appreciating the rich diversity of healthy lakes."

"Within both publicly owned lands and some relatively undisturbed privately owned parcels are some unique and scarce habitats that support Rock Lake Watershed's rich biodiversity… Some of the interesting plants that the complex wetlands support include grass-of-parnassus, Ohio goldenrod, lesser fringed gentian, small white lady's slipper, small yellow lady's slipper, showy lady's slipper, and fen betony. Herptiles that can be found in the watershed include:

- Turtles: spiny softshell, painted, Blanding's (a threatened species), musk, snapping
- Frogs and toads: northern leopard, green, bull, spring peeper, chorus, Blanchard's cricket, and Eastern American toad
- Salamanders: mudpuppy, central newt, and tiger
- Snakes: Northern water, brown, garter, bull, Eastern milk, smooth green, queen, and Northern redbelly."

"Public ownership of lands is one of the reasons that the watershed still supports diverse and rare species. However, rapid development of the Rock Lake shoreline and encroachment around the natural areas are stressing our ability to protect biodiversity. Many herptile species are dependent on undisturbed riparian areas. Extensive piers, seawalls and riprap destroy nearshore habitat and interrupt the links between terrestrial and aquatic ecosystems. Intense development beyond the shores and wetlands will also affect migrating heptiles, such as the Threatened Blanding's Turtle."

Invasive and Exotic Species

Invasive and exotic species often pose threats to the biodiversity of a lake and its watershed. The invasive fish and aquatic plant species were discussed in previous sections. A discussion of other invasive and exotic species is contained below. For laws related to the launching of boats and trailers containing invasive species, please see the section on Aquatic Plant Laws.

Zebra Mussels

Zebra mussels are exotic species that spread to uninfested waters by hitching a ride on boats and boat trailers, or in livewells or bait buckets from infested waters. They can live for 3 days out of water. One female mussel can produce up to 1 million eggs each season.

Zebra mussels have infested many inland waters in Wisconsin, including 3 of the 5 counties that border Jefferson County: Dane County, Walworth County, and Waukesha County. In

June of 2002, the Jefferson County Land and Water Conservation Department (LWCD) and the Department of Natural Resources (DNR) conducted a zebra mussel survey at the north end boat launch and at a location on the east side of the lake. No zebra mussels were found. However, zebra mussels were confirmed to be in Rock Lake in the spring of 2005.

In 2005, zebra mussel samplers were put in the lake to document the rate of infestation. The samplers were also placed in 2006. The DNR counts the zebra mussels on the samplers as well as determining the age classes of the mussels. This is done so that comparisons of the zebra mussel population in Rock Lake can be made from year to year.

Zebra mussels form dense clusters that attach to hard surfaces including piers, boats, and water intakes. There are at least 3 pipes in Rock Lake that could be impacted by zebra mussels: "dry" fire hydrants at the north end and Elm Point boat launches, and the water intake used by the DNR fish hatchery. Zebra mussels can decimate native mussel and crayfish populations because the zebra mussels attach to them, and the native species cannot carry the extra weight. Though zebra mussels are effective filter feeders of algae, they prefer "eating" the good algae, and do not "eat" blue-green algae that can produce toxins harmful to people and animals. So, the mussels can actually cause a worsening of harmful algal blooms. They also upset the food-chain because they will "eat" algae – so zooplankton have less algae to eat, causing there to be less zooplankton for the small near-shore fish to eat, causing there to be less small near-shore fish for the game fish to eat. Zebra mussels can also decrease the oxygen that fish and other aquatic species need. Their sharp shells can cut the feet of beach walkers and swimmers.

To prevent the spread of zebra mussels and other invasive aquatic species, people should take the following steps before moving boats or equipment to a new water body:

- Inspect and remove plants, animals and mud from boat, trailer and equipment.
- Drain all water from boat's live wells, bilge, motor, etc.
- Dispose of unused bait in the trash, not in the water.
- Spray/rinse the boat and equipment with high pressure and/or hot water (especially if moored for more than a day); or dry the boat and equipment thoroughly for five days.

Rusty Crayfish

Rusty crayfish are native to some Great Lakes states, but invaded Wisconsin waters probably through the use of fishing bait. They are an aggressive species that can displace native crayfish. They reduce aquatic plant abundance and species diversity. In addition, they eat benthic invertebrates, reducing the population for fish consumption.

Rusty crayfish have been found in Rock Lake. However, the level of their population in the lake and their effect on native species is not known.

Canada Geese

Canada geese are native to Wisconsin but have become an invasive species because they have stopped migrating. They access shoreland areas that have short grasses to eat and because they like to graze in areas where they have clear sight of predators. The geese start

reproducing at 2 or 3 years of age, live over 10 years, and raise an average of 4 young per year.

Canada geese droppings are not only a nuisance to people, but they can add nutrients to the lake. Other problems associated with large numbers of Canada geese include overgrazing of grass and ornamental plants, attacks on humans by aggressive birds, and the pollution of beaches, lawns, and golf courses.

The Rock Lake Improvement Association, in association with the Fish Hatchery, DNR wildlife biologist, and the City of Lake Mills Parks Department, organizes a count of the Canada geese in the Rock Lake area. The count is done during the molting period when the birds are flightless. The results of these counts are given in Table 10. The areas where counts are performed include the golf course, fish hatchery, Topel's Trailer Park and driving range, Korth Park, Elm Point, Sandhill Station parkland, Ferry Park, Schultz's Bay, Lower Rock Lake Park, Sandy Beach, Bartel's Beach, the Millpond, and Tyranena Park. The land adjacent to the old Planar building on Tyranena Park Road was added to the survey in 2006. It should be noted that there are many areas that are not currently included in the survey that are either inaccessible wetlands, or have not yet been identified as a significant molting area for the birds.

Table 10. Canada Geese Population Counts

Year	Canada Geese Counted
2002	347
2003	363
2004	449
2005	263
2006	362

The majority of the molting geese have been counted at the DNR Fish Hatchery. In 2004, the counted population numbers (449 birds) translate to an estimated 138 pounds of nitrogen and 42 pounds of phosphorus deposited directly into the water.

Purple Loosestrife

Purple loosestrife is an exotic plant species that is 3-7 feet tall and grows in wetlands, along shorelines and roadsides, and in other moist areas. It spreads mainly by seeds – a single plant can produce 100,000-300,000 seeds per year. Purple loosestrife crowds out native species creating dense stands of plants reducing habitat available for wildlife. The presence of purple loosestrife in the Rock Lake watershed has not been reported.

Garlic Mustard

Garlic mustard is an exotic, invasive plant that is found in wooded or shaded areas throughout the Rock Lake watershed. It displaces native woodland species, reduces the diversity of the habitat, and can cause long term degradation of wooded areas by shading out

tree and shrub seedlings. Seeds can be spread by animals, and through human contact as the seeds can be carried on the soles of shoes.

Hand pulling of garlic mustard can be effective for small infestations. This control method must be done every year for several years because the seeds may stay in the soil for as long as 7 years. Pulled plants should either be burned or buried deep enough to prevent re-sprouting because seeds can be produced even after the plants are pulled. Severe infestation can be controlled using herbicides.

The annual Rock Lake Clean-up (organized by the RLIA) added the pulling of garlic mustard in 2005 along with the collection of trash. This effort is concentrated in public parks around the lake.

Other Species

Other terrestrial invasive plants found in the watershed include honey suckle, buckthorn, and box elder.

FACTORS IMPACTING ROCK LAKE AND ITS WATERSHED

Water Levels

Rock Lake is a natural drainage lake – there are a few inlets and one outlet. In 1865, a mill dam was constructed for the purposes of hydraulic power production. This mill ceased operation in 1933 and the mill property was sold to the City of Lake Mills in 1935. In 1940, the location of the dam was moved to the outlet of the millpond where it remains today. Over the years, there were some minor changes made to minimum and maximum water levels for different times of the year. The water levels were determined by the Department of Natural Resources (DNR) who took into account fish management, recreation, and shoreline erosion.

The dam is owned by the City of Lake Mills who is responsible for following the water level orders set by the Department of Natural Resources. Water levels in place for the dam are contained in Table 11.

Table 11. Water Level Orders for Rock Lake

Season	Minimum/Maximum	Median
November 1 to Spring breakup	minimum = 827.25 ft. maximum = 827.50 ft.	median = 827.38 ft.
Spring breakup to May 1	minimum = 827.25 ft. maximum = 827.63 ft.	median = 827.44 ft.
May 2 to September 15	minimum = 828.03 ft. maximum = 828.33 ft.	median = 828.18 ft.
September 15 to October 31	minimum = 827.25 ft. maximum = 827.63 ft.	median = 827.44 ft.

The water level gage is mounted on the concrete on the north side of the dam.

The dam consists of 5 boards that are each about 4 feet long and 6 inches wide. The bottom board is not taken out because it is too hard to extract it due to the force of the water. That bottom board sits in a concrete base so that about 3 inches of the board is in the water path. Therefore, there are 27 inches of restricted flow by the boards in the dam. Besides the dam, the other water flow confinement is the culvert that is just downstream from the dam. This culvert is 4 feet in diameter.

There is a grate, or trash rack, located just upstream of the dam that blocks debris from flowing through the dam structure. The debris is scheduled to be cleaned out every week day by the City of Lake Mills. Debris in front of the dam has been shown to significantly hinder the water flow through the dam. In the spring of 2005, debris was documented on one day to extend out 8 to 10 feet into the millpond. The height of the water flowing over the boards of the dam was 12 inches. After the debris was removed later that same day, the water level flowing over the boards was 19 inches. Therefore, the debris was holding back 7 inches of water flow.

Besides the seasonal water levels, the DNR Order also stipulates the following:

- A minimum discharge of 0.13 cubic feet per second shall be passed by the dam at all times.
- The City shall request approval from the DNR to draw down the lake below minimum established levels during periods of prolonged drought in order to meet waste load assimilation needs of the downstream sewerage treatment plant and provide for fish and aquatic life.
- The City shall keep a daily record of water levels and make such information available to the DNR upon request.

The water level regime of the lake set by the DNR generally mimics what the levels would be if there was no dam: lows in the winter, rising levels in the spring, diminishing levels in the fall. However, there are a couple distinct differences – the natural levels would not be as high without the dam; and the natural levels would have more variation and from time to time would have much more drastic highs and lows.

The reasoning for the seasonal water level regime is as follows:

Winter Levels: Levels are kept at their lowest. High water levels result in more shoreline erosion caused by ice push. Ice push occurs when portions of the ice melts and then re-freezes and result in a horizontal expansion of the ice. In addition, ice push occurs when the ice starts to come off the lake, and the wind pushes the ice into the bank.

Spring Levels: Levels are raised to benefit fish spawning and to be a transition between winter and summer levels. The water level is lower than the summer level to provide some storage of spring runoff.

Summer Levels: High water levels on Rock Lake increase erosion and the nutrients in the lake leading to lower water quality. The level of the water enables boaters to access Rock Lake from Topels Court in Marsh Lake and from the shallow bays and channels.

The DNR has communicated to the City of Lake Mills information and suggestions on managing the dam. These comments are included below.

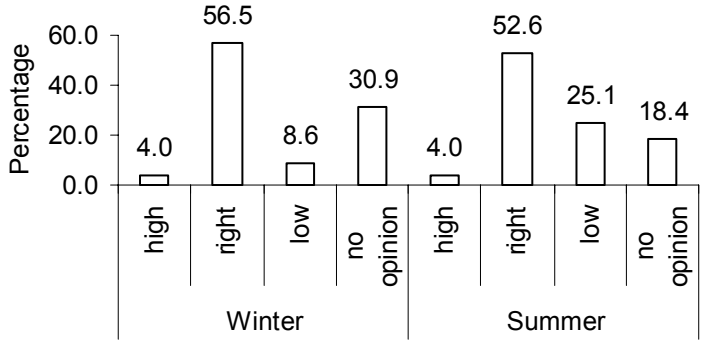
- The dam has a very small capacity compared to the size of the lake. Therefore, the City should maintain the water level at the median of the allowable range (please see Table 11).
- The lake is about 1,370 acres in size. One inch of lake water is about 5 million cubic feet. The dam, if fully open, can pass about 160 cubic feet per second. Therefore it takes about 9 hours with all boards out of the dam to lower the lake one inch. This calculation does not take into account precipitation, runoff from the watershed, or groundwater flow. Therefore, draining off one inch from the lake after a one inch rainfall will take longer than 9 hours.
- If the lake is within the allowable range and it is raining, then several boards should be pulled. If the lake level continues to go up during the rain, even a half an inch, more boards should be pulled. The goal is to not have the lake rise.

- If the lake is above the allowable maximum, **all** boards **must** be pulled from the dam to lower the water within range. If the lake comes back into range, a few boards should be replaced. As the lake level approaches the target level, more boards should be replaced.
- The dam cannot be operated to decrease the flow downstream to help the fish hatchery when they drain their ponds if the Rock Lake water level is not within the ordered water levels.
- It is better for Rock Creek to have a more constant flow than to open the dam fully then close it quickly. It is important to gradually replace boards in the dam to create a more natural flow in Rock Creek.
- The flow through the dam should never be fully shut off. This is a state requirement for all dams. In Lake Mills, the requirement to have a minimum of 0.13 cubic feet per second pass through the dam is needed both by the aquatic life in the creek and the City's wastewater treatment plant. [Note: With the current condition of the dam, there is water that flows in between the boards in the dam.]

As stated above, the DNR order includes a requirement of the City of Lake Mills to keep a daily log of the water levels at the dam. In March of 2006, the City of Lake Mills provided its log book from January of 2000 through March 2006. Daily recordings of the water levels were not being done during that time frame. However, changes to the City personnel managing the dam will likely result in improvement of the daily record. As of the summer of 2006, the Parks Department is responsible for taking measurements and controlling the number of boards in the dam.

In the public survey of 2005, one question asked people to describe the level of the lake in the winter and in the summer. The majority of respondents think that the water levels in the winter and summer are "about right" (see Chart 8). In a 1994 survey with far fewer respondents, the results were very similar with the majority thinking that water levels were "about right" in the winter and summer.

Chart 8. Opinions on Winter and Summer Water Levels (source: 2005 public survey)



Change in DNR Operating Orders

There are some people who have voiced concerns that the water level regime set by the DNR is not appropriate. Sue Josheff, the DNR Water Regulations and Zoning Engineer, has

commented on what would be involved in re-assessing the water level regime and perhaps proposing a new one:

"This is an extensive process. An Environmental Assessment (EA) is required. In another lake level case, we required the 'applicant' to do an Environmental Impact Report which was essentially the same as the EA and submit it to us. It was to address the hydrologic and hydraulic issues, wetland and upland effects, effects on private property, and what is gained and lost from an environmental view. We wouldn't even get involved unless there was broad consensus on this issue."

Condition of Dam

In March of 2000, the DNR Rock River Basin Engineer sent a letter to the City of Lake Mills with the following statement on the condition of the dam:

"The dam is 60 years old and is starting to show some structure problems. The retaining walls on the lake are cracked and leaning, and are probably not 'repairable'. You may want to start planning and budgeting for future major repairs to the dam."

At an August 2001 meeting of the Joint Rock Lake Committee, the DNR stated that the dam was in fair shape and should last at least 5 to 10 years more. The dam has not been officially inspected since 1986.

Nonpoint Source Pollution

Nonpoint source pollution is defined as pollution that enters water bodies via overland flow from areas including lawns, streets, paved areas, rooftops, and farm fields. As water flows over land, it picks up nutrients, sediment, salt, pesticides, fertilizers, oil, grease, leaves, litter, and many other pollutants. Stormwater discharges into Rock Lake via a pipe are also considered nonpoint source pollution because the water and pollutants are carried from a wide area that cannot be traced to a single point or source.

Pollutants delivered to water bodies have several different detrimental effects. Sediment will initially make the water cloudy or turbid which affects the aesthetics of the water as well as the survival of fish and various aquatic plants. For instance, sediment can scour the gills of fish, impairing their respiration. Once the sediment settles out, it can cover fish eggs and cause them not to survive. When phosphorus is delivered to water, the growth of algae and aquatic plants in the lake will increase. Algae and aquatic plants are important in providing food and habitat for fish and wildlife. However, rapid and excessive growth of algae and aquatic plants can deteriorate water quality and impair recreational enjoyment.

Rock Lake was chosen to be a Priority Lake Project by the DNR in 1995. The Department of Natural Resources funded project staffing and cost-sharing through 2004. The goals of the project were to reduce nonpoint source pollution through the implementation of conservation practices, and preserve and restore important habitats necessary to sustain biodiversity, rare nongame species, and sport fish production.

The Rock Lake Priority Lake Project was established because the lake is considered one of the best lake resources in south central Wisconsin. The good quality of Rock Lake's water is due in large part to both the large expanse of wetlands in the watershed and the marl (calcium carbonate) in the bottom sediments of the lake. The wetlands act as nutrient and pollutant filters for Rock Lake. The marl binds with phosphorus so that it is not released from the bottom sediments. The presence of this marl means that internal phosphorus releases from the sediments is not a concern (please see more information in the water quality section of the report). Instead, any increases in the phosphorus levels in Rock Lake are due to external inputs. Phosphorus is delivered to Rock Lake from runoff containing both soluble phosphorus and particulate phosphorus that is bound to sediments. Therefore, preventing erosion and pollution at the source is the best way to protect the water quality of Rock Lake. In the Rock Lake watershed, there are both agricultural and urban/residential sources of pollution to the lakes.

The public also recognizes nonpoint source pollution as a concern for Rock Lake. Out of 15 total choices, respondents of the 2005 public survey ranked the following factors as contributing to the problems on Rock Lake: fertilizer and pesticide use (#2), runoff from streets (#3), farm field erosion and runoff (#5), and construction site erosion and runoff (#8). The vast majority of respondents (71.5%) also supported a Jefferson County ban on the use of phosphorus in lawn fertilizers. Please see full survey results in Appendix B.

Agricultural Nonpoint Source Pollution

Agricultural nonpoint source pollution results from both cropland erosion and runoff from animal lots, farm fields, and faulty manure storage. Pollutants can consist of soil, manure, and fertilizers and pesticides.

From 1999 to 2005, the Rock Lake Priority Lake Project assisted farmers and landowners with the design, implementation, and partial costs of implementing conservation practices on agricultural land. A total of $34,263.10 of State money through the Priority Lake Project and $18,542.17 of landowner money was expended on agriculturally related conservation practices. Besides the Rock Lake Priority Lake Project, there are several other state and federal programs available to farmers to reduce erosion and pollution from their operations. Installed practices include: nutrient management plans, manure storage, well closure, cropland cover (hay), high residue management (mulch till and no till), riparian buffer, wetland restoration, permanent cover (prairie), filter strips, hardwood tree planting, permanent wildlife habitat, and wildlife food plots. Table 12 summarizes the agriculturally related practices that have been implemented with cost-sharing programs in the Rock Lake watershed from 1999 to 2005.

Nutrient management plans are used by farmers to determine the amount of nutrients to apply to their crops to obtain optimal yields. These plans are based on soil tests, crop rotations, and crop nutrient needs. There are also certain restrictions that the farms must follow in regard to where they can spread manure and if it must be incorporated or not. The intent of the restrictions is to protect groundwater and surface water.

Table 12. Agricultural Practices Implemented in the Rock Lake Watershed (1999-2005)

Practice	Units	Results and Achievements
Nutrient Management Plans	1,852 acres	42% of total watershed agricultural acreage
Manure Storage	3 structures 1 closure	protection of surface and ground water resources
Cropping Practices	180 acres	reduction of 34 tons of sediment, reduction on 115 lbs of phosphorus
Permanent Native Vegetation	70 acres	reduction of 13 tons of sediment, reduction of 45 lbs of phosphorus creation of wildlife habitat
Updated Conservation Plans	1,394.4 acres	~ 30% of total watershed agricultural acreage

NOTE: Practices in this table were cost-shared using various sources of funding. The actual number of units installed and achievements are more than likely much higher because some farmers implement practices without cost-sharing.

Though the Rock Lake Priority Project has ended, there are several other programs that assist agricultural producers with controlling erosion and pollution. Conservation practices can be implemented through various federal, state, and county cost-sharing programs. In addition the Wisconsin Farmland Preservation Program, implemented by the LWCD, enables farmers to claim a tax credit after following a conservation plan written to reduce possible soil loss from cropped land. There is approximately 68% of the eligible agricultural land in the Rock Lake watershed enrolled in the program.

Rules Regarding Nonpoint Source Pollution from Agriculture

There are State and County rules that are in existence to ensure that waterways are not polluted. State rules set performance standards and prohibitions for farms to prevent runoff, and identify conservation practices that farms must follow to meet the standards. The rules cover standards for reduction of soil erosion from cropland and standards to prevent manure discharges to water. The Land and Water Conservation Department has primary responsibility for implementing the State standards. In most cases, agricultural operations that are not following the standards can only be forced to follow them if cost-sharing is made available. However, in some circumstances, the operations can be issued citations from the DNR.

In terms of new or expanding livestock operations, there are rules that require permits if an operation is over 150 animal units (for County requirements) or over 1,000 animal units (for State requirements). Animal units are based on the weight of animals. Both the County and State require certain performance standards before permits are issued. These standards include odor management, waste and nutrient management, waste storage facilities, and runoff management. There is currently 1 operation located in the Rock Lake watershed that has a State permit – Creekwood Farms, Inc., an egg-laying chicken facility.

Farms that are proposing to build or alter manure storage, or close an existing structure are required to obtain a permit from the Land and Water Conservation Department. The

application requirements include submittal of construction plans and a nutrient management plan. LWCD jurisdiction includes oversight of the construction process.

The LWCD also responds to public complaints on manure spreading and erosion. Investigations are done and appropriate actions are initiated. If manure is being discharged into water, then the DNR gets involved with water sampling and potential citation issuance.

Residential and Urban Nonpoint Source Pollution

Sources of residential and urban nonpoint source pollution include lawns, rooftops, driveways, parking lots, and roads. Pollutants can consist of fertilizers, oil, litter, salt, and leaves. In an article entitled "Sources of Phosphorus in Stormwater and Street Dirt from Two Urban Residential Basins in Madison, Wisconsin, 1994-1995", it was found that streets and lawns are the largest contributors of suspended solids, total phosphorus, and dissolved phosphorus loads in a residential urban basin.

Shoreline Erosion

A source of sediment and phosphorus to the lake is shoreline erosion. In 1996, the Rock Lake Priority Lake Project estimated the delivery of 371 tons of sediment per year and 423 pounds of phosphorus per year from shoreline erosion. The project goal was to reduce these amounts by 50%. With the Rock Lake Priority Project money and other sources of money, 146 tons/year of sediment and 167 lbs/year of phosphorus were reduced (about 80% of the goal).

Shoreline erosion around Rock Lake occurs to varying degrees and is caused by different factors. Typically the most severe erosion happens with ice action. When temperatures fluctuate in the winter during ice cover on Rock Lake, the ice will melt in areas and then freeze again. This will result in the expansion of the ice cover into shoreland areas and the erosion of the bank. In addition, when there is a combination of melting ice and strong winds, sheets of ice can be pushed into the bank and scour and heave the soil. The location of this type erosion will vary according to the wind direction.

Shoreline erosion can also occur when vegetation is cleared from the bank and replaced with turf grass. The roots of native vegetation along shoreland areas will effectively hold the soil in place. However, when that vegetation is eliminated, the bank is left vulnerable to erosion by overland water flow and wave action.

Shoreline erosion, depending on its severity and cause, can be controlled by rock riprap, coconut fiber rolls, grading, or shoreland habitat restorations. Local, County, and State permitting requirement should be determined before any erosion control work is implemented. Severe erosion is most effectively controlled by rock riprap that consists of a gradation of rock sizes from 3 to 24 inches. These rock sizes, coupled with a rock trench at the base and at most a 2 to 1 side slope will provide strong, interlocking protection against future erosion. Coconut fiber rolls (or biologs) can be used in areas that do not receive erosion caused by ice push. The rolls are anchored along the bank and aquatic vegetation planted in the roll as well as in front and behind the roll. Eventually, the coconut fiber roll will naturally degrade and the plants will provide protection against erosion. Coconut fiber rolls

have effectively been used in the West channel along Cedar Lane. Grading coupled with shoreland habitat restoration is a good option for erosion control when banks are steep and there is enough room to grade the bank back. When banks are steep, ice push will result in undercutting the bank. However, if those banks are graded to reduce the slope, then the ice will travel across the bank instead of gauging it. Grading was used on 700 feet of the shoreline at Korth Park. Shoreland habitat restorations consist of planting native shoreland species (grasses, flowers, trees, and shrubs) along the water and back at least 35 feet inland. They result in increased habitat and absorption of runoff, thus effectively reducing polluted runoff from lawns. Another benefit of shoreland restoration is that they deter Canada geese who prefer areas with clear sight-lines so that they can watch for predators.

The Rock Lake Priority Project funded both shoreline erosion control and shoreland habitat restoration practices in urban and residential areas. A total of $105,319.44 in State money and $48,435.10 of landowner money was expended on projects. Practices implemented between 1999 and 2005 with Rock Lake Priority Project money and other funds are detailed in Table 13.

Table 13. Residential and Urban Practices Implemented in the Rock Lake Watershed (1999-2005).

Practice	Units	Results and Achievements
Shoreline Erosion Control	938 feet riprap 700 feet grading 448 feet biolog	reduction of 146 tons of sediment, reduction of 167 lbs of phosphorus
Shoreland Habitat Restoration	61,939 square feet (1.4 acres)	reduction of ¼ ton of sediment, reduction of 1 lb of phosphorus creation of wildlife habitat

Leaves

Leaves are considered a pollutant to waterways because more leaves are delivered via storm drains than naturally fall into the water. These excess leaves add to the phosphorus loading of the system. In the City of Lake Mills, homeowners are instructed to rake their leaves in the street gutters, which effectively deliver leaves to the storm sewers and to Rock Lake and Rock Creek. City crews of 4-5 people use trucks and front end loaders to pick up the leaves and then deliver them to area farmers. In this manner, one full round of traversing all the streets in the City takes around 1 week. The street sweeper is used after the leaves are collected to clean up any debris left on the streets. The benefits of this system include leaf pick up in a relatively short amount of time. Disadvantages of this system include the delivery of phosphorus to surface water through the storm drains that carry both leaves and water that contains phosphorus after flowing through leaves. There are methods that the city could use that would reduce pollution delivery, but this would take either new equipment or additional homeowner participation.

One option that was researched by the City of Lake Mills includes having the leaves picked-up from the tree lawn. The City of Madison uses jeeps and backhoes to collect the leaves from the tree lawn. The benefits of this system include there are not as many leaves in the

street as the current system and thus there is more than likely a decrease in the amount of phosphorus delivered to surface waters. The disadvantage of this system includes damage to tree lawns from the equipment used to gather the leaves.

The other option to collecting leaves from the tree lawn is the use of a vacuum truck. The City currently has such a vehicle, but it is old and does not function properly. This results in the need for more staff than 4-5 people and a longer leaf pickup timetable for traversing all the streets – 6 weeks. An estimate of the cost of a new vacuum truck, which would only require one person to drive and operate the vacuum, is $125,400. It is estimated that the vacuum truck will take two weeks to complete the whole city leaf pick-up during the first go through and than one week per round as the amount of leaves decreases.

The final option for leaf pick-up is to require that citizens bag their own leaves and put them on the tree lawn for collection. The advantages of this system include reducing the number of City staff required for leaf collection and reducing the amount of phosphorus delivered to local waterways. The disadvantages are to the individual landowners who may have to spend more time handling the leaves.

In all scenarios, there will be some leaves in the street that fall from adjacent trees and that blow into the street from the properties. In 2006, the City of Lake Mills decided to buy the vacuum truck and stop the practice of asking homeowners to rake their leaves into the street gutter.

In the Town of Lake Mills and the City of Lake Mills, there are some lakeshore residents that either burn leaves adjacent to the lake or use the lake as the disposal site for their leaves. These practices, though not widely used by residents, are detrimental to the lake. When burn piles are upslope from the lake, storm water can carry the pollutants in the leaf ash to the water.

Stormwater Management

All stormwater basins in the City of Lake Mills must follow State performance standards and are reviewed by the City's engineering firm. New and expanding businesses that involve construction are required to construct some kind of storm water detention. In terms of subdivision detention basins, long term maintenance is turned over to the City and is funded by home owner's associations. The Arbor Hills detention basin included an innovated system that includes prairie plants to adsorb excess runoff.

The storm water control basins located in the area that drains to Rock Lake are the following: Sandy Beach, Lakeside Lutheran, and the Cedars. The Sandy Beach system (located within the parking lot for the beach) directs storm water to a grassed area where it infiltrates into a tile drain that outlets to the lake. The Lakeside Lutheran system is a biofilter and retention – some storm water infiltrates into the ground and the excess is discharged into a drain that discharges to the lake. The Cedars system (located where Lake Park Place takes a 90 degree turn) is a natural kettle with no outlet that the City has augmented and maintains so that the storm water infiltrates into the ground.

The City of Lake Mills plans to go forward with a storm water utility as it received State grant money to collect data and design a utility. The utility would work on better control of storm water. The revenue source for the utility will likely be a fee on each lot that is based on the amount of impervious surface contained on the lot. Some storm water utilities give homeowners a discount on this fee if they implement storm water control practices such as rain barrels, rain gardens, and porous pavement could get a discount on those fees. Annual certification of these systems by the landowner could be required.

New subdivisions in the Town of Lake Mills are required to have grassed ditches and include detention basins based on storm water modeling. Storm water and erosion control plans are reviewed by the Town's engineering firm and the Jefferson County Zoning Department. In addition, subdivision must follow all State permit requirements related to storm water management and erosion control. The Shorewood Hills North development (in between Woodfield Lane and Highway B) was required to install a detention basin. This basin is located near Woodfield Lane. After the development is complete, the developer is required to clean out the basin. The maintenance requirements for that basin is then transferred to the Town of Lake Mills.

Storm water along Shorewood Hills Road is controlled by asphalt curbs that direct the water either to natural low areas for infiltration or to areas that discharge to the lake. The stream that is to the south of Lost Lake receives storm water from the grassed ditches before it discharges into the lake. This stream also flows through some agricultural areas.

On Shorewood Hills Road, in between Woodfield Lane and Sunset Court, there is an area where runoff from the street is directed off the street via an asphalt strip to a drain. When the water reaches a certain height in the drain, it is piped under a residential lawn to an outlet. This outlet was originally designed to empty into a terraced garden to infiltrate and slowly move down the steep hill toward the lake. However, water that discharges from the pipe has compromised the system such that it now is cutting a path adjacent to the terraced garden. Ongoing maintenance of this system includes the removal of solids that accumulate in the asphalt strip and at the bottom of the drain. Future plans are to improve the outlet area by installing an underground pipe to divert the water away from the terraced planter. The pipe will outlet at a point where the grade flattens out (about 75 feet away from the lake) and then be discharged into a stilling well. The water will fill the stilling well and boil out the top which will be covered with a steel grate. The water will then run to the lake over the ground surface, but at a reduced speed than the current system. The stilling well will require yearly maintenance to remove any accumulated sediment.

There is a retention pond south of Lake Lane at the bottom of the hill on the west side of Shorewood Hills Road. During heavy rains, water flows over the road for a small amount of time before it recedes to the retention pond. This situation has been occurring about once every 3 years. Maintenance of the retention pond includes cleaning out sediment approximately every 3 years.

The stream that flows into the lake via the channel near Cedar Lane also receives storm water. During heavy rainfalls, a visible plume of sediment can be seen discharging from the channel into Rock Lake. To date, the source of the sediment has not been determined but it is likely an agricultural source. One supposition is that the sediment is coming from faulty

agricultural tile drains that outlet to the stream. There is also a concern that manure spread on agricultural fields might be carried to the stream during rain events. When maintenance dredging was done at the culvert outlet in 2006, an observer noted that a majority of the material dredged out was sand. This may indicate that sand placed on the road during the winter is washing into the channel. A possible solution to this situation would be to find a way to capture the sand before it is deposited into the channel.

At one point a detention basin was considered on the south side of Cedar Lane before the stream crosses under the road. However, because of the wetland soils located in this area, the project was likely going to require state and federal permits which would prohibit the placement of the excavated soil on site. With the requirement to truck the sediment off site, the costs of the project were more than the private landowners wanted to expend. There are plans to measure the stream for phosphorus, sediment, and animal manure indicators. Once this data is gathered, there will be more information that will help determine the source of the pollution and possible remedies.

Recreation

Because of its size and quality, Rock Lake offers a wide variety of recreational opportunities: everything from sailing to fishing, kayaking to jetskiing, and swimming to wake-boarding and water skiing. Winter sports include ice skating, ice fishing, ice-boating, and snowmobiling.

There are a total of 6 public boat launches on Rock Lake: Sandy Beach, Mill Pond, North End, Ferry Park, Miljala Shores (used primarily for winter access); and Elm Point. Allowable maximum boat launch fees are set by Wisconsin Administrative Code, NR 1 (see Table 14 and Appendix E). The Town of Lake Mills collects boat launch fees from May 1 through September 30. The City of Lake Mills used to have the same time period, but it was changed to be a year-round fee in October 2006.

Table 14. Town, City, and State Boat Launch Fees

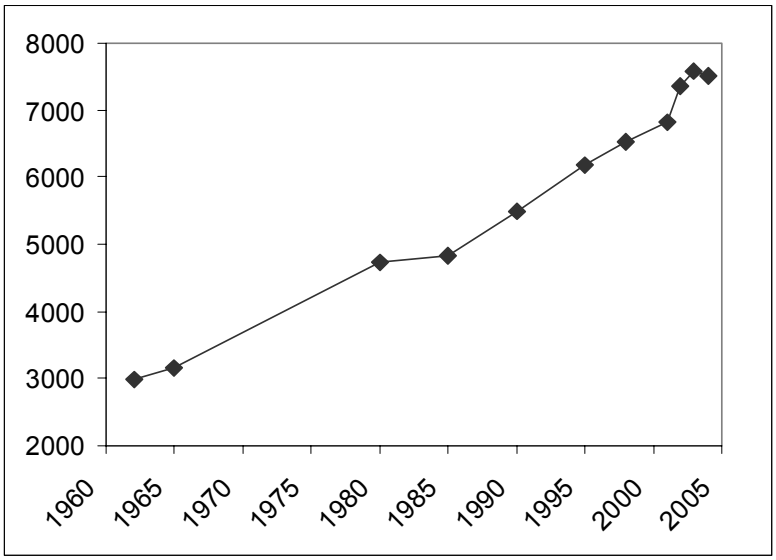
	State Maximum Allowable Fee as of 2006	City of Lake Mills Fees	Town of Lake Mills Fees
Daily Resident Fee	$7	$5 City & WI	$5
Daily Non-Resident* Fee	$10.50	$10 Out of State	$5
Seasonal Resident Fee	$70	$20	$30
Seasonal Non-Resident* Fee	$105	$40 Wisconsin Resident	$30
		$60 Out of State	

* A non-resident is defined as someone who is not a resident of the local municipality.

Heavy watercraft traffic can have an effect on safety, environmental quality, and the public's enjoyment of the resource. Chart 9 shows that the number of registered boats in Jefferson

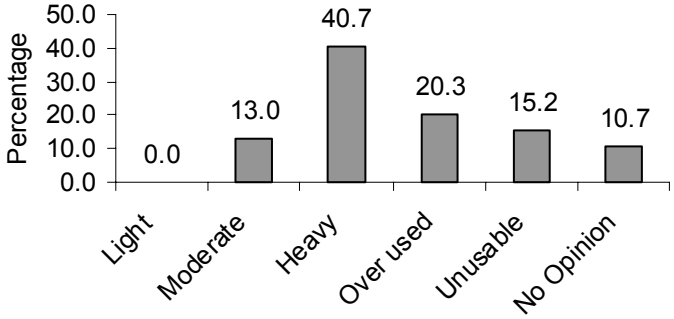
County has more than doubled since the early 1960s. This trend is consistent with the state-wide trend of boat ownership.

Chart 9. Number of Boats Registered in Jefferson County, 1962-2004



Respondents of the Rock Lake survey shared their opinions on boat traffic. Weekday traffic was considered moderate by 69.2% of the respondents. That opinion changed when respondents were asked about weekend traffic, with more than 40% responding that traffic is heavy during the weekend (Chart 10). Respondents also reported that the top 4 issues that have a negative impact on their use of Rock Lake were “too many jetskis” (#1), “boat traffic congestion” (#2), “noise” (#3), and “too many water skiers” (#4). When asked the top factors that contribute to problems on Rock Lake, the number one response was “watercraft traffic and congestion.”

Chart 10. Opinions of Boat Traffic on Weekends (source: 2005 public survey)



Because of ongoing concerns related to the amount of boat traffic, the Joint Rock Lake Committee implemented a survey in 2003, 2004, and 2005 to determine how Rock Lake is used during busy summer weekends. The surveys consisted of 3 different elements:

1. an inventory of total watercraft associated with riparian lots (typically performed during a week day when the majority of boats would be moored at their piers)

2. an inventory of the number of boat trailers parked at the various boat launch parking areas around the lake (performed in the morning and afternoon of summer weekends in conjunction with the water count)
3. an inventory of the number and type of watercraft on the lake (performed in the morning and afternoon of summer weekends in conjunction with the parking lot count)

The Joint Rock Lake Committee plans to continue collecting data on lake usage on Rock Lake during busy summer weekends. So far, the survey data from 2003 is the best based on weather and data completeness. The 2003 data revealed there were 843 watercraft associated with riparian lots (Chart 11). This riparian count included lots located in the main basin of Rock Lake and Marsh Lake. In the morning of July 5, 2003, there were 43 watercraft counted on the lake and 46 boat trailers at the launch parking areas (Chart 12). The discrepancy may be due to the fact that only watercraft on the main basin of the lake were counted and Marsh Lake (the southern basin) was not always included in the on-water survey. In the afternoon of July 5, 2003, there were 203 watercraft on Rock Lake and 144 trailers at the launch parking areas (Chart 13). Therefore, there were approximately 59 watercraft associated with riparian lots on the lake. By comparing the morning and afternoon lake use, it is apparent that fishing is the primary use in the morning and pleasure boating (pontoon boats, etc.) is the primary use in the afternoon. Morning launch use is primarily the Mill Pond launch, probably because fishing boats are small enough to go under the Ferry Street bridge. During 2003, the Mill Pond launch had no boat launch fee. Because the Mill Pond launch now has a launch fee, future surveys may reveal different launch usage. The trailer counts for Sandy Beach include the parking lot, Sandy Beach Road, and the parking lot associated with Rotary Park.

Chart 11. Watercraft Associated with Riparian Lots in 2003

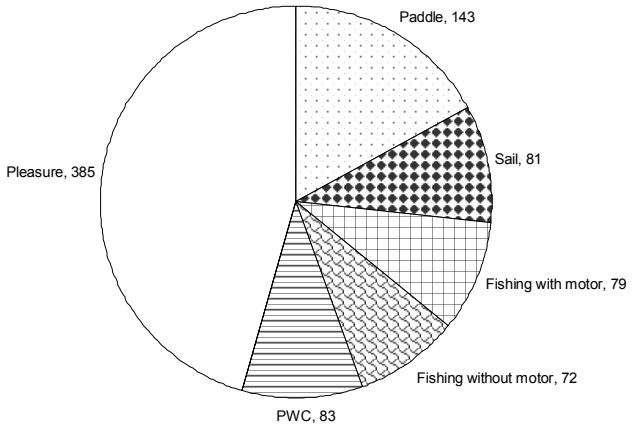


Chart 12. Watercraft on Rock Lake and Parked Trailers – Morning of July 5, 2003

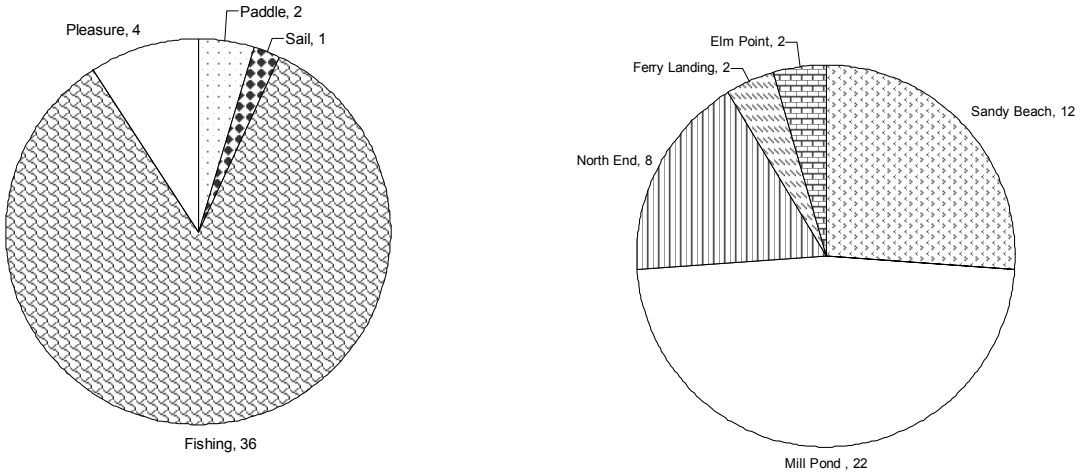
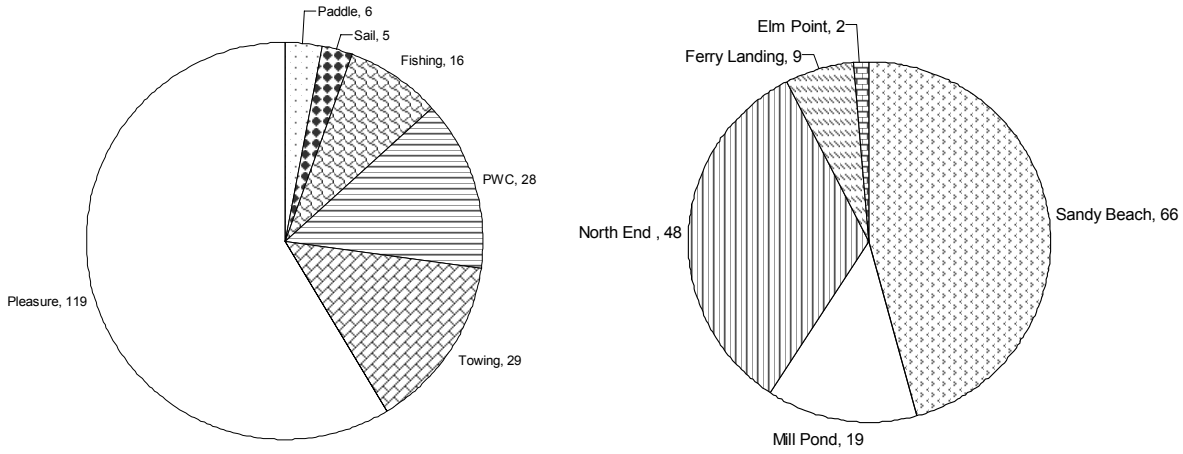


Chart 13. Watercraft on Rock Lake and Parked Trailers – Afternoon of July 5, 2003



Boating Regulations

Boating regulations can consist of speed restrictions (such as slow-no-wake), time restrictions (including hours of operation), and area restrictions (such as buoyed areas). Some boating regulations are State regulations which are in effect on all lakes. Municipalities can also adopt and implement boating regulations. According to Wisconsin State Statute, if there is more than one municipality surrounding a lake, then one of two scenarios is followed:

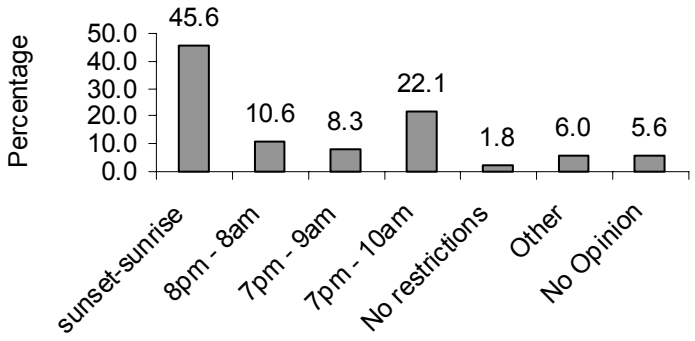
- the municipality with at least 60% of the lake frontage is responsible for enacting ordinances regarding regulation of boating, or
- multiple municipalities can enact identical ordinances regarding regulation of boating.

For Rock Lake, the Town of Lake Mills has enacted, implemented, and enforced the boating regulations on Rock Lake. In addition, there are State boating regulations that are applicable on Rock Lake. The City of Lake Mills has included some of the Town's boating ordinances into a City ordinance. A list of the boating regulations in effect on Rock Lake is included in Appendix F.

Speed Restrictions

Slow-no-wake restrictions are adopted in part to provide both safe conditions and quiet time on the lake. Currently the slow-no-wake hours on Rock Lake are from sunset to sunrise. From time to time, there have been suggestions to change these hours. When asked on the public input survey, the majority of respondents preferred the status quo of sunset to sunrise, with the next best slow-no-wake times being 7 p.m. to 10 a.m. (Chart 14). The survey question identified sunset to sunrise as the current rule. This may or may not have influenced the responses and future surveys may choose to not identify which option is already in place.

Chart 14. Opinions on Slow-No-Wake Hours (source: 2005 public survey)



The Town of Lake Mills has an ordinance that enables them to declare and post an emergency slow-no-wake rule on the entire lake during periods of high water. The general guideline is that the rule should be enacted when the water level exceeds 6 inches above the seasonal maximum water level. The purpose for such a rule is to reduce wave action which can erode shorelines.

Time Restrictions

Personal watercraft (PWC) use and towing activities (waterskiing and tubing) are restricted to 10 a.m. to 7 p.m. When asked what times they support for these activities, the majority (58.5%) of respondents of the survey wanted both to remain in the 10 a.m. to 7 p.m. time range. Again, the survey identified the time restrictions in place on the lake which may or may not have influenced responses. A future survey may want to delete the reference to the current rules.

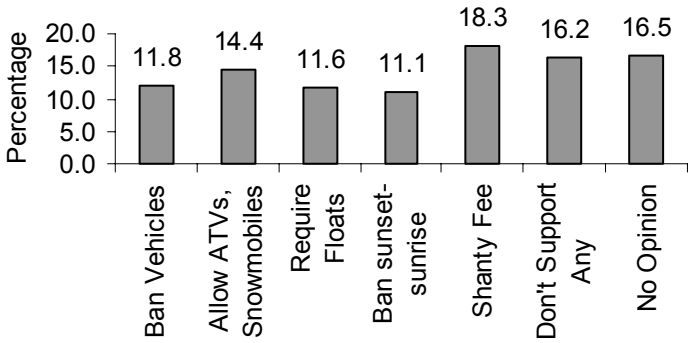
Area Restrictions

The DNR designated Sensitive Areas in Rock Lake have area restrictions. The Sensitive Areas (Korth Bay, Marsh Lake, Shultz Bay, and the Millpond) are slow-no-wake areas in the lake. For more information on these areas, please see the section on DNR Designated Sensitive Areas.

Winter Regulations

In 2004, when a vehicle went through the ice resulting in the death of an ice fisherman, there was interest in creating rules regarding vehicles on the ice. When asked about possible winter restrictions, respondents to the public survey did not express a clear interest in any one rule (Chart 15). It was determined that there is an existing Town ordinance that was not being enforced. This ordinance prohibits motor vehicles on the ice between 9 p.m. and 6 a.m.

Chart 15. Opinions on Possible Winter Regulations (source: 2005 public survey).



Enforcement

There are 3 different entities that patrol and enforce boating regulations: officers with the Town of Lake Mills, officers with the Jefferson County Sheriff's Department, and the Conservation Warden with the Department of Natural Resources. Table 15 shows a 7-year record of the total number of citations issued and the total amount of time worked by Town officers on Rock Lake. Warnings also are given to boaters, but are not recorded. When officers stop boaters, they give normally provide them with a Rock Lake Recreational Rules pamphlet (text contained in Appendix F.

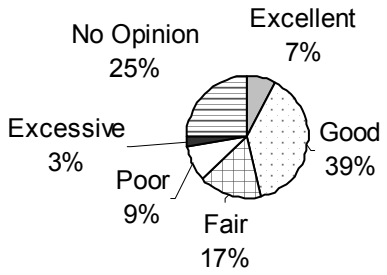
Table 15. Citations and Enforcement Hours on Rock Lake

Year	Total Citations	Hours Worked by Town Officers
1997	36	293
1998	32	230
1999	19	360
2000	27	471
2001	28	389
2002	32	355
2003	56	502
2004	79	516
2005	105	736
2006	97	578

Information provided by Town of Lake Mills.

The opinions of the public on the enforcement on the lake are documented in Chart 16.

Chart 16. Opinions on Rock Lake Enforcement (source: 2005 public survey)



The Department of Natural Resources pays for a portion of the costs associated with the boat patrol. The portion varies from year to year, with an average of 60% reimbursement. The Town then bills the City of Lake Mills for 40% of the remaining costs after the DNR reimbursement. The City's portion therefore amounts to 20% of the total costs and the Town's portion is 30% of the total costs.

In 2004, the total boat patrol budget was $9,625 with actual costs of $12,767. The overspending is attributed to the enforcement of the emergency slow-no-wake rule which occurred for 21 days at the beginning of the boating season. The 2005 budget for boat patrol was $12,000.

Boating Safety Education

Each year the DNR provides boating safety education classes. This class is normally offered in Jefferson County. It is available for anyone 10 years of age and older. The intent of the class is as follows:

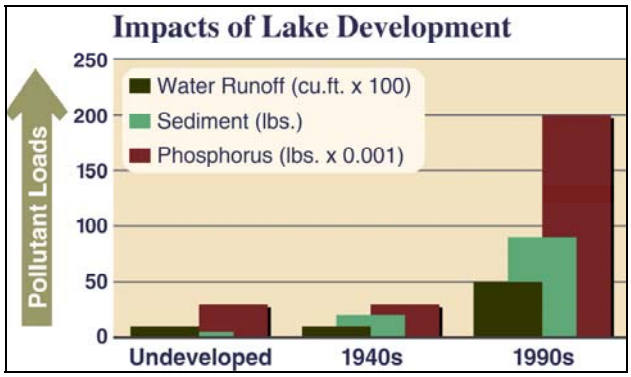
> To reduce the potential for boat accidents, injuries and fatalities; to reduce the potential for conflict between different types of boating activities and other resource users; and to promote safe, responsible, and ethical use of the environment and our resources.

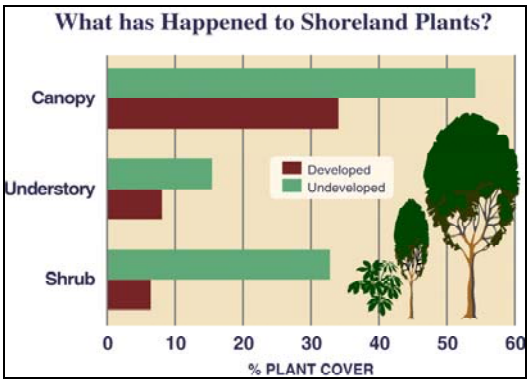
An online boating safety course is also offered on the DNR website. This online course is not recommended for children under 14 years of age.

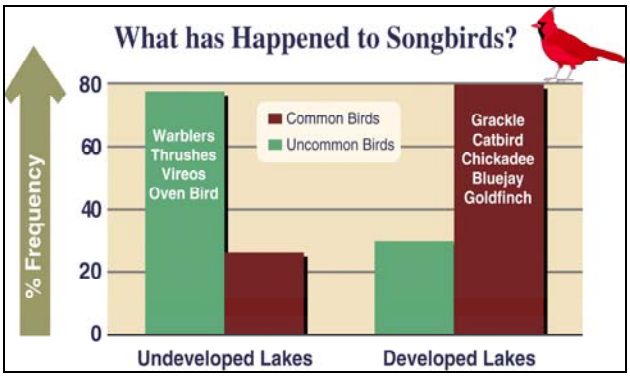
Shoreland Development and In-Lake Development

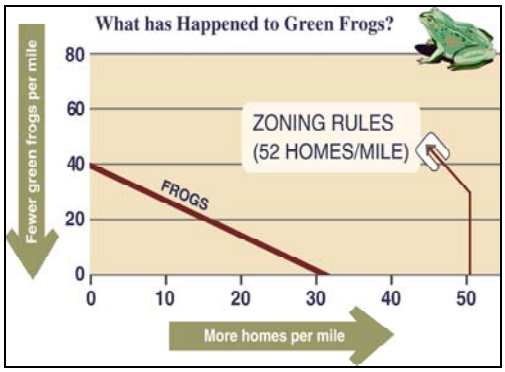
Shoreland zoning rules vary from zoning rules in other areas because activities on the land adjacent to water can impact the water resource in adverse ways. Development near water leads to increased stormwater runoff, and increased sediment and phosphorus loads to the water (see Chart 17). This in turn impairs water quality. In addition, land clearing activities associated with development results in the loss of habitat essential for wildlife that contribute to a diverse and healthy lake environment. Studies in Wisconsin have documented the decline of shoreland plants, songbirds, and green frogs in shoreland areas due to development (see Chart 17).

Chart 17. Wisconsin Research on the Impacts of Development









Shoreland zoning rules and rules on the placement of piers and other structures in the water are put in place to ensure reasonable development while protecting shoreland areas and water resources. Shoreland zoning consists of rules that cover 75 feet from water. Generally, these rules strive to keep development within 75 feet of the water to a minimum. Setting structures away from water creates a buffer that can help mitigate the environmental impact of structures and surrounding development. Shoreland buffers of native vegetation are crucial to protecting water quality, preventing flooding, providing fish and wildlife habitat, and screening neighboring properties to ensure privacy and natural scenic beauty. Likewise, minimizing the size and number of structures placed in the water will help prevent adverse impacts to lake and river environments.

Shoreland Zoning

Jurisdictions

Chapter NR 115 of the Wisconsin Administrative Code is Wisconsin's Shoreland Management Program. It requires counties to adopt regulations to protect shorelands in unincorporated areas. NR 115 defines state minimum standards, and county shoreland ordinances cannot be less restrictive than these rules.

NR 115 was adopted in 1968 and has been implemented by Jefferson County. The City of Lake Mills does not fall under Jefferson County Shoreland Zoning Ordinances. Instead, Wisconsin Statute 281.31 gives municipalities the authority to adopt regulations in order to

"further the maintenance of safe and healthful conditions; prevent and control water pollution; protect spawning grounds, fish and aquatic life; control building sites, placement of structure and land uses and preserve shore cover and natural beauty." To this end, the City has adopted some of the NR 115 language.

Recent and Upcoming Revisions to Shoreland Rules

A study by the Department of Natural Resources in 1997 found that the current minimum standards in NR 115 are providing only minimal protection of water quality and wildlife habitat. The study concluded that the minimum standards must be updated in order to meet the statutory objectives of protecting water quality, fish and wildlife habitat, and natural scenic beauty. As a result of these studies, the DNR convened an Advisory Committee to draft revisions to NR 115. The rule making process includes multiple hearings to gather comments from the public. At this writing, the Natural Resources Board is scheduled to consider the new rules in December 2007. If approved, they then go to the State Legislature who may also choose to hold public hearings before voting on the rule revisions.

In 2005, Jefferson County adopted revisions to its Shoreland Zoning Ordinance for the following reasons:

- To clarify language that is vague.
- To provide definitions of terms that are used in the ordinance.
- To clearly reflect interpretations of state law.
- To implement recommendations of the Lake Enhancement Project report, adopted by County Board in 2003.

The County decided to proceed with changes because it was unclear whether State rule changes would be adopted in a timely fashion and protecting the County's water resources sooner rather than later was an important goal. The revisions to Jefferson County's shoreland zoning ordinance do reflect some of the State proposals.

The shoreland zoning rules in effect for the unincorporated areas of Jefferson County (including the Town of Lake Mills), and the rules in effect for the City of Lake Mills are included in Appendix G.

In-Lake Development

In 2004, DNR researchers teamed up with the Land and Water Conservation Department and the Lake Ripley Management District to determine how piers influence near-shore aquatic habitat on Rock Lake and Lake Ripley. Both lakes have similar water quality and have a mix of developed and undeveloped shorelines with a variety of pier shapes and sizes. The research team evaluated sunlight availability, and the abundance and diversity of aquatic plants, insects and juvenile and small non-game fish under a variety of piers and at nearby control sites that did not have piers. The key findings are as follows:

- Piers cause significant shading, contributing to a 10-fold decrease in light availability.
- Under piers, plant biomass was 20 times less and diversity was reduced, but growth could not be predicted based on light data alone; substrate and degree of pier use also appeared to be factors. There was a 55-fold reduction of plant biomass under larger deck sections.

- The aquatic plant community under piers shifted to one dominated by shade-tolerant plant species (i.e., wild celery), resulting in less overall plant diversity under piers.
- Pier height showed a positive relationship with plant growth – the higher the pier off the water, the more plants under the pier.
- Pier width showed an inverse relationship with plant growth – the wider the pier, the fewer plants under the pier.
- Insects were 3 times less under piers, but there were no clear differences in species richness.
- Juvenile Centrarchids (bluegill, green sunfish, rock bass, pumpkinseed, black crappie, smallmouth bass, largemouth bass) demonstrated habitat preferences for sites with abundant and non-fragmented plant cover in areas away from piers. A nearly 4-fold decrease in fish numbers were found under piers.
- Piers with the greatest numbers of juvenile Centrarchids under them were generally located in close proximity to designated Sensitive Areas.

In addition to direct shading, associated motorboat activity around piers may adversely impact the plant community, mainly through direct cutting by propellers, bottom sediment scouring and contact with boat hulls. The reduction in plant growth can, in turn, affect the food chain as evidenced by reduced insects and fish numbers underneath piers. Cumulatively, the overall habitat effects of shading are just a portion of the total disturbances and fragmentation around piers.

This research, as well as research in other regions, suggest that the proliferation of piers and other structures in the water and adjacent to the water are contributing to the degradation of nearshore habitat and biological diversity. It also highlights the importance of identifying and protecting Sensitive Areas in lakes.

Swim Rafts and Trampolines

Swim rafts can be placed in the lake only by waterfront property owners. They must be within 150 feet of shore and a DNR permit is not required for their placement if they are less than 100 square feet in size and less than 38 inches high. In the past few years, water trampolines and other water toys have been becoming popular and currently only regulated with State rules. State rules stipulate that trampolines can only be placed by riparians and DNR permit is not needed as long as they are no more than 15 feet in diameter.

GOALS, RECOMMENDATIONS, AND IMPLEMENTATION

Goals of the Management Plan for Rock Lake

- Protect the quality of the lake by reducing the delivery of pollutants (e.g., sediment, phosphorus, etc.) to the lake and watershed.
- Protect the quality of the lake by reducing shoreland disturbances while allowing reasonable riparian access.
- Prevent the invasion and spread of invasive species.
- Maintain and improve the fish and wildlife habitat in Rock Lake and its watershed.
- Create safe recreation on the lake.
- Enhance enjoyment of the lake (e.g., aesthetics, noise, etc.)
- Minimize any negative ecological impacts caused by recreation.
- Maintain the lake level such that it benefits the aquatic environment, prevents shoreline erosion, and allows for recreational access.
- Educate the public so that they have a better understanding of Rock Lake, its watershed, the factors impacting the quality of the resources, and what the public can do to make a difference.

To attain each goal, any necessary data collection and research should be performed to establish baseline data, determine data trends, establish measures of success, and decide upon next steps in the planning and implementation process.

Implementation

The successful implementation of the recommendations contained in this report will depend on interest level, political will, funding availability, work loads, and many other factors. It is the hope of the project contributors that all of these factors will work together for timely implementation. Individuals, organizations, and government entities should play an active role in encouraging the possible implementers to move forward with the proposed actions.

The recommendations below were crafted and put into priority order by the Advisory Committee and approved by the project managers. Each recommendation identifies several possible implementers. It should be noted that there could be additional organizations that are interested in taking part in the implementation of the recommendations. Their absence from the list of possible implementers was not intentional, and their involvement in any of recommended actions is encouraged. Some action items are identified with the recommendations, but the actions are not necessarily all inclusive. Additional action items may be identified in the future.

Implementation Timeline

The implementation timeline is based on estimates of when the primary implementers (in bold) can initiate a recommendation. The length of time from initiation to completion of a recommendation can range from a short time period to several years. The timeline

is noted with each recommendation and is also presented in table format at the end of this chapter (see Table 16).

There are some recommendations that will not involve a major effort for implementation. Therefore, it is suggested that they are initiated during the first two years of the plan implementation. That is why some recommendations with a lower priority are scheduled earlier than recommendations with a higher priority.

It is important to note that if an opportunity arises or the situation necessitates that a recommendation be implemented prior to the given timeline, then the implementer(s) should not hesitate to go forward.

Recommendations in Priority Order

Priority #1. Reduce sediment and phosphorus inputs from City and Town streets.

- **2006 + future years**: Determine how to reduce pollutant delivery from Shorewood Hills Road to Rock Lake including establishing rain gardens and detention basins to infiltrate the water. [Possible Implementers: **Town**, Town's engineering consultant]
- **When initiated by City + future years**: Support the development of a storm water utility in the City in order to provide storm water quality measures. A storm water utility would impose a fee to each property owner based on the amount of impervious surfaces on the lot. The money would be used on design, implementation, and maintenance of storm water management practices. [Possible Implementers: Joint Rock Lake Committee, RLIA, Town, LWCD]
- **When initiated by City + future years**: Support the development of a system that gives landowners credits (to reduce their storm water utility fees) for implementing and maintaining storm water control practices such as rain barrels, rain gardens, and pervious pavement. [Possible Implementers: Joint Rock Lake Committee, RLIA, Town, LWCD]
- **2006 + future years**: Implement any necessary upgrades to the 3 storm water control systems that discharge into Rock Lake so that they meet current state performance standards for new storm water control basins. [Implementer: **City**, City's engineering consultant]
- **2006 + ongoing**: Clean the City's catch basins more frequently. [Implementer: **City**]
- **As needed + ongoing**: Maintain the labeled storm drains to educate people that they drain to the lake. [Possible Implementer: RLIA, Boy Scouts, Girl Scouts, local schools]
- **2006 + future years**: Determine how the city can accomplish a leaf pick-up that will reduce discharge of leaves and associated phosphorus into Rock Lake. Options include purchase of a vacuum truck to collect leaves from the tree lawn, or to require landowners to bag their leaves. [Possible Implementer: **City**, RLIA, Joint Rock Lake Committee]
- **As needed**: Insure developers install infiltration basins instead of detention basins when site conditions are right in the City and Town of Lake Mills. [Implementers: **City, Town**] *Actions Include*: communications with developers when they start planning for their developments.

- **As needed:** Utilize grass swales instead of storm sewers when feasible, install grit chambers or catch basins at all inlets, provide outlet protection for all storm sewers, utilize infiltration basins or trenches before storm sewering to lake, utilize a potassium chloride road salt for ice removal. [Implementers: **City, Town**]

Priority #2. Reduce sediment and phosphorus inputs from the west channel (adjacent to Cedar Lane). [Possible Implementer: **LWCD**]

- **2006**: Inspect stream during rainfall for tile outlets that may be faulty.
- **2006**: Take a water sample at the channel outlet and have it analyzed.
- **2007 + future years**: Implement necessary conservation practices with available federal, state, or county money. This could include the following: stopping the manure runoff from adjacent field, breaking tile and creating a wetland restoration, detention basin, and cropping practices to reduce runoff.

Priority #3. **2006 + future years**: Adopt Jefferson County's shoreland zoning ordinance in the City of Lake Mills so that the rules are consistent for the entire lake. [Implementer: **City**, Joint Rock Lake Committee, LWCD, with assistance from RLIA]

Priority #4. Reduce the spread of Eurasian water milfoil.

- Monitor the abundance and location of Eurasian water milfoil. At this point, it is not taking over habitat of native species and is not a serious problem for recreation on the lake. Share any future surveys with the Department of Natural Resources so that management options can be considered if warranted. [Possible Implementers: **LWCD**, DNR]
- **2006**: The Land & Water Conservation Department is in process of developing a map that will show the location and density of the Eurasian water milfoil in the lake with the 2001 data. Share this map with the Department of Natural Resources and the public. [Implementer: **LWCD**]
- **2006**: Consult with the DNR on the possibility of increasing the weevil population. As a starting point, perhaps a study should be done to determine the density and distribution of the milfoil weevil in Rock Lake. [Possible Implementer: **LWCD**, DNR, RLIA]
- **Ongoing**: Educate lake users about Eurasian water milfoil – what it looks like, how it spreads, what to do if it is in front of your lot including the laws associated with plant control. [Possible Implementers: LWCD, RLIA]

Priority #5. **2006/2007**: Pass an ordinance in the Town and City or the County that would prohibit the use of fertilizer containing phosphorus on public and private lawns unless a soil test reveals the need for phosphorus. [Possible Implementers: **City, Town**, **County**, support from Joint Rock Lake Committee, RLIA]

Priority #6. Gain a better understanding of water level management for Rock Lake and take appropriate actions.

- **2006 + ongoing:** Take daily measurements at the dam including water level, number of boards in dam, and precipitation amounts. If a better understanding of the management of the dam is determined from this data, it should be shared with the DNR and future actions should be initiated to make any necessary changes.

One possibility is a re-configuration of the dam and culvert. Another option (if the data doesn't provide enough information) is to commission a study of the hydrology of the lake and dam in order to determine a more precise protocol of operating the dam. [Implementers: **City**, City's engineering consultant, **assistance from Joint Rock Lake Committee**]

- **2007/2008**: Work with the Fish Hatchery to determine if they can assist with water level management during periods of high water. Depending on the pond usage at the Fish Hatchery, they may be able to withdraw lake water through their water intake. Retrofitting the pipes of the Fish Hatchery may be a possibility in order to bypass the ponds and be able to withdraw water from the lake during periods of high water. [Implementers: **DNR**, **City**, **assistance from Joint Rock Lake Committee**]
- **2006 + ongoing**: Any debris located in front of the gates of the dam should be cleaned out daily. [Implementer: **City**]

Priority #7. **2006/2007**: At the North end and Sandy Beach boat launches, place informational signs/buoys indicating 100 feet from shore (for boats) and 200 feet from shore (for PWCs) to educate boaters how far the Slow-No-Wake zones are for boats and PWCs. [Possible Implementers: **Town of Lake Mills**, **City of Lake Mills**, with assistance from Joint Rock Lake Committee]

Actions include: Contacting DNR regarding permits for 4 buoys and the type of buoy that is appropriate, order and purchase buoys, design wording for 2 informational signs (if information cannot be affixed to buoys), order and purchase 2 signs, place buoys (DNR Warden may have a device that will indicate distance from shore), and place informational signs. Once implemented, the success of this practice should be assessed.

Priority #8. **2007 + into future years**: Conduct a study to determine the quality of the wetlands in the Rock Lake watershed because the large wetland complex is one of the main reasons that Rock Lake has good water quality. The study could define the steps to take to protect and enhance the wetlands. [Possible Implementer: RLIA, **LWCD**]

Priority #9. Stop construction site erosion.

- **2006 + ongoing**: Direct building inspectors in the City and Town to make construction site erosion control a priority. [Implementers: **City, Town**]
- **2006 + as needed:** Communicate to developers and builders the importance of designing proper erosion control and maintaining it until the development has established vegetation. This means that the building inspectors should also be letting new homeowners know of their responsibility of maintaining erosion control when they take ownership of their property before vegetation is established. [Implementers: **City, Town,** LWCD]
- **2007**: Make the fine structure in the City and Town strong for construction site erosion control violations to ensure that the fines are incentive enough for the builders/developers to maintain erosion control. [Implementers: **City, Town**]
- **2007**: Research how to make contractors responsible/liable for construction site erosion control violations. [Possible Implementers: **City, Town**, with assistance RLIA and Joint Rock Lake Committee,]

Priority #10. **2007/2008**: Initiate water quality monitoring at key locations within the Rock Lake watershed. [Possible Implementers: RLIA, LWCD, DNR, Rock River Coalition]

- Possible locations include: Marsh Lake, CTH A, and Mud Lake. This monitoring would act as an advance warning mechanism for Rock Lake and provide a better insight into the phosphorus and sediment delivery system.

Priority #11. Make changes to the parking areas at the boat launches to reduce the boat traffic and possibility for accidents.

- **2007/2008**: Reconfigure the North End parking lot so that one area is limited to cars, and another area is devoted to boat trailers. (The Town is willing to share 50% of the costs.) [Implementer: **County, Town**, assistance from Joint Rock Lake Committee, RLIA]
- **When necessary:** If parking is reduced at the North end parking lot in the future, hire an attendant for the launch. The attendant would control boat launching and boat-trailer parking, hand out educational information, and check boats and trailers for invasive species. [Implementer: **Town**]
- **2007/2008**: Reduce boat trailer parking at Sandy Beach. This could include not allowing boat trailer parking on Sandy Beach road or at the Rotary Park parking lot. [Implementer: **City**, assistance from Joint Rock Lake Committee, RLIA]

Priority #12. **Ongoing**: Encourage landowners to install native plantings in the shoreland area. This practice will create habitat, reduce the amount of nutrients entering the lake (which feed algae and nuisance plants), augment the native milfoil weevil population, and prevent geese from accessing the landowner's property. [Possible Implementers: RLIA, LWCD]

Priority #13. **2007 + as scheduled**: Conduct aquatic plant surveys every 3-5 years on Rock Lake to keep track of community changes and the appearance or spread of invasive species. [Possible Implementers: **DNR, LWCD**]

- Expand the survey to include Marsh Lake and the center bar (located in the southern part of Rock Lake).
- Consider the pros and cons of changing the sampling protocol from a transect system to a point intercept system.
- Perform the survey on the bulrush beds at the same time as the survey done in the main basin of the lake.

Priority #14. **2008**: Reduce the number of boat launches on the lake (currently 6). [Implementer: **Town**, City]

- The Town may be interested in closing the launch at Miljala Shores which is used primarily for vehicle access in the winter.

Priority #15. **Ongoing**: Make direct, personalized contact with every farm and lakeshore owner in the Rock Lake watershed to communicate with them about conservation practices that are available to address erosion or pollution issues that may exist on the property. [Implementer: **LWCD**]

Priority #16. Insure that lakeshore property owners are educated about the shoreland zoning rules.

- **2006**: Update the summary sheet of the shoreland zoning laws that was prepared for Rock Lake. [Implementer: **LWCD**]
- **2006/2007**: Send updated summary to all lakeshore property owners. [Possible Implementers: **RLIA**, with assistance from LWCD]
- **2006**: Post the shoreland summary on websites (perhaps RLIA, City, County) with lots of visuals to be as user friendly as possible. [Possible Implementers: RLIA, City, County]
- **Ongoing**: Educate the public about shoreland zoning topics using the RLIA newspaper column "Making Waves". [Implementer: **RLIA**]

Priority #17. **2010**: Host a training session on shoreland zoning rules for building inspectors, planning and zoning committees, boards of adjustment, and contractors. [Possible Implementers: **Jefferson County, UW-EX,** local partners]

Priority #18. **2007/2008**: Add language to the Town ordinance that addresses trampolines and rafts:

- Allow trampolines ≤200 square ft., ≤38 inches in height, placed within 150 ft. from shore, set back at least 10 ft. from lot lines, and removed from the water between the hours of 8 pm to 8 am. [Implementer: **Town**, assistance from Joint Rock Lake Committee, RLIA]
- Allow riparians to have just one raft or trampoline. [Implementer: **Town**, assistance from Joint Rock Lake Committee, RLIA]

Priority #19. **2007 + Ongoing**: Give the recreational rules packet to people obtaining season passes and put the packets at the launch sites. [Implementers: **RLIA**, Town, City]

Actions include: Determine how many season passes are sold each year from City and Town, make copies of the recreational rules, determine every location where passes are sold, distribute an appropriate number of recreational rules to every location where passes are sold, provide locations with a contact number to obtain more rules if necessary. Purchase and install boxes at launch sites to hold rules, passes, and paid envelopes.

Priority #20. Protect sensitive areas.

- **2009**: If warranted, perform a new sensitive area determination on Rock Lake. This would involve a team approach with the fishery biologist, water resource specialist, water regulation personnel, aquatic plant specialist, and the wildlife biologist. [Possible Implementers: **DNR**, with assistance from LWCD]
- **20010 + Annually**: Place navigation buoys in Korth Bay so that boaters will know what route to take. [Implementer: **Town,** permits and advice from DNR, assistance from Joint Rock Lake Committee] *Actions:* Locate and GPS the best route to travel in Korth Bay, obtain feedback from Bay residents, determine distance needed between buoys, apply for permits, purchase buoys, place buoys when other buoys are placed each year.

- **Ongoing:** Continue placing the navigation buoys in Marsh Lake to protect this sensitive area. [Implementer: **Town**]

Priority #21. **2008 + Annually**: Enforce the current ordinance that states no one can operate or occupy a motorized vehicle upon the ice of Rock Lake between 9 pm and 6 am. [Implementer: **Town**]

Priority #22. **2009, then Every Other Year**: Initiate a lake education day for students and the public. [Possible Implementers: RLIA, Joint Rock Lake Committee, LWCD, UW-Extension, DNR, local educators]

- The Glacial Drumlin Trail and Sandy Beach could be the setting for the event. Different stations covering a variety of lake and environmental topics would involve presentations and hands-on-demonstrations. Resource experts would be called upon to participate. Topics covered could include invasive species, Indian lore, lake ecology, boating safety, and more. Information from the Waterford lake group's pontoon classroom would be useful for planning purposes.

Priority #23. **2007/2008**: Post the boating and recreational ordinance and fines for violating ordinance on web sites. [Possible Implementers: **RLIA**, City, with assistance from Joint Rock Lake Committee] *Actions include*: contact the entities that are in charge of the appropriate websites (RLIA, City) to obtain permission for posting ordinances and fines on websites, determine format that each entity wants for their website, format boating & recreational ordinances and fines, send formatted document to each entity for inclusion on website.

Priority #24. **Ongoing:** Send out the shoreland packet when property changes hands. [Implementer: **RLIA**] *Actions Include:* Arrange with the County's Land Information Office to receive a report on shoreland property changes every month, assemble packets, mail to new property owners.

Priority #25. **Ongoing:** Educate landowners about the availability of federal, state, and county money to help defray the costs of implementing conservation practices to prevent pollution and erosion and to increase shoreland habitat that benefits fish and wildlife. [Possible Implementers: **LWCD**]

Priority #26. **2006 & 2010:** Start a Clean Boats, Clean Waters program that educates boaters about invasive species. [Possible Implementers: **RLIA, LWCD**]

- The UW-Extension provides training for volunteers on how to talk with boaters about Eurasian water milfoil, zebra mussels and other invasive species. Volunteers are also taught how to inspect and clean boats and trailers for hitch-hiking exotics. One of the goals of this program is to reduce the threat of Rock Lake boaters transporting zebra mussels to other lakes. The RLIA should coordinate any volunteer activities with the DNR Conservation Warden.

Priority #27. **2007 & 2013**: Monitor the population of Curly-Leaf Pondweed and Rusty Crayfish and consult with the DNR regarding possible management actions. [Possible

Implementers: DNR, **LWCD**] *Actions Include:* Sample for exotic plants in conjunction with aquatic plant surveys in Priority #13.

Priority #28. **2011/2012**: Write and pass an ordinance that regulates the vehicle access to Rock Lake during ice cover that allows motor vehicles as long as they have floatation devices that will maintain buoyancy. [Implementer: **Town,** with assistance from Joint Rock Lake Committee]

Priority #29. **20012**: Increase the number of hours that officers are patrolling the lake. [Implementer: **Town**, City, assistance from Joint Rock Lake Committee]

- Weekends are hard times to find available personnel. A possibility is to inquire whether officers for the City of Lake Mills would be interested in taking some shifts.

Priority #30. **Ongoing**: Educate landowners about the aquatic plant removal laws.

- Communicate the degree of manual cutting that is allowed. [Possible Implementers: **LWCD, DNR**, RLIA]
- Educate landowners about the difference between exotic species and beneficial native species. [Possible Implementers: **LWCD, DNR**, RLIA]
- When possible, offer assistance in identifying plants so that only exotic species are manually removed. [Possible Implementers: **LWCD, DNR**]

Priority #31. **2011**: Place woody structures in the lake to create more fish habitat (with proper permits). One idea under discussion with the DNR and the Land and Water Conservation Department is to have landowners sink Christmas trees under the piers – especially on the east side of Rock Lake where there is limited fish habitat. [Possible Implementers: **LWCD, DNR**, RLIA]

Priority #32. **2012/2013**: Determine how to offer an incentive to people to trade-up from older 2-stroke engines to newer and less polluting 2-stoke and 4-stroke engines. [Possible Implementers: **RLIA**, Joint Rock Lake Committee]

Priority #33. **2011 + Annually after Initial Year**: Have lifeguards at Sandy Beach and Bartels Beach 7 days a week from Memorial Day to Labor Day. [Implementer: **City**]

Priority #34. **Ongoing in the Spring**: Educate the public on garlic mustard so that they will know how to identify and control the species. [Possible Implementers: **RLIA**, Friends of Korth Park] *Actions Include:* The RLIA can add garlic mustard education and pulling to their spring Rock Lake Clean-up event. The Friends of Korth Park could assist with an educational event on controlling garlic mustard in the Korth Park woods.

Priority #35. **2012/2013**: Have Town and City boat launch fees be consistent. [Possible Implementers: **Town, City**, assistance from Joint Rock Lake Committee] *Actions Include*: Determine what fees will be charged, inform the public, reprint passes.

Priority #36. **Ongoing**: Monitor the success of the aquatic plant plantings at Korth Park and if successful, implement plantings in other locations. [Possible Implementers: **LWCD**, RLIA]

- Possible locations include other park areas or areas where development will not occur such as Tyranena Park, parts of Schultz Bay, Mill Pond channel, and along the Glacial Drumlin Trail.

Priority #37. **Ongoing**: Reduce the Canada geese population. [Possible Implementer: **RLIA**, with assistance from DNR] *Actions Include*: Continue to collect population information on Canada geese during molting season. Investigate and pursue methods of Canada geese control (such as special hunt, oil the eggs, etc.). Choose method, apply for necessary permits.

Priority #38. **Ongoing when fry are planned to be stocked**: Coordinate with the Fish Hatchery to release walleye fry into the open water versus along the shoreline in order to increase survival. [Implementer: **RLIA**] *Actions include*: Write a letter to the Fish Hatchery to offer assistance, coordinate use of boats, schedule release with Fish Hatchery.

Priority #39. **Ongoing**: Encourage people to take a boater safety course which can be taken as a class or over the internet**.** [Possible Implementers: **RLIA, lake patrol officers**]

Priority #40. **2012 + future years**: Cut channels (perhaps manually with the use of divers) through the monotypic bands of Eurasian water milfoil found in the 9-14 foot water depths to improve habitat and predator-prey interactions. [Possible Implementers: **DNR**, LWCD, RLIA]

Priority #41. **2006/2007**: Request that the DNR perform fish surveys in Marsh Lake. [Possible Implementers: **LWCD, RLIA**] *Actions include*: Write a letter to the DNR fishery biologist for Rock Lake (Laura Stremick-Thompson) to request the fish survey.

Priority #42. **Ongoing in Spring**: Educate the public about the benefits of piers that are placed high above the water with narrow pier sections. This will allow light to penetrate under the pier so that the pier doesn't shade out important aquatic plant habitat. [Possible Implementers: **RLIA**, **LWCD**, City, Town, DNR]

Priority #43. **Ongoing**: Print a "Report on the Dam" in the paper to educate people about the water levels and explain the management of the dam. [Possible Implementers: **Joint Rock Lake Committee,** City]

Priority #44. **2014/2015**: Investigate the possible migration of fish between Marsh Lake and Mud Lake. Determine if it would be beneficial to improve the migration route (perhaps though clearing the channel) so that fish can migrate to spawning beds in Mud Lake. [Possible Implementer: **DNR**]

Priority #45. **2014/2015**: Have the City and Town have a common season pass for use at all launches. [Implementer: **City, Town**, assistance from Joint Rock Lake Committee] *Actions Include*: The City and Town need to agree on how to split fees between them, print a common pass, and advertise availability to public.

Priority #46. **2014/2015**: Place an informational sign by the dam that shows the minimum and maximum water levels for the season, and an arrow can indicate the location of the current water level. [Possible Implementers: **City**, with assistance from Joint Rock Lake Committee]

Priority #47. **Every May**: Educate the public about Columnaris (a naturally occurring bacteria that can lead to fish kills) in May so that people will know about the potential for fish kills before they happen. [Possible Implementers: RLIA, LWCD]

Education Strategy

Education is an integral part to the success of the Management Plan for Rock Lake. The following is a list of educational actions that will be taken to implement the recommendations:

Demonstration Projects – organized by LWCD or UW-Extension
Newsletters – RLIA, LWCD
Pamphlets and Brochures on a Wide Range of Topics
Personal Contacts with Landowners
Press Releases to newspaper, local cable stations, radio stations
Public Listening Sessions
Radio Interviews
RLIA Annual Rock Lake Clean-Up (spring)
RLIA Annual Membership Meeting (August)
RLIA newspaper column "Making Waves"
Websites – RLIA, LWCD, City
Workshops on various topics

Funding Sources

Money will be required to implement the majority of the recommendations in the Management Plan for Rock Lake. There are a variety of monetary sources that can be used. Some are topic specific and others are more general in scope. A list of various funding sources is listed below. It should be noted that this list is not comprehensive.

Boat Launch Fees

The Town and the City both have public boat launches where fees are collected. Wisconsin State Statute (Chapter 30) stipulates that municipalities can charge fees for use of the boat launch, costs for operating or maintaining a water safety patrol, and costs for providing other recreational boating services. According to this statute, the following recommendations can be implemented with boat launch money: informational buoys or signs on slow-no-wake zones (#7), changes to the launch parking lots (#11), reducing the number of launches (#14), providing recreational rules pamphlet to boaters (#19), enforcing the ordinance regarding no vehicles on ice at certain times (#21), post boating ordinance and fines on web sites (#23), implement a Clean Boats, Clean Waters program that educates boaters on invasive species (#26), create ordinance that

required vehicles to have floatation devices during ice cover (#28), increase the hours of the boat patrol (#29), create incentive to go from 2-stroke engines to less polluting 2-stroke and 4-stroke engines (#32), consistency of Town and City boat launch fees (#35), and a common City and Town season pass for the boat launches (#45). It might also be the case that the boat launch money can pay for lifeguards to have coverage 7 days a week at the two beaches (#33).

City Storm Water Utility

The City of Lake Mills is taking steps to research and possibly establish a storm water utility. It may be the case that each parcel is assessed a fee based on the amount of impervious surfaces on the lot. This money could then be used to improve existing and establish new storm water infrastructures with the goal of cleaner storm water discharges. Therefore, this money could be used for the following recommendations: reduce sediment and phosphorus inputs from street (#1), and stop construction site erosion (#9).

Rock Lake Improvement Association

The Rock Lake Improvement Association has funds from membership dues to expend on implementation of recommendations. Because these funds are limited, their money should perhaps be used on projects when grants and other sources of funds are not available or to augment other sources of funds.

Joint Rock Lake Committee

The Joint Rock Lake Committee has an annual budget with money from both the Town and the City of Lake Mills. These funds are more limited than the RLIA funds. Therefore, their money should also be used on projects when grants and other sources of funds are not available or to augment other sources of funds.

Land and Water Conservation Department

The Land and Water Conservation Department manages two cost-sharing programs to implement conservation practices. These funds could help defray the costs of the following recommendations: reducing sediment and phosphorus inputs from City, Town, and County roads (#1), reducing sediment and phosphorus inputs from the west channel (#2), install native plantings in shoreland areas (#12), and implement aquatic plant installations (#36). In addition to the cost-share program, there are a number of recommendations that go hand-in-hand with the charge of the LWCD. These recommendations will not necessarily need additional funds because they are ongoing tasks of the LWCD: provide education on Eurasian water milfoil (#4), pass an ordinance prohibiting lawn fertilizers containing phosphorus (#5); stop construction site erosion (#9); encourage landowners to install native shoreland plantings (#12); make direct contact with farms and lakeshore owners to provide information about conservation practices (#15); educate lakeshore owners about shoreland zoning rules (#16); educate landowners about conservation practices (#25); start a Clean Boats, Clean Waters program (#26); provide education on aquatic plant removal laws (#30);

request the DNR perform fish surveys in Marsh Lake (#41), educate the public about the benefits of piers placed higher above the water (#42); and educate the public about Columnaris (#47).

Rock River Coalition

The Rock River Coalition coordinates volunteer monitoring on streams throughout the Rock River Basin. This effort could potentially go hand-in hand with the recommendation to initiate water quality monitoring at key locations (#10) because at least one desired monitoring location is on the stream flowing between Mud Lake and the southern basin of Rock Lake, Marsh Lake.

Department of Natural Resources

The Department of Natural Resources offers a variety of grants that can be used to implement the recommendations in the management plan. A brief description of some of the DNR grants is contained below. In addition, Table 17 provides information on the funding levels and the application deadlines.

Table 17. Grants Available from the Department of Natural Resources

Grant	Awards	Application Deadline
Aquatic Invasive Species	50% up to $75,000 or $10,000 depending on project	February 1 and August 1
Lake Classification	75% not to exceed $50,000 total ($21,807.28 remaining for Jefferson County)	May 1
Lake Management Planning	75% up to $10,000 for large scale	February 1 and August 1
	75% up to $3,000 for small scale	
Lake Protection	75% up to $200,000 or $100,000 depending on project	May 1
Recreational Boating Facilities	50%-90% depending on project	ongoing, awards made up to 4 times a year
River Protection - Planning	75% up to $10,000	May 1
River Protection - Management	75% up to $50,000	May 1
Targeted Runoff Management	70% up to $150,000	April 15
Urban Nonpoint Source and Storm Water Grants	70% up to $85,000 for planning	April 15
	50% up to $150,000 for construction and $50,000 for land acquisition or easements	

The Aquatic Invasive Species Control grants will fund education, prevention and planning projects; established infestation control projects; and early detection and rapid response projects. The following recommendations could be funded with this grant: reduce the spread of Eurasian water milfoil (#4), initiate a Clean Boats, Clean Water program to provide education about invasive species (#26), monitor and take action to control curly-leaf pondweed and rusty crayfish (#27), and cut channels through dense bands of Eurasian water milfoil to improve fish passage (#40).

Jefferson County received a Lake Classification grant in which it prepared a plan for enhancing all the lakes in the county. Additional money is available to implement the plan. Some of the recommendations in the Rock Lake Management Plan are similar to the recommendations in the County plan. Therefore, the recommendations in the Rock Lake Management Plan could be partially implemented when the County plan recommendations are implemented with the Lake Classification grant monies. The following recommendation would fall into this category: educating lakeshore property owners about the shoreland zoning rules (#16); training session on shoreland zoning rules (#17); send out an educational packet to shoreland owners (#24); and initiate a Clean Boats, Clean Waters program (#26).

Large-scale Lake Management Planning grants can fund the following projects: gathering and analysis of physical, chemical, and biological information on lakes; describing present and potential land uses within lake watersheds and on shorelines; reviewing jurisdictional boundaries and evaluating ordinances that relate to zoning, sanitation, or pollution control or surface use; assessments of fish, aquatic life, wildlife, and their habitats; gathering and analyzing information from lake property owners, community residents, and lake users; and developing, evaluating, publishing, and distributing alternative courses of action and recommendations in a lake management plan. Small-scale Lake Management Planning grants can be used on the following projects: lake monitoring on a small scale; lake education; organization development; and studies, assessments and other activities needed to develop management goals. The following recommendation may be potentially funded by lake planning grants: gaining better understanding of water level management (#6); initiate additional water quality monitoring within the watershed (#10); conducting aquatic plant surveys (#13); monitor population of curly-leaf pondweed and rusty crayfish (#27); place woody structures in lake for fish habitat (#31) (if done in conjunction with a study on whether the fish population benefits); and investigate possible fish migration between Mud and Marsh Lakes (#44).

Lake Protection grants can help defray the costs of the following: purchase of land or conservation easements that will significantly contribute to the protection or improvement of the natural ecosystem and water quality of a lake; restoration of wetlands and shorelands that will protect a lake's water quality or its natural ecosystem (these grants are limited to $100,000); development of local regulations or ordinances to protect lakes and the education activities necessary for them to be implemented (these grants are limited to $50,000); and lake management plan implementation projects recommended in a plan and approved by DNR. This grant could potentially help fund the following recommendations: determine quality of wetlands in watershed (#8); install native plantings in shoreland areas (#12); initiate a lake education day for students and the public (#22); place woody structures in lake for fish habitat (#31); implement aquatic plantings (#36); and improve fish migration routes if warranted (#44).

Among other items, the Recreational Boating Facilities grants can fund projects including: support facilities (limited to parking lots, sanitary facilities and security lighting), and acquisition of navigation and regulatory marker aids. The following recommendations could potentially be partially funded by this grant: place buoys at 100 and 200 feet from boat launches to show Slow-No-Wake areas (#7), make changes to

the launch parking lots (#11), reduce the number of launches (#14), and protect sensitive areas by placing navigational buoys (#20).

River Protection Planning and Management grants will fund similar projects on rivers as the lake protection and management grants fund on lakes. These grants could potentially assist in the implementation of the recommendations to initiate additional water quality monitoring within the watershed (#10).

DNR Targeted Runoff Management grants involve construction or implementation of best management practices to control nonpoint source pollution. Agricultural practices eligible include barnyard and feedlot runoff control, animal waste management practices, and stream bank protection. Urban practices funded include detention basins, wet basins, infiltration basins, wetland basins, and purchase of a street sweeper. The following recommendations could potentially be funded by this grant: reduce sediment and phosphorus inputs from City, Town, and County roads (#1), and reduce sediment and phosphorus inputs from the west channel (#2).

Urban Nonpoint Source and Storm Water Grants involve planning, construction, or land acquisition in order to improve urban water quality from nonpoint source pollution. The planning grants include storm water planning for existing or new development, preparation of new ordinances, evaluating local financing options for storm water programs including storm water utilities, and public participation, education, and outreach programs. The construction grants include activities such as construction of detention basins, wet basins, infiltration trenches, infiltration basins, or wetland basins; engineering design and construction services for practice installation; land acquisition and easement purchase; storm sewer rerouting and removal of structures; and streambank and shoreland stabilization projects. The following recommendation could potentially be funded by this grant: reducing sediment and phosphorus inputs from City, Town, and County roads (#1).

The DNR has a Dam Maintenance, Repair, Modification, and Removal Grant program. A successful grant is funded at 50% of the eligible project costs with a maximum award of $200,000 per project. A local match of 50% is required. The entire dam would have to be upgraded to meet standards to receive a grant. The grant program has not been funded by the legislature since 2000. It is not known whether future funding will be provided for this grant program, but if it is then parts of the recommendation to gain a better understanding of the water level management for Rock Lake and take appropriate actions (#6) could potentially be funded.

Table 16. Implementation Timeline for Rock Lake Management Plan										
Implementers: Ci = City, Co = County, D = DNR, E = Educators such as local schools, Boy Scouts, Girl Scouts, etc., F = Friends of Korth Park, J = Joint Rock Lake Committee, L = Land & Water Conservation Department, O = Lake Patrol Officers, R = Rock Lake										
Recommendations	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
1. Reduce runoff from streets										
Reduce runoff from Shorewood Hills Road	T	T	T							
Support City stormwater utility & credits for good practices	J, R, T, L - when City obtains grant & finishes plan									
Upgrades to 3 city water control systems discharging to Lake	Ci - when utility is created because it is the money source									
Clean City catch basins	Ci - Regularly as needed									
Maintain storm drain labels	R, E - As Needed									
Determine how to improve leaf pick-up & implement plan	Ci	Ci	Ci							
Insure developers install infiltration basins where appropriate	Ci, T - As needed									
Install other practices to reduce street runoff	Ci, T - As needed									
2. Reduce sediment/phosphorus inputs from west channel	L	L	L							
3. City adopt county shoreland zoning ordinance	Ci	Ci	Ci	Ci						
4. Reduce spread of Eurasian water milfoil										
Monitor abundance and location		L, D						L, D		
Develop location & density map with 2001 data	L									
Consult with DNR regarding increasing weevil population	L	L								
Education on milfoil	R, L - ongoing, in August									
5. Pass lawn phosphorus ban ordinance	T, Ci, Co	T, Ci, Co								
6. Improve water level management										
Daily measurements, identify mgmt & structure options		Ci, J	Ci, J	Ci, J	Ci, J					
Determine if Fish Hatchery can assist			Ci, D, J	Ci, D, J						
Clean debris daily	Ci - daily as needed									
7. Place information buoys showing 100/200 feet from shore			T, Ci, J	T, Ci, J						
8. Conduct study to determine wetland quality & mgmt actions			R, L							
9. Stop construction site erosion										
Direct building inspectors to make erosion control priority	Ci, T - ongoing									
Communicate with developers the importance of erosion control	Ci, T - As needed									
Make the fine structure stronger for erosion control violations				Ci, T						
Research how to make contractors responsible for violations			Ci, T							
10. Initiate water quality monitoring at key locations in watershed			R, L							

Recommendations	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
11. Make parking changes to reduce boat traffic & possible accidents										
Reconfigure North end to reduce boat trailer parking		Co, T	Co, T							
If north end parking is reduced, hire attendant for launch	T - when appropriate									
Reduce boat trailer parking at Sandy Beach		Ci	Ci							
12. Encourage installation of native shoreland plantings	R, L - ongoing									
13. Conduct aquatic plant surveys		L, D						L, D		
14. Reduce number of boat launches (perhaps Miljala)			T							
15. Communicate with landowners re conservation practices	L - ongoing									
16. Educate lakeshore owners regarding shoreland zoning rules										
Update shoreland zoning summary sheet	L									
Send summary to lakeshore owners	R	R								
Post summary on websites	R, Ci, Co									
Educate public through "Making Waves"	R - ongoing, Spring when landowners are thinking about projects									
17. Host training on shore zoning rules for officials involved					Co, UW					
18. Add language to Town ordinance that addresses trampolines		T	T							
19. Give recreational rules to season pass buyers & at launches	R, T, Ci - ongoing									
20. Protect Sensitive Areas										
If warranted, perform new sensitive area determination.				D						
Place navigation buoys in Korth Bay	T - annually									
Continue placing navigation buoys in Marsh Lake	T - annually									
21. Enforce current ordinance on motor vehicle access on ice	T - annually									
22. Initiate a lake education day for students & public.				R		R		R		R
23. Post boating & recreation ordinance & fines on web sites.		R, Ci	R, Ci							
24. Send out shoreland packet to property owners.	R - when property changes hands									
25. Educate landowners regarding $ for conservation practices	L - ongoing									
26. Start a Clean Boats Clean Waters program to educate boaters	L					R, L				
27. Monitor population of curly-leaf pondweed & rusty crayfish		D, L						D, L		
28. Write/Pass ordinance calling for floatation on vehicles during ice						T	T			
29. Increase number of hours that officers patrol lake							T			
30. Educate landowners regarding aquatic plant removal laws	L, D - ongoing, during summer months									
31. Place woody structures in lake to create fish habitat						L, D				
32. Offer incentive to trade up to less polluting engines							R	R		
33. Have lifeguards at Sandy Beach & Bartels Beach 7 days a week						Ci	Ci	Ci	Ci	Ci
34. Educate public about garlic mustard	R, F - ongoing, in Spring before flower goes to seed									
35. Have Town & City boat launch fees be consistent							T, Ci	T, Ci		
36. Monitor success of aquatic plantings and implement more.	L - ongoing									

Recommendations	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
37. Reduce Canada geese population.	R - ongoing									
38. Work with Fish Hatchery to release walleye fry into open water	R - when fry are planned to be stocked									
39. Encourage people to take boater safety course.	R, O - ongoing, beginning of summer									
40. Cut channels through dense stands of milfoil to improve habitat							D	D		
41. Request that DNR perform fish surveys in Marsh Lake.	L, R	L, R								
42. Educate public about benefits of high, narrow piers	R - ongoing, in Spring									
43. Print a "Report on the Dam" in paper to educate public	J, Ci - ongoing									
44. Investigate & improve possible migration of fish btw Marsh and Mud Lakes									D	D
45. Have City/Town have a common season pass for all launches									Ci, T	Ci, T
46. Place information sign by dam as an educational tool									Ci, J	Ci, J
47. Educate public about Columnaris	R, L - every May									

Appendix A

Notes from 2004 and 2005 Public Input Sessions

Rock Lake Management Plan
Notes from Public Session
Wednesday, August 25, 2004

Attendance

Ronnie Anderson, Andy Barnes, Keith Barnes, Tom Berns (Member, Rock Lake Management Plan Advisory Committee), Johanna Chworowsky, Patricia Cicero (Project Leader, Land and Water Conservation Department), Jim Colegrove, Bob Crump, Betsy Delorey, Kevin Delorey, Pete Ebbott (Member, Rock Lake Management Plan Advisory Committee), Scott Erwin, Larry Everson, Melissa Fehrman, Zach Grimes, Jim Heinz (Member, Rock Lake Management Plan Advisory Committee), Margaret Krueger, Paul Kruse, Helen Mansfield, Leslie Martini (Facilitator, Top Notch Seminars), Bill Nadler, Steve Nass, Janet Niedfeldt, Ron Niedfeldt, Hope Oostdik, Mike Orcutt, Jim Plotz, Lynn Plotz, Charles Roy, Stan Smoniewski, Milt Strauss, David Walz (Conservation Warden, Department of Natural Resources)

Notes

Patricia Cicero, Resource Conservationist for the Land and Water Conservation Department and Project Leader, welcomed everyone to the public session. She gave a brief explanation of the Rock Lake Management Plan project and introduced the project team in attendance. A project summary is available from Patricia Cicero (please see contact information at the bottom of this document).

After the presentation, someone asked for an explanation of a watershed because there was some confusion of how it is defined and why more of the City of Lake Mills couldn't be added to the watershed. Patricia explained that a watershed boundary is determined by topography and is not a subjective line. A watershed is the land area draining into a specific stream, river, lake or other body of water. These areas are divided by ridges of high land.

Patricia informed everyone that Stanley Smoniewski created a longer presentation on characteristics of Rock Lake and its watershed and issues that face these resources. Patricia and Stanely are available to give this presentation to community groups.

Next, Leslie Martini facilitated a brainstorming session to answer the following questions:
1. What do you like about Rock Lake and its watershed? What are the lake's assets?
2. What are your concerns regarding Rock Lake and its watershed? What would you change?
3. What are your ideas for addressing your concerns about Rock Lake and its watershed?

Approximately 10 minutes were spent on question #1, and 30 minutes each were spent on questions #2 and #3. Answers to these questions were recorded and are included below along with input from citizens who were unable to attend the session but who provided comments prior to the session. The answers have been put into categories to facilitate further discussion and study by the Rock Lake Management Plan Advisory Committee.

1. What do you like about Rock Lake and its watershed? What are the lake's assets?

Environment and Habitat
Water clarity
The spring water inputs into the lake
Rock Lake is not as weedy as other lakes in the area

Large wetlands
Migrating waterfowl
Frogs
Turtles in spring
Fish hatchery – and the fact that Rock Lake often receives any extra fish they may have
Attractive shorelines

Recreation
Recreational opportunities
There are lots of access points
Lack of marina
Good law enforcement
Fishing
Variety of activities
Beach
Korth Park

People's Experiences, Places
Serenity
Relative peace and quiet at night and before 10 a.m.
Public owned land around lake
Riparian rights
Perfect size
Location
History and aura

Management
Rock Lake Priority Lake Project
Rock Lake Improvement Association
Partnership between the Town of Lake Mills and the Department of Natural Resources
Relationship with state to develop prairies at Korth Park

What are your concerns regarding Rock Lake and its watershed? What would you change?

Environment and Habitat
Wetland degradation in the watershed
Water clarity
Excessive weeds
Increasing weeds in Korth Bay
Oak wilt
Invasive species
Zebra mussels

Land Use and Zoning
Land use in the watershed
Land development in the watershed
Trailer parks/mobile homes
Boat houses

Pollution
Point sources of pollution

Nonpoint source pollution
Chicken farm
Farm runoff
Algae caused by excess phosphorus entering lake
Trash that gets into the lake from boats and ice fisherman
Leaves from the city that go into the lake via storm drains because city residents are instructed to put the leaves in the street
Salt from roads in the winter
Vehicles in lake that are not removed in a timely manner
Pollution from geese
Pollution from fertilizers on residential lawns
Pollution from pet waste
Shoreline light pollution
Noise
Concerts at Sandy Beach

Recreation
Excessive fishing pressure
Potential for over-fishing as there seems to be far more boats out in the summer and especially more ice shacks in the winter
Winter use of lake
Too many access points on lake
Too much parking at the lake access points
Overuse of the lake on weekends
Use of jet skis on the lake
Outboard motors
Water ski hours are too restrictive
Boat sizes which are too big for the size of the lake
Boat speeds which are too fast for the size of the lake
Restricting boat size will restrict freedom
Restrictions on the number of boats allowed on lakeshore property
No more than 2 boats per property
Restrictions on the size of piers
Legal ramification of grandfathering businesses on the lake that have too many piers and too many boats in a small location
Boaters not knowing the regulations on the lake
Renting of boat space on piers in the lake
People not observing slow-no-wake rules
Law enforcement was excessive this year
Enforcement of boat ramp fees
Not enough law enforcement near the swimming areas

Land Use and Zoning
Landowners that cut trees in the shoreland area and replace them with grass
Destruction of natural shoreline vegetation
Fines are too low for violations of shoreland zoning rules
Permit fees are too low

Water Levels
Water level in spring seems too low
Lack of knowledge of who controls the water levels

Management
City's attitude toward lake issues
Building a constituency and balancing issues when there are differing views on the problems facing the lake
Financing needed improvements for the lake

What are your ideas for addressing your concerns about Rock Lake and its watershed?

Environment and Habitat
Improve and increase the frequency of water sampling
Increase monitoring of all issues to quantify and track changes and look for trends
Continue monitoring threatened species, habitats, and how to preserve both
Research modern Eurasian water milfoil management – review data, do low tech management such as having scuba divers cut the milfoil, and track the changes
Get a weed cutter for the lake
Do something to prevent boats from transporting zebra mussels
Investigate the use of lost lake

Pollution
Educate people on where the storm drains run (into lakes and rivers and not the sewer treatment plant)
Label or paint storm drains to educate people that they drain to the lake
Keep the city leaves out of the street gutters and have them collected from the tree lawn
Have the city clean the storm drain basins more frequently
Control local geese population
When roads are built or re-built, the runoff from the roads should be directed into grass swales and not directed into the lake
Study phosphorus levels on lawns and agricultural land
Ban the use of phosphorus on residential lawns
Get community involvement for cleaning garbage on lake
Look at regulations for noise and light pollution
Build a sound barrier on Hwy 94

Recreation
Create a citizen lake watch to patrol lake and educate boaters on rules
Manage piers/rafts/boathouses more effectively
Phase out 2 cycle engines
Jet skis need to behave
Limit PWC operation through either hours of operation or days of operation
Water skiing hours should be sunrise to sunset
Expand slow-no-wake hours to be from 7 pm to 10 am
Expand slow-no-wake hours to be from sunset to 10 am
Have a voluntary "quiet day" on the lake that would be slow-no-wake, perhaps Tuesday
Have adults (as wells as kids) take a boater safety course
Reduce motorized access to the lake
Reduce parking at the public launches

Land Use and Zoning
More restrictions on tree cutting by shoreline
Better enforcement of tree cutting rules
Start a shoreline restoration program
There needs to be more shoreline protection measures at the county level

There needs to be more enforcement at the town level on shoreline violations
There should be higher fines for violations to shoreline rules
Be more aggressive on zoning enforcement

Water Levels
Educate people about the management of the outlet dam
Ask the DNR to re-examine the lake levels
Find a more effective method to adjust the lake levels
Publicize lake levels to the public

Education
More education
Better education for the public
Get high school and middle school science teachers involved in lake education
Encourage the high school to provide science education to increase participation in lake issues

Management
The money from the public boat launches should be used on lake issues and perhaps this project can list the areas where the money should be directed
Create more room for partnerships
Improve cooperation, coordination, and consensus on lake issues between all bodies concerned with the lake including the town and city
County Conservation Department need to keep a focus on lake issues after the Rock Lake Priority Project has been completed
Create lake management district
Have legislation that protects the rights of riparian owners
Review other lake plans for ideas and lessons learned (e.g. Schwam Lake in NH)

Handouts

Rock Lake Management Plan – Project Summary
Rock Lake Watershed – Facts and Figures
Public Session Presentation

Long Range Plan for Rock Lake
Notes from Public Input Session
Saturday, August 20, 2005

Attendance – 34 adults, 3 children

Tom Berns, Long Range Plan Advisory Committee
Patricia Cicero, Jefferson County Land & Water Conservation Department
Pete Ebbott, Long Range Plan Advisory Committee
Jim Heinz, Long Range Plan Advisory Committee
Nolan Kollath, Long Range Plan Advisory Committee
Leslie Martini, Top Notch Seminars

Nancy Baldwin, Mike Burow, Johanna Chworowsky, Tom Cianciolo, Jim Ciullo, (first name?) D'Agnola, Dan Dunnavan, Karen Etter Hale, Larry Everson, Justin Fehrman, Melissa Fehrman, Karen and Lilly Goeschko, David Hill, Paul Kruse, Kevin Lehner, Wayne Magnussen, Helen Mansfield, Bob Mowris, Bonnie Mowris, Alex and Pat and Bill Mulligan, Doug Mulay, Ron Niedfeldt, Jim Plotz, Jan Scherubel, Ron Scherubel, Larry Sieb, Stan Smoniewski, Milt Strauss

Notes

Patricia Cicero welcomed everyone to the session. She introduced the people involved in the Long Range Plan project and gave a brief presentation on the process. The entire list of draft recommendations was provided to the participants. Patricia presented 10 of the top ranked recommendations and explained that the Advisory Committee is still in the process of prioritizing them and wants the public's input. After explaining some of the key points for each recommendation including some results from the public survey, the public was asked for their comments.

Recommendation: Reduce sediment and phosphorus inputs from City and Town streets.

- Do we have estimates for the improvement costs? Answer: The Committee is proposing recommendations to address problems and will put them in priority order. Costs have not been discussed because the intent was to identify the most needed recommendations regardless of cost.
- Phosphorus – the Dane County ordinance could be a possibility. Answer: Upcoming recommendation deals with this issue.
- Salt is also an issue on the streets in the winter. This should be addressed on a Jefferson County level.
- In terms of the Rock Lake Priority Project: How will this recommendation help meet the goals? Exactly how much phosphorus will be reduced?
- Leaf pick-up: A vacuum truck used to be used. We are now going in the opposite direction. There is lots of trash in the streets.
- Do leaves cause pollution? Answer: Leaves contain phosphorus which leads to algae blooms. The amount of leaves from trees adjacent to the lake is fine, but the additional leaves being delivered from the streets is too much.
- The high school just re-did their parking lot and added a retention basin. We need to see more of this in the future.

Recommendation: Reduce sediment and phosphorus inputs from west channel (adjacent to Cedar Lane).

- Phosphorus reduction levels that are recommended: How does this help reach the reduction goals?
- Need to be able to estimate how many pounds of phosphorus this will prevent/control.
- Need to measure phosphorus levels from many sources. A model is needed. Answer: A model was already done that shows the relative amount of phosphorus and sediment for various sources.
- Amount of algae might be rough estimate for a lay person of the amount of phosphorus coming into lake at this site.
- 10 years ago – chicken farm causing pollution on lake. Data still available through RLIA?
- Farms on lake do not have cattle any longer, so phosphorus source cannot be from manure.
- Construction on Shorewood Hills Road doesn't use erosion control.
- Manure is still spread on farmlands: if landowner doesn't have animals any more, then they get manure for the nutrient needs of their crops from other farms that have manure.
- One idea is to build a retention pond to capture sediment prior to entering the channel. Is there funding available?

Recommendation: Pass an ordinance in the Town and City or the County that prohibits the use of fertilizer containing phosphorus on public and private lawns unless a soil test reveals the need for phosphorus.

- What contributes the bigger percentage of phosphorus: agriculture or residences? What can we expect as the results of the phosphorus ban on lawns?
- Spreading fertilizer gets on sidewalks and streets. People need to be educated about proper application.
- Survey respondents likely cared about lake and would be supportive of phosphorus ban, but others may not be supportive. Education process is needed about effects and options.
- Agree with ban, but how do you enforce it? Ban sale of phosphorus fertilizer?
- Eliminate sale of phosphorus on a county-wide scale.
- Education is key.
- Phosphorus producers have marketing capabilities that can help with education.
- Dane County papers have ads that support no use of phosphorus in products.
- How many pounds of phosphorus will this prevent from getting in lake?
- Piggy-back on Dane County efforts – data, public support. This recommendation is an easy one to implement.
- Does water level have any adverse impact on pollutants to lake?
- Water is very clear now – are we getting zebra mussels?

Recommendation: Gain better understanding of water level management for Rock Lake and take appropriate actions.

- The means of drawing down the water level are inefficient.
- The high water level is a bigger issue than the low water level because of shoreline erosion.
- Review the starting point: is it appropriate? People are extending their piers a long way in order to have enough water for their boat.
- Low water level is a bigger problem than high water level.
- The water level is supposed to be kept at the midpoint of the seasonal minimum and maximum.
- The DNR should review the water level regime – adjust levels so there is not as much variation.
- Evaporation rate needs to be incorporated.

- Fish hatchery takes water out of the lake in the spring to fill their ponds.
- The water is very clear right now when the water level is low. Perhaps a high water level produces high waves which wash sediment in the lake.
- Are we considering changing the mechanisms of the dam to find a better way to draw down the water level? The current method is inefficient.
- Why not go ahead and move ahead with a new dam?
- Will we consider effect on downstream impact of drawing down and letting out water? Answer: If new dam is constructed or if DNR operating orders are changed, there will be a long process and every consideration will be discussed.

Recommendation: Adopt Jefferson County's shoreland zoning ordinance in the City of Lake Mills so that the rules are consistent for the entire lake.

- Many existing properties on lake may already be in violation of new County ordinance. Answer: The County ordinance does not make existing properties change, it only applies when property owners initiate a change to their property.
- Education is important.
- Need copies of current City ordinance and County ordinance to compare. Answer: Ordinances are on City and County websites.
- Recommendation for consistency is key.
- How closely will County adhere to State rules update? Answer: The County used State proposals when crafting its ordinance.
- The lake looks good when looking at the Town side. City side is overdeveloped. The City should adopt the County ordinance.
- County shoreland rules can be stricter than the State shoreland rules.
- Perhaps not until 2008-2010 before State rules would be changed.
- Land erosion cutting into sidewall, retaining walls helped to address this.
- City has developed their own shoreland ordinance which is different than Town/County.
- The new County ordinance impacts a property when modifications are made within 75 feet. Existing structures that do not adhere to the new ordinance can remain until changes are made within 75 feet.
- Old rules were vague. The new County rules will help with understanding in the future. With the old County rules, there were many shoreland zoning violations.
- Consistency is key. Right now there is conflicting information.

Recommendation: Reduce the spread of Eurasian water milfoil.

- Information on effects of cutting off milfoil – sometimes the growth and spread can get worse.
- Improvements are shown in some lakes (such as Ripley) where milfoil is only cut in specific areas.
- Look at weevil research to make sure it can address our situation. They need natural shoreline for over-wintering (not rock riprap and not lawns), and sunfish will eat them.

Recommendation: Make changes to the parking areas at the boat launches to reduce the boat traffic and possibility for accidents.

Recommendation: If parking is reduced at the north end parking lot in the future, hire an attendant for the launch. The attendant would hand out educational information, check boats and trailers for invasive species, and control boat launching.

- Millpond parking needs to be included too.
- Create ordinances about parking boat trailers in streets and other locations.

- For the boat counts that are done at the parking lots: it would be helpful to have information on where trailers are from.
- Control access to lake through permits too.
- Recommend that launches be better controlled. Launch passes are not being checked.
- For the boat counts: Need to collect more data. Need to look at some dates when the lots are empty. Cannot just use the worse case scenario.
- How does Rock Lake compare to other lakes for development?
- People who live on lakes have to trailer boats to launches due to low lake levels this year.
- Lake belongs to everyone (not just lake owners), and everyone has right to have boats on lake.
- Would eliminating parking in one area increase parking in another area?
- Issue is safety of people on lake versus lake ownership.
- Launching fees are not being enforced – limit by the number of parking spaces.
- Why are the number of boats so much greater this year at the launches than last year?
- Perhaps the number of boats hasn't increased – instead the Millpond launch is closed so those other boats are launching elsewhere on the lake.
- Enforcement is difficult.
- Madison lakes in bad shape so people coming here.
- Need to consider number of permits that are being sold.
- Boat launch fees – Dane County pass for any launch. Shouldn't have to have different pass for the City and the Town launches.
- Is it legal to rent pier space on lake? Answer: There is no law prohibiting the renting of pier space.
- This is a safety issue.
- Correlations between the number of parking spaces and invasive species should be highlighted.
- Number of boats on lake during July 4th weekend of 2003: Ever considered looking at boats that are on lake that are just anchored at the sand bar and not really moving around?
- Pier situation is better on Rock Lake than Lake Ripley.

Recommendation: Reduce the number of boat launches on the lake (currently 6).

- s it within State guidelines to keep same number of launches but favor people living in area? Show preferences.
- Wrong measures to compare with other lakes – not number of launches, but number of boats a launch can handle at once. Other lakes you can launch 2 boats at once at the same launch.
- It would be nice to have some walk-in sites for non-motorized boat launching.
- Easy to get into lake so people come here.
- What are you trying to accomplish? Limiting number of launches versus limiting parking?
- Miljala shores not used as boat launch now anyways – eliminating it is not helpful.
- Consider costs associated with changes. Keep people and attendants in few places to handle administrative costs and keep them down.

Recommendation: Change the rule so that all watercraft (boats and PWCs) have to travel at Slow-No-Wake speeds within 200 feet from the shore.

- Place ½ dozen buoys around lake to mark 200 foot zone.
- Law enforcement does not stop at 6 p.m.
- What are we trying to accomplish? Does 200 foot zone stop erosion better than 100 foot zone? Answer: Consistency across all watercraft and protection of aquatic vegetation are the reasons for this recommendation.

- Why deviate from State rules?
- It is difficult for people to know the rules are different from the State rules.
- If you use 200 feet, then you are moving boats traveling at high speeds into a smaller area on the lake, creating more boats in a smaller area. Potentially more safety issues.
- Leave it the way it is and be compatible with state.
- Madison lakes have a 200 foot SNW zone for every watercraft.
- There is a mis-clarification between State law enforcement and boater training when it comes to distance required to be Slow-No-Wake from restricted area buoys. State law states that watercraft should be going SNW within 100 feet from buoyed areas, whereas officers on the lake allow watercraft to travel faster than SNW directly adjacent to buoyed areas.
- Lake is becoming cluttered with buoys and rafts.

Other Input
- Was any thought given to the problem of geese and seagulls and the pollution they cause? Answer: There is a recommendation on geese. However, seagulls were not discussed by the Committee.
- Resident Canada geese are the problem and the ones being targeted for control – not the migrating geese.
- Seagull population has been increasing.
- Various questions that have come up during session – Can organizers answer them via emails? Answer: send Patricia your questions, or request the issue papers that were developed as part of the process because the papers answer some of the questions.
- In the final plan, make sure that the intent of each recommendation is explained.

Written Comments Received After Session
- Good meeting format.
- Is there anyone representing water skiers?
- Cost out recommendations. Develop a separate “pace”, “levels” of project tasks by $. Then implement “free” or zero cost activities first while working on higher cost tasks or those requiring more complicated preliminary infrastructural activities.
- Send emails with answers to specific questions (i.e., what does phosphorus do, easy answer, where used – what are downsides of P limitations?).
- I think that the committee has done a good job of highlighting the problems and possible solutions. I indicated at the meeting that I thought there was more sediment from construction and development than from agriculture. We purchased our property in July 1992 and the channel was very navigable at that time. In 1993 and 1994 the majority of development of the Shorewood Meadows subdivision took place and the channel became navigable beyond our property. Shortly after that we had to dredge the channel. I am appalled at times at the lack of runoff control at construction sites around and in the lake area. Many times developers and contractors leave mud and debris on the roads too. I certainly believe that the phosphorus pollution from livestock farms has to be down as livestock numbers have decreased to 1/3 of what they used to be. The number of commercial lawn services and homeowners using them has increased. The ultimate test of the committee’s recommendations is if there is any "teeth" in the penalty area to make compliance a reality.
- Worried about overuse of the lake – each year the boat traffic increases. At the North end the congestion is bad. Can a pier be placed so that boats waiting for the launch or wanting to just use the bathroom facilities can tie up to it? It would help with the overflow of boats in the area. I’m worried about safety issues in that area. Another thing that would help is to

have an attendant there. (Al Kovneski used to do it and it worked better then.) More boater education is needed because people are not following the rules.
- Letter attached.

Handouts – All handouts are available from Patricia Cicero.
- Possible Recommendations for the Long Range Plan for Rock Lake, dated 8/4/05

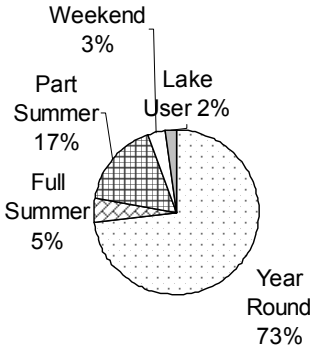
Appendix B

2005 Public Survey and Results

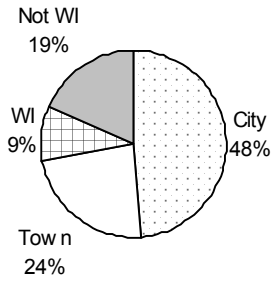
Results of Rock Lake Survey – 2005

37.5% return rate on survey: 2,394 surveys were sent out, 897 were returned.

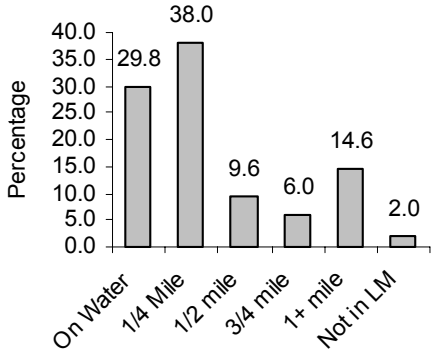
1. Describe your residency.



2. Describe permanent residence.

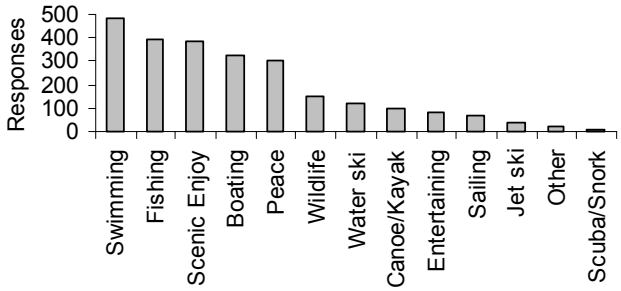


3. Distance property is located from lake.

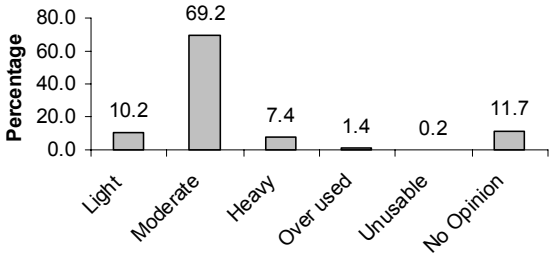


4. Average number of years lived by and or recreated on Rock Lake is
25 Years.

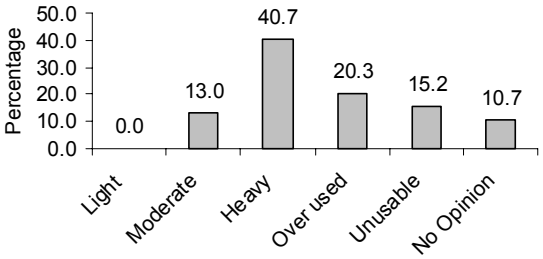
5. Activities household enjoys.



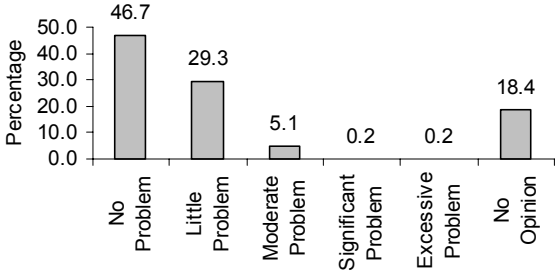
6. Description of boat traffic – WEEKDAY.



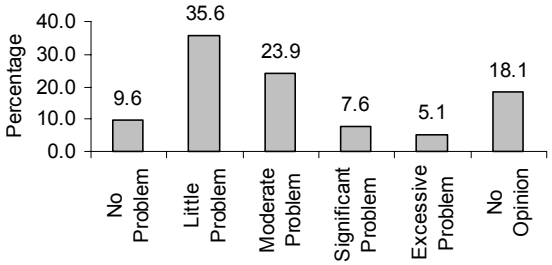
Description of boat traffic – WEEKEND.



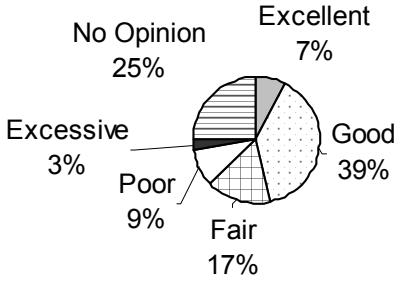
7. Describe experience with other boaters on WEEKDAYS.



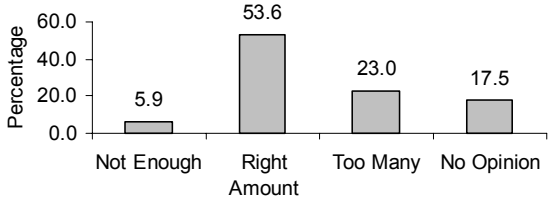
Describe experience with other boaters on WEEKENDS.



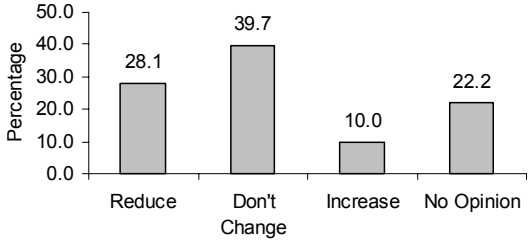
8. Opinion on enforcement.



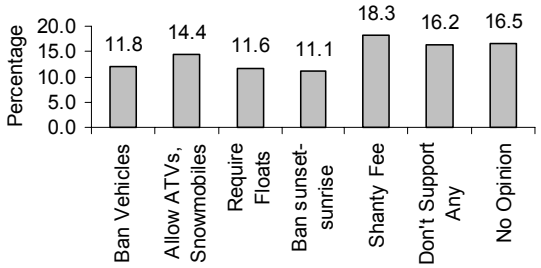
9. Opinion on the 6 boat launches.



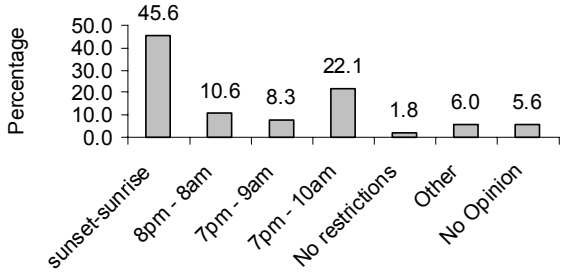
10. Opinion on amount of boat trailer parking.



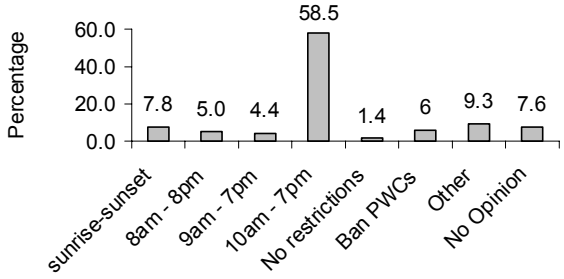
11. Support of winter regulations.



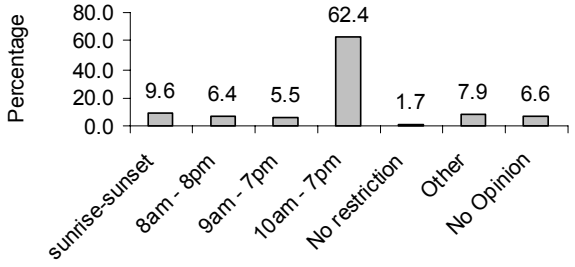
12. Opinion on Slow-No-Wake hours for boating.



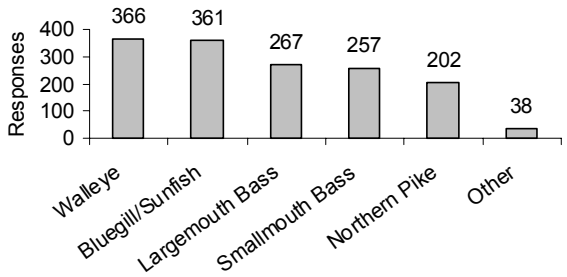
13a. Opinion on Hours for PWCs.



13b. Opinion on Hours for Towing (waterskiing, tubing).



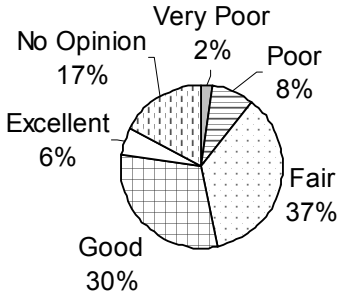
14a. Species Preferences when Fishing Rock Lake.



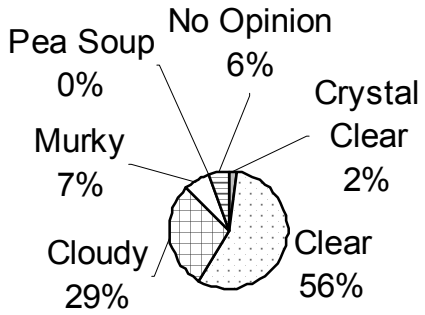
14b. Average Size of Fish Caught.

Fish Species	Average Size (inches)
Walleye	14.2
Bluegill	6.6
Largemouth Bass	12.3
Smallmouth Bass	11.7
Northern Pike	21.9

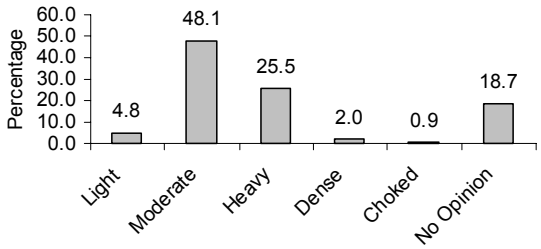
14c. Opinion of Fishing Quality.



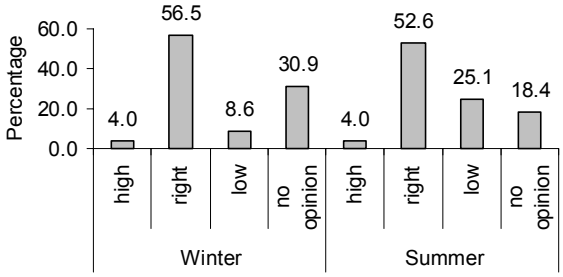
15. Opinion of Water Clarity.



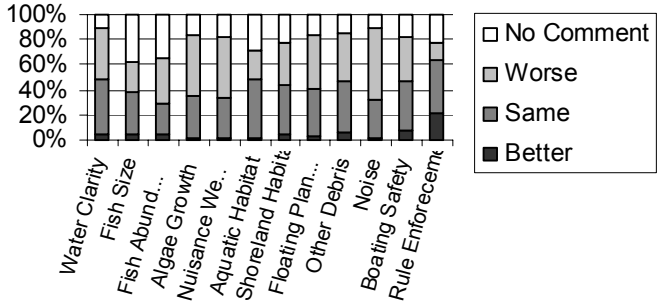
16. Opinion of Aquatic Plant Growth.



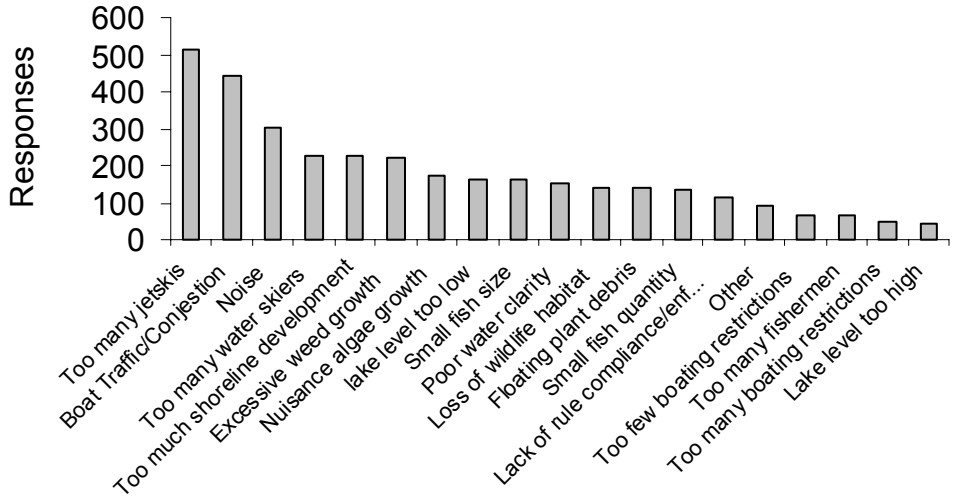
17. Describe Winter and Summer Water Levels.



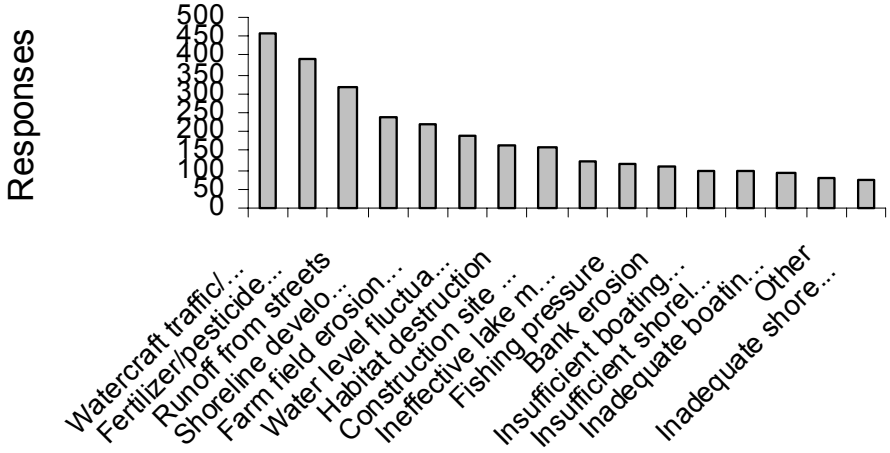
18. Opinion on How Lake Characteristics have Changed Over the Years.



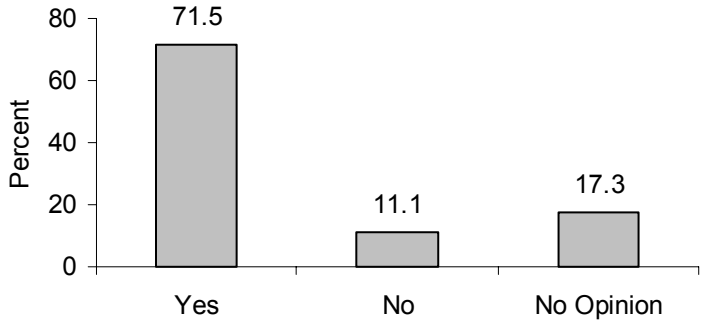
19. Items that Negatively Impact Enjoyment of Lake.



20. Opinion of Top Factors that Contribute to Problems on Rock Lake.



21. Would you Support a Ban on Phosphorus in Lawn Fertilizers?



Appendix C

Recommendations Considered by Not Advanced by the Advisory Committee

Recommendations Considered but not Advanced by the Advisory Committee

- Speed limit on the lake.
- One way rule (clock-wise or counter-clock-wise) for towing and waterskiing.
- Institute a slow-no-wake day during the week if boating pressures continue to increase in the future. Designate a specific day of the week, keep it consistent and make it mandatory.
- A voluntary quiet day on the lake in which watercraft would travel at slow-no-wake speeds.
- Volunteer lake patrol (similar to that on Lake Ripley) that has an educational function and a violation documentation function.
- Require boaters using Rock Lake to take the boater safety class.
- Require that the underside of skis being used by people learning to slalom be brightly colored to prevent possible accidents.
- Have an attendant at the Town's North End boat launch to facilitate launching/parking during busy holiday weekends. If parking is not available, then launching would not be allowed.
- The Town has jurisdiction over the boating ordinances. To avoid any misunderstanding, the City should adopt the Town boating ordinances and any future changes made to them.
- Change the current Slow-No-Wake rule for motor boats from "sunset to sunrise" to defined hours so that it is not subjective. The time period would have to be defined, but some possibilities include:
  - 8 p.m. to 8 a.m.
  - 7 p.m. to 9 a.m.
  - 7 p.m. to 10 a.m.
- Have hours of operation for all watercraft and uses (boats, PWCs, water skiing, and towing) be consistent.
- Have PWC use and towing practices (including water skiing) be confined to a time period that is smaller than the Slow-No-Wake times for motor boats. Certain times periods would have to be defined, but some possibilities include:
  - 8 a.m. to 8 p.m.
  - 9 a.m. to 7 p.m.
  - 10 a.m. to 7 p.m.
- Stagger the hours of operation for water-skiers and jet skis because there are potential conflicts with concentrating their use at the same time.
- Determine the best time for PWC use and towing activities.
- When the Town invokes the Emergency Slow-No-Wake rule during periods of high water, they should post the signs at the launches as soon as possible.
- The Town should craft an ordinance that regulates the vehicle access to Rock Lake during ice cover. The following are possibilities:
  - Ban all motor vehicles from Rock Lake during ice cover.
  - Ban some motor vehicles from the ice, but allow ATVs and snowmobiles
  - Ban motor vehicles on Rock Lake from sunset to sunrise.
- Charge a launch fee to place an ice shanty on Rock Lake during winter. [Implementer: Town, City, with assistance from Joint Rock Lake Committee]
- Change the Town and City ordinance so that the placement and size of trampolines be consistent with the rule of rafts. Placement must be no more than 150 feet from shore, and the square footage must not exceed 100 square feet.

Appendix D

2000 Comprehensive Fish Survey

2000 Comprehensive Fish Survey

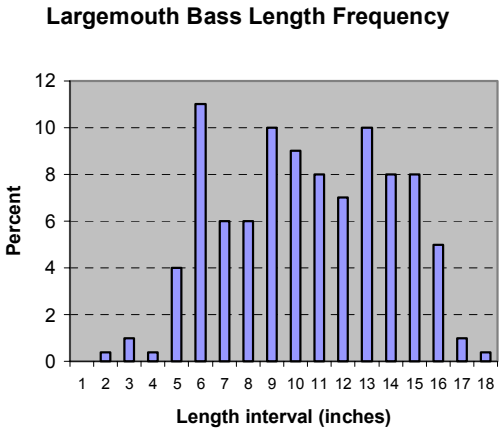
A comprehensive fisheries survey is an assessment of the entire fish community in a lake. Different survey methods are used to sample all the different fish species that inhabit a lake. These methods include spring fyke netting for northern pike and walleye, spring and fall boomshocking for panfish, bass, and young of the year walleye, and mini fyke netting and shoreline seining for reproductive assessment of all fish species. This summary report will also compare current survey data to the last comprehensive survey conducted on Rock Lake in 1994, where applicable.

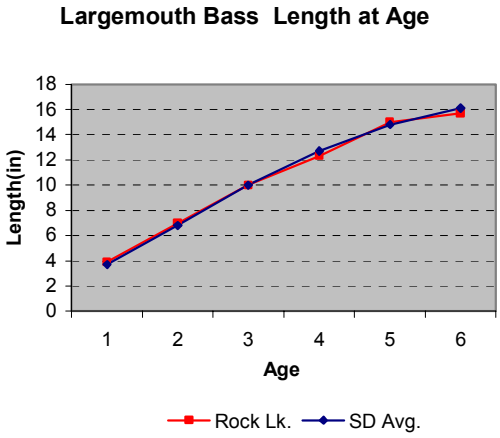
Gamefish Summary

Largemouth Bass

Abundance: Fall Electrofishing Catch = 50.7/hour (71.9/hour in 1994 survey).

Size Structure: Length range = 2.9-17.6 inches (2.7-18.1 inches in 1994 survey).
Average length = 10.0 inches (9.7 inches in 1994 survey).
24% of the population was greater than 14 inches (legal harvestable size).





Growth and Condition:

Growth rates of largemouth bass in Rock Lake are comparable to the southern Wisconsin average for this species. Most fish reach the legal harvestable size of 14 inches in 4 to 5 years.

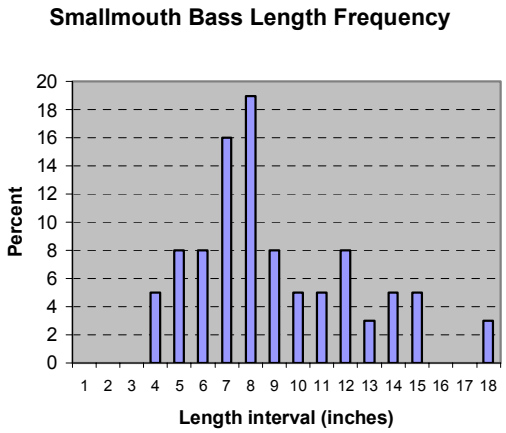
Smallmouth Bass

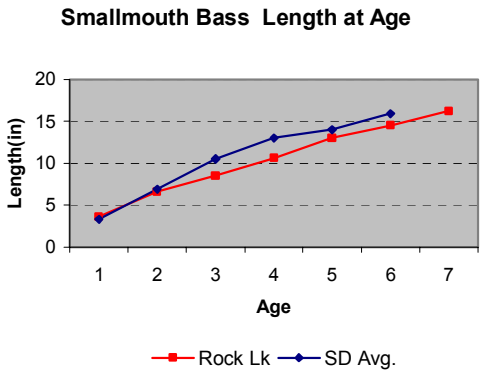
Abundance: Fall Electrofishing Catch = 32.4/hour (52.1/hour in 1994 survey).

Size Structure: Length Range = 3.5-17.5 inches (2.2-18.8 inches in 1994 survey).
Average Length = 9.2 inches (8.7 inches in 1994 survey).
14% of the population was greater than 14 inches (legal harvestable size).

Growth and Condition:

Growth rates of smallmouth bass in Rock Lake are comparable to the statewide average for this species during the first two years of growth, but become slightly lower than the average as the fish grow older. Most fish reach the legal harvestable size of 14 inches in their 5th or 6th year of life.



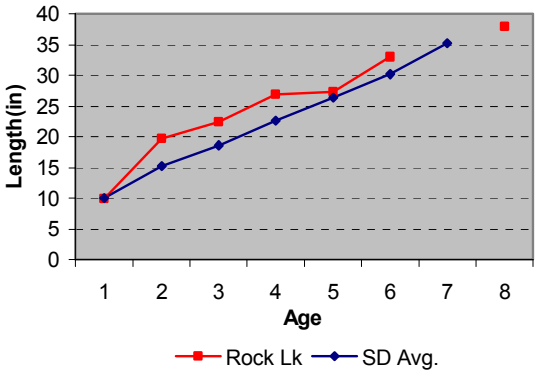


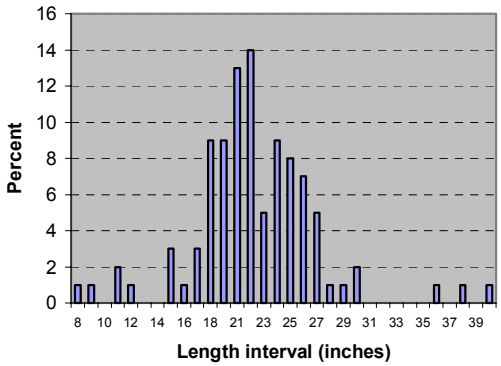
Northern Pike

Abundance: Spring Fyke Netting Catch = .61/net night (.73/net night in 1994 survey)
Size Structure: Length Range = 8.1-40.0 inches (8.5-35.4 inches in 1994 survey).
Average Length = 23.7 inches.

20% of the population was greater than 26 inches (legal harvestable size). A total of 98 northern pike were sampled during spring fyke netting. Of this total, 35 (35.7%) were male, 44 (44.9%) were female, and 19 (19.4%) were unknown.

Growth and Condition: Growth rates are slightly above the southern Wisconsin average for northern pike. Most fishreach the legal harvestable size of 26 inches by their 4th year of life.



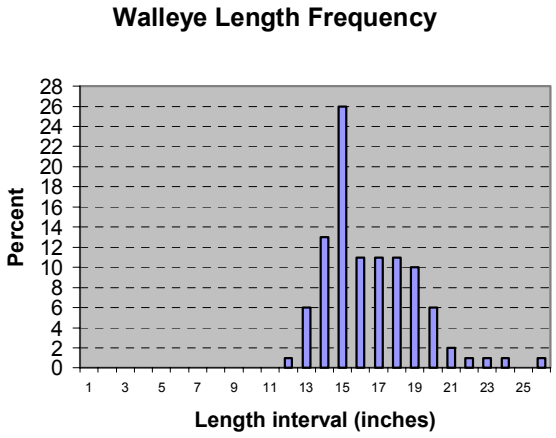


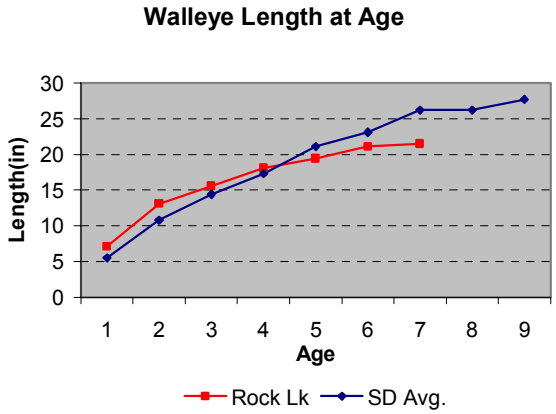
Walleye

Abundance: Spring Fyke Netting Catch = 2.03/net night (2.23/net night in 1994 survey).
Size Structure: Length Range = 7.1-25.5 inches (8.0-23.4 inches in 1994 survey).
Average Length = 16.2 inches.

79% of the population was greater than 15 inches (legal harvestable size). A total of 325 walleye were sampled during spring fyke netting. Of this total, 300 (92.3%) were male, 21 were female (6.5%), and 4 (1.2%) were unknown.

Growth and Condition: Growth rates during the first three years of life are slightly higher than the southern Wisconsin average, however, at four years of age growth decreases and becomes lower than the average. Most fish reach the harvestable size of 15 inches in their 3rd or 4th year of life.

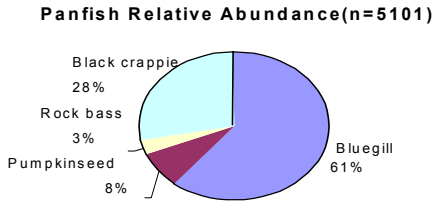




In April, 2000, 372,000 walleye fry (.5 inch average) and 33,217 walleye fingerling (1.95 inch average) were stocked into Rock Lake. Fall electrofishing surveys conducted during the fall of 2000 did not detect the presence of young-of-the-year (YOY) walleye. This has been a documented trend on the lake, despite often heavy annual stocking of walleye fry. Some degree of natural reproduction, however sporadic, does occur on the lake, as year classes have been documented in years when no stocking occurred. In September 2001, 11,463 extended-growth walleye fingerlings (6.8 inch average) were stocked into Rock Lake, to determine if the largest sized fingerling stocking will result in recruitment into the population.

Panfish Summary

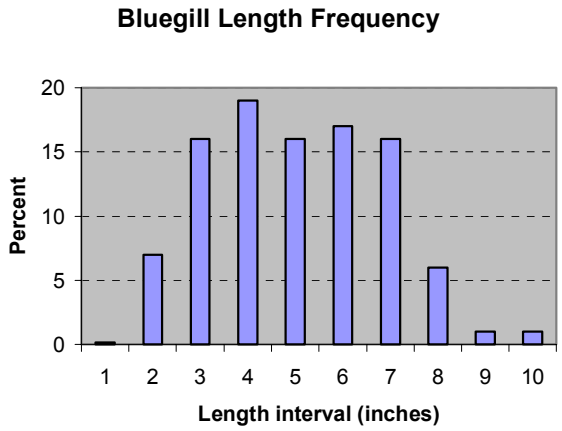
A diverse panfish community exists in Rock Lake, including the most abundant species, bluegill, ll, species, bluegill, as well as sizable pumpkinseed and rock bass populations. A fairly small population of yellow perch and black crappie inhabit the lake.

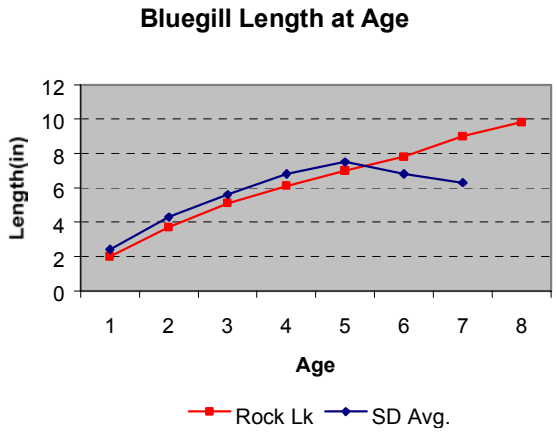


Bluegill

Abundance: Fall Electrofishing Catch = 154/hour (20.7/hour in 1994).
Spring Fyke Netting Catch = 15.4/net night (12.0/net night in 1994 survey).

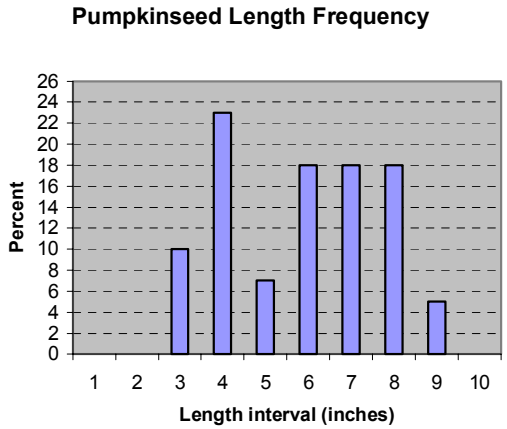
Size Structure: Length range (Fall boomshocking) = 1.2 –8.1 inches (1.2-9.0 inches in 1994 survey).
Average length (Fall boomshocking) = 4.5 inches (5.6 inches in 1994 survey).
42% of the population was > 6 inches (harvestable size). Fairly consistent year classes appear to have been produced in 1995 through 1998, which should provide good fishing over the next two years.

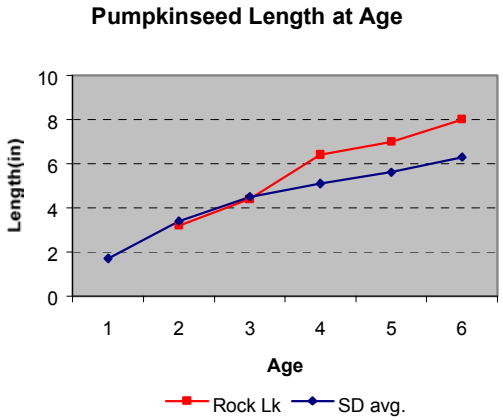




Growth and Condition:
Growth rates during the first 5 years of life are slightly lower than the southern Wisconsin bluegill growth rates, however, at older ages, growth rates of bluegill in Rock Lake are slightly higher than the southern Wisconsin average.

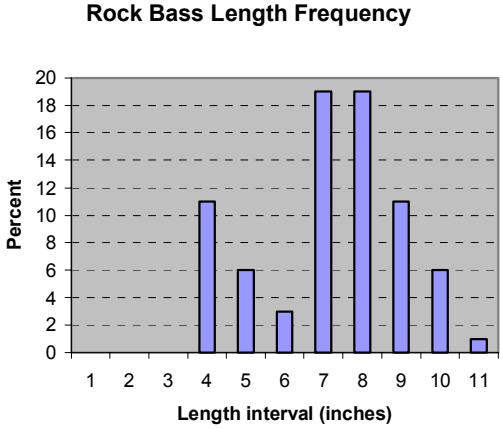
Pumpkinseed
Abundance: Spring Fyke Netting Catch = 2.40/net night (.67/net night in 1994 survey).
Size Structure: Length range = 2.6 – 8.5 inches.
Average Length = 5.2 inches. Fairly consistent year classes appear to have been produced in 1994 through 1996. However, a relatively weak year class appears to have been produced in 1997.
Growth and Condition: Growth rates are comparable to the southern Wisconsin pumpkinseed average for the first 3 years of life, and slightly higher than the average for years 4 through 6. Most fish attain quality size (6 inches) by their 4th year of life.

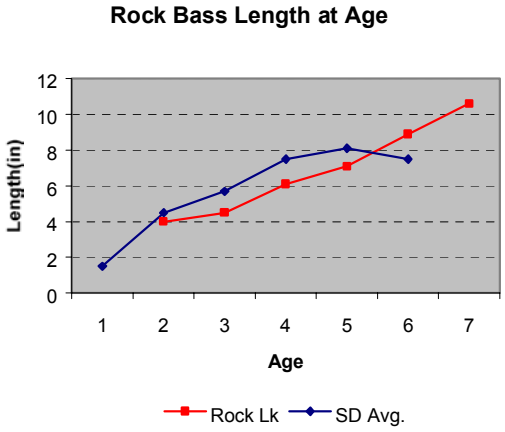




Rock Bass
Abundance: Spring Fyke Netting Catch = 0.42/net night (1.84/net night in 1994 survey).
Size Structure: Length range = 3.8 – 10.6 inches.
Average Length = 6.7 inches. Large year classes appear to have been produced in 1994 and 1995. However, 1996 and 1997 appear to have produced relatively small year classes, which may become apparent in the fishery over the next several years.

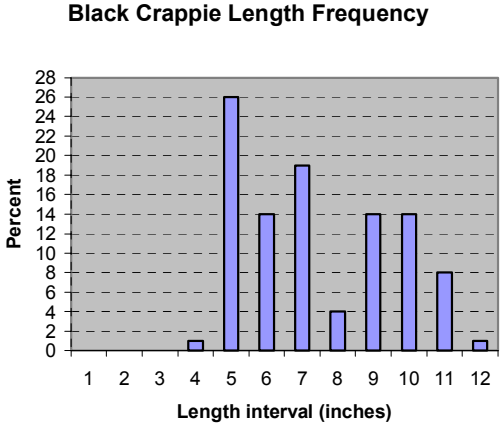
Growth and Condition:
Growth rates of rock bass are below the southern Wisconsin average for this species, with most fish attaining quality size (7 inches) by their 5th year of life.

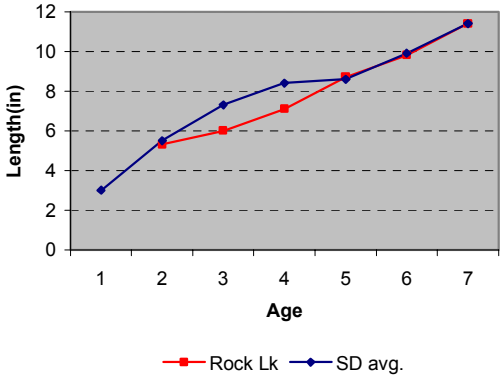




Crappie

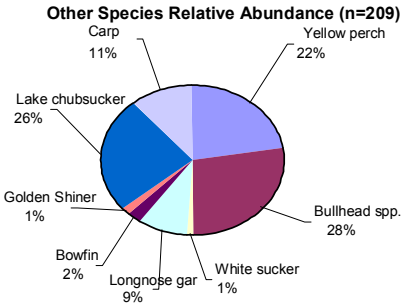
Abundance: Spring Fyke Netting Catch = 8.87/net night (.74/net night in 1994 survey).
Size Structure: Length range = 4.4 – 11.8 inches (2.3-11.9 inches in 1994 survey).
Average length = 6.5 inches.
Growth and condition: Growth rates of black crappie are below the southern Wisconsin average for this species for the first 4 years of life, and comparable to the average for years 5 and up. Most fish attain quality size (8 inches) by their 5th year of life.





Forage Species

There is a diverse forage base in Rock Lake including: lake chubsucker (a species of Special Concern (SC) in Wisconsin), white sucker, brook silverside, golden shiner, yellow, black and brown bullhead, longnose gar, bowfin, yellow perch, green sunfish, bluntnose minnow, and common carp.



Appendix E

Boat Launch Fees - Laws

Boat Launch Fees: State Laws

Wisconsin State Statute, Chapter 30

30.77 Local Regulation of Boating

(3) (e) Notwithstanding the prohibition in sub. (1) (b) against ordinances or local regulations that exclude any boat from the free use of the waters of the state:

1. A municipality, a public inland lake protection and rehabilitation district or a town sanitary district that has in effect an ordinance under par. (am) may charge boat operators reasonable fees for any of the following:

a. Use of a public boat launching facility that the municipality or lake district owns or operates.

b. The municipality's or district's costs for operating or maintaining a water safety patrol unit, as defined in s. 30.79 (1) (b) 2.

c. The municipality's or district's costs for providing other recreational boating services.

2. A town, village, or city may enact ordinances to regulate the operation, equipment, use and inspection of those boats carrying passengers for hire that operate from a base within its jurisdiction and may charge reasonable fees for such inspection.

Wisconsin Administrative Code, NR 1

NR 1.91 Public Boating Access Standards

(11) Boat Launching Fees

The department encourages free boat launching. A reasonable launch fee may be charged under authority of s. 30.77, Stats., for the purpose of operating and maintaining a boat access site owned or operated by municipalities, lake management districts and other access providers meeting the provisions of sub. (7). Charging excessive, unjustified or unreasonable boat launching fees restricts or prohibits public boating access and use of navigable waters in the state. A reasonable launch fee for the purposes of s. 30.77, Stats., is one that does not exceed the maximum allowable amount under the following criteria:

(a) Base Fee. A base is that fee that is charged a state resident vehicle for entrance to the state parks.

(b) Public boating access surcharges. Municipalities, lake management districts and other public boating access providers that maintain any of the following services may add to the base fee not more than the following surcharges for vehicles with trailers. No more than the base fee may be charged for non-motorized or non-trailered boats.

1. Attendant when on duty	.20 x base
2. On-site toilet facilities	.20 x base
3. Great Lakes sites	.30 x base
4. Boats 20 ft. in length or more but less than 26 ft.	.30 x base
5. Boats 26 ft. or greater in length	.60 x base

(c) Daily launch fee. The total of base fee and all applicable surcharges, rounded to the nearest quarter of a dollar, shall constitute the daily launch fee. A daily launch fee that is paid shall be valid for all boat access facilities provided by the issuing authority for that day. If different fees are charged by the issuing authority for different access sites, the higher fee shall be allowed for use of all the sites.

(d) Season pass. If a launch fee is charged, a season pass at a fee not to exceed 10 times the daily launch fee shall be provided for both residents and non-residents. A mechanism to obtain a season pass shall be provided by the public access provider at the launch site.

(e) Prior approval required. Each public boating access provider charging a launch fee in excess of the resident state park daily entrance fee shall provide its fee schedule to the department for approval prior to its adoption. The fee schedule shall be submitted on department forms available from [the] department's central office. Department approval shall be based solely on demonstration that the provider maintains the facilities or services described in par. (b) that justify charges in excess of the resident state park daily entrance fee and that a season pass is available.

(f) Existing approved fee structures. Reasonable fees under pars. (a) to (e), do not apply to access sites which the department has determined in a written decision to have a reasonable fee prior to the effective date of this rule.

(g) Differential fee based on residency. Local units of government, including lake management districts, which maintain and operate public boating access sites, may charge differential fees on the basis of residency within the unit of government maintaining or operating the access. If a fee is charged, the fees for a non-resident may not exceed 150% of the fee charged a resident and nonresident fees may not exceed the maximum allowable amounts except when par. (b) 4. or 5. are applicable.

Note: For example, with a daily resident entrance fee of $4.00 for state parks, at an access site on an inland lake with an attendant on duty and toilet facilities, a launch fee for an 18 foot boat may be as high as $5.50 (4 + 0.2 (4) + 0.2 (4), rounded to nearest 0.25) for both residents and non-residents, and for a 26 foot boat as high as $8.00 (4 + 0.2 (4) + 0.2 (4) + 0.6 (4) rounded to the nearest 0.25) for residents and $12.00 (8 x 1.5, rounded to the nearest 0.25) for non-residents.

Current State Park Entrance Fee - The daily entrance fee for state parks was increased to $7.00 (effective starting in January 2006).

Appendix F

Rock Lake Recreational Rules

Rock Lake Recreational Rules

Boating

Slow-No-Wake

- No person shall operate a motor boat faster than slow-no-wake speed between sunset and sunrise. "Slow-no-wake" means the slowest possible speed so as to maintain steerage control and reduce wave action.
- No person shall operate a motor boat or personal watercraft faster than slow-no-wake speed in buoyed restricted areas or designated ecologically significant areas including the Mill Pond, Korth Bay (from White Oak Drive in the north to just north of the Elm Point boat launch), Schultz Bay (from the east side of Rock Lake Park to the south side of Ferry Park), and Marsh Lake. Please see map.

- No person shall operate a motor boat faster than slow-no-wake speed within 100 feet of piers, docks, rafts, and buoyed restricted areas.
- No person shall operate a personal watercraft faster than slow-no-wake speed within 100 feet of another personal watercraft, boat, pier, dock, raft, or buoyed restricted areas.
- No person shall operate a personal watercraft faster than slow-no-wake speed within 200 feet of the shoreline.

Boat Launch Restrictions

- No person shall use the public boat launch ramps from May 1 through September 30 without paying the required launching and removal fee. All persons shall display a permit sticker as proof of payment of such fees.
- No person shall use the public boat-launching ramps or piers for purposes of fishing or swimming.

Buoys

- No person shall place or remove a regulatory buoy in Rock Lake without approval from the Town of Lake Mills.
- No person shall move, remove, or in any way interfere with posted buoys marking any areas.
- No person shall place a mooring buoy in a location where it unnecessarily obstructs navigation, or is not entirely confined to the owner's riparian zone.

Water Skiing, Tubing, Aquaplaning, etc.

- No person shall operate a motor boat towing a person on water skis, aquaplane, or similar device unless there is a competent observer in the boat, in addition to the operator, in a position to observe the activity of the person being towed. The observer must be able to observe the person being towed and relay signals to the operator.
- No person shall engage in water skiing, tubing, aquaplaning, or similar activities without wearing a Coast Guard approved life preserver.
- No person shall operate or use any boat, or manipulate any water skis in a careless, negligent, or reckless manner so as to endanger anyone's life or property.
- No person shall operate a motor boat engaged in water skiing, aquaplaning, or similar activity within 100 feet of any occupied anchored boat, boat occupied in similar activities, personal watercraft, marked swimming area, or public boat landing.
- No person shall operate a motor boat towing a person on water skis, aquaplane, or similar device, nor shall any person engage in water skiing, tubing, aquaplaning, and similar activities between 7:00 pm to 10:00 am.
- No person shall direct or participate in any boat race, regatta, water ski meet, or other water sporting event or exhibition unless authorized by the Lake Mills Town Board.

Evening Boating Restrictions

- No person shall engage in water skiing or similar activity, or operate a personal watercraft between the hours of 7:00 pm and 10:00 am.
- Navigation lights must be on from sunset to sunrise, and during periods of restricted visibility.

Age Restrictions

- No person under 10 years of age shall operate a motorboat.
- No person under 12 years of age shall operate a personal watercraft.
- Persons 10 years old but less than 12 years old may operate a motorboat only if accompanied by an adult.
- Persons at least 12 but less than 16 years old may operate a motorboat only if accompanied by an adult, or if they have successfully completed a DNR-prescribed Boating Safety Course and possess a safety certificate.
- Persons at least 12 but under 16 must be in possession of a valid, state-approved boating safety student certificate to operate a personal watercraft. Parental supervision is not a substitute for a boating safety certificate as with other motorboats.

Other Boating Rules

- No person shall operate a motor boat or personal watercraft at a speed that is greater than reasonable and prudent, or in a manner that creates a hazardous wake.
- No person shall operate a motor boat while any passenger sits or rides on the gunwales, tops of seats, backs or sides or on the decking over the bow unless such person is inboard of guards or railings (except for anchoring, mooring, or cast off).
- No person shall operate any boat that is over the safe carrying capacity of passengers or cargo, or shall equip a boat with propulsion in excess of its safe power capacity. Existing operating conditions shall always be considered.
- No person shall operate a motorboat or personal watercraft, or use water skis, aquaplane, or similar device while intoxicated. Furthermore, no person shall permit an individual who is intoxicated or under the influence of a controlled substance to be a passenger in a boat operated by that person except in cases of emergency.
- No person shall unnecessarily activate any sound-producing device while on a boat.
- No person shall operate a boat that is not displaying a valid certificate of number issued and required by the DNR.
- All persons riding a personal watercraft must wear a personal floatation device of the proper size and type (I, II, III, or V).
- It is unlawful for any boat or water skier to operate or approach closer than 100 feet from any diver's flag or any swimmer unless the boat is part of the diving operation or is accompanying the swimmer.
- No person shall operate contrary to any posted municipal boating ordinances.

Swimming

No-Swim Areas

- No person shall swim from an unoccupied boat.
- No person shall swim more than 150 feet from the shore unless in a designated swimming zone or when accompanied by a competent person in a boat.
- No person shall swim more than 150 feet from the shore between sunset and sunrise.

Snorkel/Skin/Scuba Diving Limitations

- No person shall engage in underwater skin diving, scuba diving, or swimming with the use of swimming fins beyond 150 feet from shore unless the location of such activity is marked by a diver's flag or is a marked swimming area.
- No person diving or swimming shall interfere with someone engaged in fishing.

Boat Launching and Aquatic Species

- State law prohibits launching a boat, boat trailer, or boating equipment if there are any aquatic plants or zebra mussels attached.
- To prevent the spread of nuisance aquatic species: remove plants, animals, and mud before leaving water access; drain water from boat, motor, bilge, live wells, and bait containers before leaving water access; dispose of

unwanted bait in trash; and spray/rinse boats and recreational equipment with high pressure and/or hot tap water (> 104° F), especially if moored for more than a day or dry boats and equipment for at least 5 days.

Fishing

- No person 16 years of age or older shall fish in Rock Lake without a current Wisconsin fishing license.
- Every year, the first consecutive Saturday and Sunday in June is designated as Free Fishing Weekend. Anyone can fish without a license over these two days. However, all other fishing regulations apply, including but not limited to the following:
- No person shall use more than three hooks (lines), baits, or lures while fishing.
- No person shall leave a line unattended, possess live crayfish, or release unused bait into the lake.
- No person shall engage in fish sorting. Any fish taken into your possession that is not immediately released is part of your daily bag limit.
- No person shall possess a fish that does not meet legal size requirements. Furthermore, no person shall possess a quantity of fish that exceeds the daily bag limit for the particular species caught.

Size and Daily Limits

Species	Season	Minimum Length	Daily Limit
Bass	**	14 inches	5 in total
Northern Pike	**	26 inches	2
Bluegill, sun-fish, crappie, pergh	All Year	None	25 in total
Walleye	**	15 inches	5 in total
Bullhead, rough fish, rock bass	All Year	None	None

**1st Sunday in May to 1st Sunday in March

Littering

- No person shall leave, deposit, place, or throw on the water, ice, shore, or upon public or private property any cans, bottles, debris, refuse, solid waste material, or fish parts.

Reporting Violations

- Violations to these rules and regulations can be reported to the Jefferson County Sheriff Department at 920-674-7310 or the DNR at 1-800-847-9367.
- Include the following items when reporting a violation: boat certificate of number, violation, location, and time and date of incident.

Appendix G

Shoreland Rules Summary for Rock Lake

Shoreland Rules Summary for Rock Lake (other areas may have different requirements)

Please call your local, county, and state offices before commencing any work within 1,000 feet of any water. **The laws listed below are not comprehensive and may vary according to whether the County, DNR, or local municipality have joint or sole jurisdiction. These laws may also have been updated since the printing of this summary. Please consult the governments below:**

County Zoning Dept.	City of Lake Mills	Town of Lake Mills	Department of
320 S. Main St.	200D Water Street	1115 S. Main St.	Natural Resources
Jefferson, WI 53549	Lake Mills, WI 53551	Lake Mills, WI 53551	920-387-7878
920-674-7130	920-648-2344	920-648-5584	www.dnr.state.wi.us
www.co.jefferson.wi.us	www.ci.lake-mills.wi.us		

SHORELAND LOT REQUIREMENTS

Lot Dimensions: Varies depending on zoning – consult County, Town, or City.

Shoreland Setback: State, County, City: Setback = 75 feet from ordinary high water mark (OHWM). Boathouses, piers, and boat hoists are exempt from setback.

Shoreland Setback Reduction Rule: County: Permit required for reduced setback. Reduced setback allowed if at least 5 buildings within 500 feet of proposed building site are within the required setback. Reduced setback is the average of setbacks of buildings on each side of proposed building site; or if no building on one side, the setback is average of existing building setback and 75 feet. Minimum setback is 35 feet. Vegetated buffer must be planted. City: Permit required for reduced setback. Reduced setback allowed if at least 1 building on either side of lot, within 200 feet of proposed site, is less than required setback. Minimum setback is the average of setbacks of buildings on each side of proposed building site; or if no building on one side, the setback is average of existing building setback and 75 feet.

Sideyard Setback: Varies depending on zoning – consult County, Town, or City.

ACCESSORY STRUCTURE REQUIREMENTS

Access Ramp: County: Permit required. Only 1 per lot, and not to exceed 8 feet in width or length. Must be located in Viewing and Access Corridor and above OHWM. Only for use by riparian owner. Constructed only using vegetation or vegetated turf block. Designed to not cause erosion and to minimize storm water runoff. Erosion control shall be used during construction. Consult City.

Boathouse Standards: State: Permit required for repair/maintenance, etc. of existing boathouse below OHWM. Boathouses are only for storage of boats and related equipment. Human habitation is prohibited. County: Permit required. Placing a boathouse below OHWM is prohibited. Must be located in Viewing and Access Corridor. Only 1 per lot. Maximum 10 feet tall and ≤400 square feet in size. Roof slope is required. Vegetated buffer must be planted. City: Conditional Use Permit required. Must be 3 feet from OHWM and within the Vision and Access Corridor. Only 1 per lot. Maximum 12 feet tall + 3.5 foot railing height and ≤400 square feet in size. Shoreland vegetation restoration may be required. Relocation of

stairs or paths to Vision and Access Corridor may be required. Other structures may be required to be removed or relocated.

Fence Standards: County: Classified as structures and must be setback 75 feet from OHWM, except for open fences for agricultural practices. City: Not considered a structure, but must adhere to City fencing ordinance.

Open Sided and Screened Structures: County: Permit required. Minimum setback of 35 feet from OHWM. Total floor area of all structures in shoreland setback area shall not exceed 200 square feet (excluding boathouse). Structure must be ≤10 feet in height and have no sides, open sides, or screened sides. Vegetated buffer must be planted. Consult City.

Patio: County: Must be setback 75 feet from OHWM. Consult City.

Pier Standards, Swimming Rafts: Consult Town or City.

Retaining Walls: County: Setback 75 feet from OWHM except if Zoning Administrator determines that it is necessary for erosion control. If for erosion control, permit is required. Consult City.

Stairway/Walkway/ Lift Standards: State, County, City: Any path or road within 35 feet from water shall be constructed and surfaced to effectively control erosion. County: Permit required. Maximum 4 feet wide stairs, landings must be ≤40 square feet with no more than 1 landing every 10 feet of elevation change. Only 1 stairway or walkway allowed except a lift may be allowed as a 2nd access adjacent to stairway or walkway. Consult City.

PRESERVATION OF SHORE COVER REQUIREMENTS

Shoreland Buffer: County: A 35 foot strip of vegetation running parallel to OHWM and extending inland from the OHWM. Dead and diseased trees and shrubs, and noxious and invasive trees, shrubs, and plants may be removed and must be replaced with native vegetation or cultivars of natives within 30 days of removal. Routine pruning is allowed, but excessive pruning that jeopardizes the health of trees or shrubs is prohibited. Landscaping and lawns that extend into the shoreland buffer area prior to March 2005 may be maintained until restoration is required. Existing lawns and landscaping can not be extended into the buffer area. City: Strip paralleling shoreline and extending 35 feet inland from OHWM. No more than 30 feet in any 100 feet along the OHWM shall be clear cut to the depth of 35 feet. Not applicable to removal of dead, diseased or dying trees or shrubs. Shrubs shall be preserved as far as practicable and, where removed, shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and preserving natural beauty.

Viewing and Access Corridor: County: A vegetated strip of land extending through the shoreland buffer that provides access to the water and a filtered view of the water. Not to exceed 30 feet wide for lots ≥100 feet in width. Not to exceed 30% of the lot width for lots <100 feet in width. Not designated in an area where 75% or more of the trees and shrubs exist within the shoreland buffer.

	Selective cutting allowed – removal of selected trees and shrubs throughout the range of sizes at regular intervals, either singularly or in small groups, but not to exceed 75% of existing trees and shrubs, leaving uniform distribution of trees and shrubs. City: 30 feet wide if lot is ≥100 feet in width; 30% of lot width if lot is <100 feet in width.
Greater Cutting:	County: Greater cutting than detailed above may be permitted through a Conditional Use Permit and a Zoning Permit. Submission of a Special Cutting and Restoration Plan that follow technical standards is required. City: Conditional Use Permit required for greater cutting than described above. Permit may be granted only if plan: (1) will not cause undue erosion or destruction of scenic beauty, and (2) will provide substantial shielding from the water of dwellings, accessory structures and parking areas.
Cutting More Than 35 Feet Inland:	County: Cutting of trees and shrubs from the inland edge of the 35 feet strip to the outer limits of the shoreland is allowed when done using accepted forest management practices and sound soil conservation practices which protect water quality. City: Cutting of trees and shrubs shall be allowed when accomplished using accepted forest management practices and sound soil conservation practices which protect water quality.
Required Restorations:	County: Restoration of a shoreland buffer of 35 feet from the OHWM, excluding the viewing and access corridor, is required for the following: 1. Zoning permit for land disturbance within 75 feet from the OHWM. 2. Zoning permit for setback averaging of a new structure or addition to existing structure. 3. Zoning permit for repairs, alterations, or additions to an existing structure that is closer than 75 feet from the OHWM if the total lifetime repairs, alterations, or additions exceed 50% of the equalized assessed value of structure. A variance would be necessary to exceed 50%. 4. Zoning permit for the construction of a new boathouse. When buffers are required, existing non-conforming accessory structures that do not comply with the ordinance, excluding existing boathouses, must be removed as part of shoreland buffer restoration. The restoration must follow technical standards and a restoration plan must be submitted. Consult City.

DISTURBANCE ON LAND ABOVE AND BELOW HIGH WATER MARK

Land Disturbance Above OHWM:	State: DNR permit required for grading or removal of topsoil of ≥10,000 square feet from the bank. County: Permit required if grading within 500 feet of ordinary high water mark sloping to water if (1) slope is ≥20%, (2) >1,000 square feet on 12-20% slope, or (3) >2,000 square feet on <12% slope. Vegetated buffer must be planted. City: Permit required if filling or grading within 300 feet of OHWM sloping to water and where single area of more than 100 square feet is exposed or where cumulative exposed area exceeds 300 square feet, or if number 1, 2, or 3 from County requirements occurs.
Disturbance Below OHWM:	State and City: DNR and City permits required for removal, filling, or grading of material from below the ordinary high water mark or the bed of the lake. This includes rock riprap or similar material.

NONCONFORMING STRUCTURE STANDARDS

Principle Structure:	State, County, City: Nonconforming structures shall not be extended, enlarged, reconstructed, moved or structurally altered (includes maintenance, additions) in excess of 50% (includes all cumulative projects) of its current fair market value.
Accessory Structure:	State, County, City: A nonconforming structure shall not be extended, , enlarged reconstructed, moved or structurally altered in excess of 50% of its current fair market value.

WETLANDS

Wetland Protection:	Filling, draining, excavating, dredging, and lagooning of wetlands is prohibited except for wetland enhancement projects. Consult Corps of Engineers (262-547-1876), DNR, County, and City for requirements.

MISCELLANEOUS

Floodplain:	Floodplain properties are subject to additional Federal, State, and County regulations. Please contact County and City for more information.
Waterfowl:	Consult Town regarding feeding prohibitions. City: No person may feed anything to any wild waterfowl in or adjacent to Lakeside Park, Tyranena Park, or Sandy Beach Park, including the Sandy Beach Mobile Home Park areas and sports complex.
Yard Waste:	Consult Town regarding the rules for burning and disposal. City: Burning for the purpose of eliminating waste is prohibited.

Appendix H

Public Comments from Public Survey

Comments from Rock Lake Public Survey

Aquatic Plants/Algae

- 9 commenters noted that the level of aquatic plant growth depends on the location in the lake and time of year.
- 5 commenters believe that the aquatic plant growth is becoming worse each year.
- 4 commenters believe that the algae is getting worse every year.
    - It was not this bad seven years ago. The reeds in the reed beds by Korth Park hang thick with algae on them. The algae is there all year. This is the worst part of being on Rock Lake.
- 2 commenters think that there are too many "weeds" in Marsh Lake.
    - A lot of fishermen fish the marsh but in late summer the marsh is so full of weeds that it is hard to get a boat through except for the main channel.
- The North West bay has dense growth of weeds.
- There is heavy growth of plants in the millpond.
- Aquatic plant growth is moderate on east side and dense on west side of lake.
- It was increasing on south end where street/yard water was running into the lake.
- The lake is choked with aquatic plant growth - especially in the no wake part of the lake.
- Weed growth healthy.
- Our side of the lake never had weeds - by the time we sold there were weeds coming more and more.
- Weed beds are of different species than they were 25 years ago.
- Furthermore, the algae/floating weeds are staggering the past 10 years. I believe it's due to the runoff of the nearest farms to the marsh.
- Reduce the weed growth.
- Weeds need to be harvested in areas within Korth Bay and the marsh to allow boat travel which would help reduce the spread of weeds chopped and dragged by boats. Establish routes to guide boats so they stay out of weed areas.
- Too large of boats, jet skis, jet boats that rip up the weed beds at spawning times.
- After weekend boaters use lake, seaweed accumulates on shore in swimming areas.
- Also to keep the cleanliness of our lake, another issue is the weeds that get turned up during our summer boating months (and the removal of said weeds).
- The algae problem is always an ongoing problem with lakes and rivers.
- Very happy that we don't have the kind of algae that Madison lakes have.

Exotic Species

- Exotic plant species contribute to problems.
- Boats bringing zebra mussels etc. from other lakes.

Fish

- 11 commenters are concerned about the walleye population.
    - It's a shame we have a walleye fish hatchery in our town and we don't catch any! They ship them everywhere else. We should have one of the best walleye lakes around our area!
    - This lake used to be a great walleye lake but now it is rare to catch any size walleye. Too much smallmouth competition for food and too many rough fish (dog fish). All the young walleye being put into the lake have no chance and don't show up when DNR checks the fish populations.
    - The motor boat traffic is so high the walleye population has decreased to almost none over the years.
- 7 commenters advocate for catch and release fishing.
- 5 commenters want to lower the bag limits on fish:
    - Lower blue gill limit to 15 per day per person.
    - Lower bag limit on panfish from 25 to 15 per day.
    - Limit the fish bag limits on pan fish and walleyes. If it is low enough, people will not return 2 or 3 times a day from out of town when the bluegills are biting.
- 3 commenters are concerned about stunted fish growth.

- The panfish caught off our pier area about 4 inches - caught but not kept. 30 years ago the panfish off our pier were about 6 inches.
- 4 commenters want the size limits of fish raised.
  - Up the size limits of gamefish (to many small fish).
  - Please consider more stringent size limitations that are actually enforced.
- Lowering keeper size would harvest more bass and this may help the walleye population. - When restocking fish in the lake the size at release "must" not be fingerlings. Bigger fish = efforts not wasted $$.
- Add more fish.
- As a child schools of fish were visible from boats and piers in shallow waters. They are few and far between now.
- The quality of fishing is getting worse.
- We love Rock Lake and have no complaints as of yet, except fishing has not been the best over the last few years.
- Fish quantity is deteriorating. This lake should be a fantastic fishery.
- The fishing pressure has reduced the size and the number of fish being caught.
- The fish caught seem to be 1" under the size required. Years ago the quality of fishing was much better.
- There are too many largemouths.
- Quality of bass and northern fishing is good.
- D.N.R. (or assn) could vastly increase fish habitat with cribs, brush piles and stone piles for breeding. I have first hand experience in how this helps.
- I feel bass over populate the lake and compete for forage and grow too slow.
- As far as my experience for fishing it, it is above average to excellent at times.
- Dead fish on the beach negatively impact my enjoyment of the lake.
- Fish Kill - Why?

Aesthetics

- Storage of property (boats lifts, piers etc.) along the lake shore where roads run parallel to the lake - this obstructs the vision of our beautiful lake
- Ban winter storage of piers from edge of lake (obstructs view of lake and wildlife) and from yards (often put in back yard which is unsightly for adjoining neighbors).

Piers/Boat Slips

- 3 commenters think that riparians are allowed too many boats at their piers.
  - Lake property should be limited to docking 2 water craft.
- 2 commenters are concerned about riparians renting out dock space or allowing others to keep their boats on their piers:
  - Setz's resort should not be allowed to run a commercial business of docking boats along Highway B. This is a major eye sore!
- There are not nearly enough boat lifts at Sandy Beach. The docks could be extended out to incorporate 20 more. There is room for this, it provides more income and it would improve the waiting list time. The lifts on sandy beach should be limited to the trailer tenants only. I have been towing my boat back and forth from IL every weekend in the summer for the last 10 years.
- Need more docks to rent all year and docks to park during the day without rent.
- I purchased my home on Rock Lake in 1990 and sold it in 1995. Then kept my boat at Sandy Beach for 7 or 8 years. Then moved it to Lake Waubesa in McFarland. Reason - $900 for a slip was too much money especially when you add the cost of vandalism and damage due to junk equipment.
- Fix piers for handicap use at Sandy Beach and city landing.
- Put a pier at Elm Point.
- Rules and regulations concerning boat lift placement in channels and open water areas. Measurements from shoreline to lift - are they not to be attached to dock or pier? Rules as to blocking passage into and out of channels with boat lifts (pontoon).
- New rules governing pier construction are pretty stiff.

Boat Launches

-6 commenters want the number of launch sites reduced.
  - The number of boat launches is too many for the size of the lake.
  - Close Elm Point boat launch
  - Close Elm Point launch, close millpond launch

- 2 commenters think there should not be more boat launches.
  - In regards to the ramps, we should not add to them. More of them would bring more boat congestion to the lake.

- The number of launches is good, but they are too small.
- Boat launches - limit # of access on weekends.
- There are too many untended boat launches.
- Better management of loading and unloading items in boat while still parked on the boat ramp.
- There could be more supervision of boats being launched, especially on weekends.
- I live in the city and now have to pay to put my boat in the water. I feel that my taxes should cover this because the boat launches have not improved since we have had to start paying.
- Some boat launches are excessively used. Possibly permits should be issued for certain launches only. Someone should check permits during June, July, and August. Issue parking permits for certain launching locations.
- The boat launch question is a very biased question - two are rarely used, one has very limited high access.

Boat Launch Fees

- 10 commenters want boat launching fees increased.
  - Increase boat launch fees on weekends to help reduce number of watercrafts on lake and reduce the boat traffic.
  - Increase boat launching fee to help fund "The Long Range Plan".
  - We need higher fees at boat launches to fund lake projects.
  - Increase the launch fees. Fifty per summer - One time pay for visitor and Rock Lake property owners with boats. Use a sticker for proof of payment.
  - It should cost more to launch boats - too many boaters are non tax paying users of the lake - particularly on weekends.

- 7 commenters think that the boat launch fees should be raised for non-resident or out of state boaters.
  - I think people that do not live in Lake Mills should be charged an extra fee when they use our lake.
  - Increase fees for non city or town of Lake Mills lake users. Including the seasonal house trailers.
  - Charge fee to non resident boaters for lake maintenance.
  - Raise costs to Illinois people so that the price becomes prohibitive to them!

- 4 commenters want launch fees to be free or lowered.
  - We all pay for licenses and launch fees. Should get the same for our money. Restricting hours creates hazards at peak times too. If restrictions are chosen - lower user fees should be implemented too.
  - As a Lake Mills taxpayer I do not feel I should be charged when wanting to use the lake to launch my boat or go swimming with my grandchildren at the beach or place of my choice. The free places are usually so crowed on weekends, we choose to not go, rather that fight the crowds. Ideally it would be great to have a place for residents (with - special pass) only. A portion of my taxes already go to maintain boat launch sites and swimming areas/lifeguards/etc.
  - If you live in L.M., and pay the city taxes, the launch fee should be free, or have it payable at the time when property taxes are paid.
  - City launch fee is $40; Town is $20 - Why? It cost $60 to use all sites.
  - Allow Lake Mills area residents discount.

- They also need to collect money for launching.

Launch Improvements

- 8 commenters said that another ramp is needed at the north end launch.

    - The boat launch at the north end of the lake needs another launch pad (just the pad). The pier space is adequate for boaters but only one boat can be launched at a time because of the lack of pad space.
    - North end nice, but not designed right for site. Windy weather conditions make this site difficult for many boaters. No room for 2-boats, park far and you may never solve completely.
    - A single pier and launch on each side at North launch would have been much better design. As a boating enthusiast, my main frustration has been boating traffic, and especially the confusion at the landings. In particular the newer north landing. Having to wait after retrieving your vehicle 45 min to an hour later is not unusual on a summer weekend day. I've witnessed many arguments and near brawls between frustrated boaters. A single pier with a launch ramp on each side would allow dual entry and exit.
    - Improve north shore launch. The launch needs either a double launch such as N. Shore of Pewaukee Lake or as a compromise a pier area to tie my boat up while I'm parking.
    - Why spend the money on the new north boat launch and not put 2 launches in there?
- 2 commenters want another launch at Sandy Beach.
- Sandy beach boat lot needs signs to tell people to pull forward in spots - some park in middle of big stall where two could park.
- North side boat launch should be wider.
- Fishing should not be allowed on the boat launch pier. Please build a separate non-boater pier for fisherman casting from shore. The public launches are of the right amount but they are not equipped properly. Need better piers and launches.
- I would like to see more space somehow for docking of a boat to get food or use of the restrooms. Not for half a day, but for short term use. Especially on the south end and I realized this is already a very congested area.
- 3/4 of the boat launches are unusable too shallow or can't pass under walkway bridge from millpond. North end too long of wait.
- Not enough boat launches with a good working loading and unloading system.
- Proper behavior at the boat launches goes a long way. A majority of the negative experiences that I have had are due to this. - Boat launch for Association members is inadequate.
- On the west side of the lake, need to improve ramps (cement ramps) and keep price of boat ramps the same.
- I would like to see all boat launches modified with concrete slabs like the north end. The lighting at the North End is very poor to put the boat in or take it out 95-100% of the time the motion sensors failed to work. That's a safety hazard!
- Improve pier at elm point - too small/short
- The docks aren't long enough for our sail boat.

Parking
- 10 commenters want to reduce the amount of parking.
    - Oconomowoc Lake, which is similar size, has a lot less parking spaces at the launches. Many of these people are out of state - reduce the number of parking spaces, so local people (tax payers) may enjoy it more.
    - Reduce the number of parking spaces at launches only if it reduces boat traffic.
    - Reduce parking at North End.
    - Parking - limit # of access on weekends.
    - The six launch sites make the lake accessible to all residents, but the parking spaces must be limited to stop the excessive boat traffic by non-residents.
    - Sandy beach launch needs to limit the number of parking spots.
    - Ferry park too congested - need to limit plus put no parking signs up.
- 5 commenters think there is not enough parking
    - There isn't nearly enough parking and so suv's and cars park along sandy beach road making it very difficult to see when turning out of driveways.
    - Sandy beach lot could be expanded into the fenced off green space.
    - I would like to see more boat parking made available to those that have mobile homes with in the sandy beach mobile home park.

- Inadequate parking at boat launches. Tough to change though.
- Possibly more parking at the west side the two ramps.

- 3 commenters want stronger enforcement of parking at the launch sites.
  - Ticket those that do not park at launch sites.
  - Parking regulations should be strictly enforced at launch sites, i.e. ticket those vehicles that do not have valid passes. The launch we use (Ferry's Landing) was often crowded and we observed many vehicles with trailers parked there that didn't have passes!
  - Better enforcement and parking at smaller launches i.e. Elm Point, Ferry Park.
  - Too many trailers allowed - money collection for this is not even enforced.
- 3 commenters do not want parking at the launches increased.
  - In regards to parking, we should not add to them. More of them would bring more boat congestion to the lake.
- There are access and parking problems.
- In terms of reducing the number of parking spaces at launch sites, how many boats are with private piers?
- You need to decide how much traffic is good for the lake and then decide on parking spaces.
- The north launch parking area needs to be paved plus use numbered sites.
- How many boats of the 144 were anchored? on shore? fishing? rock pile? I notice lots of boats anchored on busy days - not all are out roaming around.

Recreation

Lake Rules
- I think boating regulations are currently ok and fair.
- The regulations are adequate.
- I do not support adding local restrictions on lake use. If the state has a regulation, enforce it. There are too many rules and regulations now.
- No more rules but better publication of items individuals can do to control potential problems.
- If there are rules that I need to know as a kayaker, I'm not sure what they are. I worry that boats and pwc's go so fast they can't see me in my kayak.
- Lake Ripley's boating regulations would merit review and adopt rules and regulations similar.
- Rules should be the same for all watercraft - restricting one or two groups creates congestion the rest of the time.
- They never used to allow people into the bull rushes and now they travel through there all the time and each year there are less plus no one observes the no wake in the west bay.

Speed Limit
- Would like to see a set speed limit for ski boats and pwc's.
- Put speed restrictions in place.
- Enforce a 50 mph speed limit.
- When we vacationed many years ago at a small central Wis. Lake, there was a 5mph enforced limit on the lake after 6pm and before 10am to allow people to boat fish and shore fish and enjoy the lake. It worked beautifully. Do it Here!

Winter Rules
- 4 commenters want motor vehicles banned from the ice.
  - Ban all motor vehicles from lake during ice cover because of liter (cans) and oil slicks.
  - Winter is a problem. There should be no cars on the ice. The lake level is too low. So that keeps the middle of the lake open. Not the geese. It is the springs in the lake. Because the lake is too low.
  - Rock Lake is relatively small. There is no need to drive cars/trucks on ice for fishing which is unsafe and pollutes the lake.
- It is unreasonable to expect rescue personnel to risk their lives on unsafe ice.
- In terms of winter regulations, all the laws in the world will not protect the Idiot from himself.

- Don't require floatation devices for snowmobiles.
- Ban snowmobiles during winter and limit the amount of cars on ice.
- Don't allow motorcycles on ice.
- You have an ordinance on winter regulations on the lake - enforce it!
- No law changes required for winter ice use.
- I have no obligation to fisherman shacks on the ice, but concerned about the debris that is left behind.
- Incidentally, I am shocked the DNR does not fence or rope off the area of the lake that does not freeze. A man died last year why is this not roped off?
- Requiring a launch fee for ice shanties is good. It gives your name and number to call for problems. There should also be a launch fee or pass for all vehicles year round. All year around users pay year around, not just summer.
- Ice shanties - require fee for non-residents.

Slow-No-Wake – General Comments
- 2 commenters want the no wake rules clearly posted. One suggested posting on the trestle.

Slow-No-Wake – Locations
- Buoys need to be placed on lake in more places. Boats come in way too close to piers.
- Too much shoreline erosion since they removed the buoys - they used to be placed 200 feet from shore as a 'no wake.'
- I would like to see no wake buoys placed around the entire lake as in the past. Placing buoys only in area to protect weed growth and not in other areas to protect people is short sighted. I have seen numerous occasions where speed boats run much too close to shore at high rates of speed. It is not uncommon to a boat moving at high rate of speed cut between a raft and the shoreline.
- Please do not increase the amount of no wake zone for any reason.
- No buoys on east side, buoys too far out on west side.

Slow-No-Wake – Speed Restrictions
- 6 commenters want to shorten the slow-no-wake times for boating:
    - 2 commenters suggested 5 pm to 10 am: I believe Jordan Lake near the Dells does SNW from 5pm-10am and it is wonderful. Easy to implement and will make a BIG difference!
    - Slow-no-wake should be 8pm - 8am - but if loud racing-type boats start using the lake, then I would favor 5pm to 10am - I think the noise issue should be addressed.
    - S-N-W for boats 7pm-9am best for fishing and water sports (slow no wake will still get you there, lake isn't big).
    - No wake from 7pm to 10 am entire lake and marsh.
    - Restrict wake hours for all types of crafts. That will cut noise level and pollution.
- Don't shorten the time for power boats and tubing.
- Reduction of noise pollution and protection of the shoreline is ultimate objective with S-N-W restrictions.
- The S-N-W hours seem okay to me, but I am not affected unless I am riding with someone.
- The S-N-W time restriction of sunset to sunrise is a good rule.
- Wake ok at night in middle of lake.
- Should have longer no-wake hours on opening day of fishing.

Slow-No-Wake – Time Restrictions
- 6 commenters think that the length of time allowed for PWCs should be shortened:
    - Times suggested were: 11am–6pm, 10am–5pm, 10am–4pm, noon–4pm, noon–3pm
- 3 commenters think that PWCs and towing should have same time limits.
    - One rule works both ways, fair (easy to remember).
- 2 commenters think that the time restrictions for PWCs and towing should be the same as other watercraft.
- 10am - 7 pm for PWC & Towing is very good - gives fishing more time.
- PWC hours should be 10am-7pm or restrict them more.

- Should have 1 full day per week when no PWC/Towing allowed.
- Jet skis and towing is best either early or late - not at busy times.
- Having time for towing be 11 am - 6pm gives more tranquil time for fishermen.
- Fishing should have limited hours, if others have restrictions placed upon their activities.
- If the majority opinion holds that waterskiing hours should remain the same, then where is the support for regulating fishing hours during the time now allotted to skiers and wake boarders?
- Water skiers need more time to ski without pwc's.
- 9 commenters think that water skiing hours should be changed or extended.
    - The best time for barefoot water skiing is early morning and just before sunset (calm water).
    - Need to extend waterski hours on weekdays only.
    - You should be able to ski as long as you can have a wake currently sunrise to sunset. Water skiers need long skiing hours.
    - There are lots of us water skiers, who follow the rules and enjoy the lake. But, when we first get home from work at 6pm during the weekday (which is when we prefer to ski) it's almost too late, to have to be off by 7pm. It's light until 9pm. Let us ski later.
    - Lift the early morning water skiing restrictions on one or two weekdays and on weekends. Early morning is the only time where there is a chance (due to the wind) for smooth water.
    - In our opinion, boating regulations are weighted in favor of fishermen vs. water skiers and wake boarders. We believe that the implementation of expanded skiing hours would have the opposite effect from what most would predict. Given the same usage rate by water skiers over expanded hours, would decrease boating congestion (especially on weekends) adding to safety and pleasure for all users.
    - There is no justification for the 10 am to 7 pm water skiing restriction during the week or weekend. I am an avid water skier and the best skiing time for water quality is early (7am) morning. By 10 am the wind generated waves upset the water.
- Water skiing, speed boat restrictions limited to as few hours as possible.
- Fishermen should have set hours.

Slow-No-Wake Days
- 9 commenters want to have a Slow-No-Wake day once a week.
    - I would be in absolute favor of imposing a 1 day a week total restriction of any/all motorized boats & PWCs. This would allow for peaceful sailing/kayaking/canoeing. Dare to Dream!
    - We all need to know when we can find the lake that is quiet and not congested. It is not fair to suggest boats from Illinois can take over lakes on Saturday and Sunday and the local Guy in sailboat gets a weekday. If the motor boats are not on the lake one day per weekend what do we lose? The lake markets itself - make the boats share 1/2 of every weekend with no motorized day. You will bring the same amount of people to town every weekend anyway. Please look into the lake laws at Lake Jordan just north of Wis. Dells.
    - No motors on Sunday at all. Sailing and canoeing only on Sunday. Let the lake rest one day a week in the summer and winter, no motor traffic.
- 3 commenters want motors banned from the lake or have Slow-No-Wake all the time.
    - The lake should be motor-less or at least wake-less. No wake all the time - why is everyone so seemingly against quiet? Rock Lake is one of the cleanest in Wisconsin. First, why not keep it that why? Second, why not have just one the lake without motors?
- 2 days a week slow no wake until noon.
- There should be one or two no-wake days per week.
- SNW at least one day a month.

Watercraft Usage
- 17 commenters commented on the over use of the lake on weekends.
    - Weekends are the worst, traffic is way too heavy. We like to ski a lot and can't enjoy it as much because of the traffic. This seems unfair when you pay taxes to live on the lake.

- The weekends on the lake have become out of control. My family and I do not even go to the lake on those days. I believe if the tourists had other means of entertainment (i.e. better gift shops, good restaurants) the lake would not be as crowded. This town needs to become updated with what people want, rather than what all the older "townies" who live in the past, think it needs; no change. DEVELOPMENT IS GOOD. BRING BUSINESS!!
- We would like to use the lake more on weekends, but are inhibited because of the amount of boat traffic. We feel that every year more people from out of town/state are using Rock Lake. The lake isn't big enough to support the amount of traffic that it has been receiving lately. It would be a huge shame for a lake of this high of quality to be ruined due to overuse and/or abuse.
- The number of boats fishing or skiing on weekends is too many. The problem of boat traffic seems to be the easiest to start working on. Reducing the number of parking spaces to reduce number of dropped boat will provide a better experience for all those who use the lake. I don't want to prevent some one access the use a public lake, but the traffic the last 3 yrs on weekends make the lake almost unusable and becoming unsafe for families. The water quality and the use of lake has always been the attraction of Rock Lake. We need to guard this for future use.
- The boats that use the lake are too large and powerful and there are too many boaters that are coming from Madison and they are saying they are here because there are too many rules up there. I live two blocks from the lake and on a nice weekend that is all you hear are jet skis and jetboats racing around.
- After 20 years at sandy beach mobile home park, we avoid Rock Lake on weekends, mostly because of our dislike of the numbers and noise from jet skis and speed boats and their rude occupants.

- 10 commenters think there are too many boats out on the lake. 4 of these commenters believe the problem is the power/speed boats.
    - Too many big boats - big pontoons - pwc are allowed on the lake. It starts with the city continually increasing the number of lift stations. If people had to pull those boats in every weekend they wouldn't be here. For the city it's all about money.
    - I believe a lot of the water problems are due to heavy usage of the lake by power boats. The props disrupt fish beds, create weed debris and make the water cloudy. It would be nice if we could encourage more silent sport usage, sailing, canoeing, kayaking and fishing to reduce the disruptive pressure.
- 9 commenters want to limit to the number of boats allowed to launch.
    - Like they do at other lakes - control the number of boats launched.
    - I think the size of motors and quantity of speed boats should be mandated. Too many, too big. Too powerful for such a small lake. Destroys weed cover for small fish. Makes it impossible to enjoy a quiet ride on lake during the day.
    - We need to limit the number of boats allowed on the lake. We also need to protect the people who live on the lake - pay the taxes - they don't go on the lake on the weekend or holidays, yet they pay big taxes.
    - I feel there should be a limit as to how many out of state boats, jet skis are allowed on weekends. Lake access should be for residents of Lake Mills 1st.
    - Limit the number of out of town and state users.
- Beyond limiting the numbers of boats on the lake on weekends, I would not change usage or hours used.
- I have started to use Mud Lake for fishing due to noise and number of boats on weekends.
- We have a boat and can very seldom use our lake because of the speed boats and jet skis. It's a shame that we have lived here more than 50 years and can't enjoy our lake.
- We never owned a motor boat, because of ecology! We have to save the lake at all cost. It is very difficult to restrict present traffic. Fees, less parking space and a certain quota per weekend might help. In Germany only sailboats and electric motors are allowed on major lakes!
- The boat traffic varies depending on weather however, that is also additional revenue (i.e. food, gas, launch fee). If boat traffic is too thick, implement a time frame for residents of Lake Mills, sandy beach trailer park, etc. to launch (i.e. 8am to 10am only residents can launch. That would free up the launches from long lines.)
- The amount of boat traffic depends on the weather and how hot it is.
- Establish a limit for number of boats that can anchor at the sand bar at the north end.
- Rock Lake is too small for all the people that use it.

- Boat traffic is heavy if it is a holiday. I have a moderate problem with other boaters on holidays.
- On a holiday, the boat traffic heavily uses the lake.
- As more housing is being built the more people will use the lake. That means more boat traffic. That is the problem with the lake. It's people.
- Concerns regarding day usage from new Lake Mills development.
- A few weekend days are really busy most others are not.
- Some weekends are moderately used for recreation, some weekends are heavily used.
- Boat traffic on weekends varies a lot between moderately used and heavily used.
- A lot of boats from other areas are bringing in harmful parasites etc… many like Rock Lake because of easy access, low fee, interstate, etc, clean water (now) and comparatively uncrowded. I have talked to these at launch sites. These boats over-crowd the lake and make it less usable for lakeshore owners and townspeople who pay the taxes to support it.
- I think we need to limit the amount of boats/jet skis out skiing/tubing and be considerate to the fisherman and boaters.
- Too many PWC's, skiers, and tubers. I have fished on the lake and find the above are generally totally inconsiderate as to buzzing fishing boats. Last year I was drifting with a group of fishermen and some yo yo buzzed between us at high speeds probably as close as 75 feet to some of us. These people have to go!
- I've only lived here for two years, but I think Rock Lake is a very good lake for this geographical area. Sometimes it gets over crowded with skiers/ pwc. And they do not stop after 7pm.
- Weekend boating traffic isn't too bad, but I'd hate to see it increase a lot.

Personal Water Craft (PWC)

- 23 commenters have concerns about jet skis – behavior of drivers, noise, and rule breaking
    - PWCs are a menace to kayakers.
    - Most rude behavior has been by jet skiers.
    - Still there are rude and reckless boaters out on the lake most of the time. Especially youth driven jet skis. I also own a jet ski and enjoy it very much. But, ride it much differently then most I have seen on the lake.
    - About 8 years ago I stopped wind surfing because of jet skiers - they would harass me, making it unsafe.
    - Jet skis are a nuisance due to the lack of personal responsibility of their riders. I have no problems with jet skis. Their owners are the problem when they consistently dig holes in the water 50 ft. off shore for hours on end.
    - I've noticed that the jet skiers are the most inconsiderate! (Coming too close to fisherman and too fast.) It seems to be the younger drivers of the jet skis. Most fishermen are courteous to each other.
    - Jet skis are nothing but trouble for fishing and safety.
    - The biggest problem is the jet skis not the boats. There are usually young kids on these skis that drive recklessly.
    - Also all the majority of jet skis gun it and then do a 360 degree they ignore the 100 yard rule for crossing in front of boats.
    - Jet skis are a real problem cutting between boats and jumping wakes.
    - Personally, the jet skis are my issue - water pollution, disrupts natural flora growing in lake and noise pollution. Also, usually the most irresponsible and reckless of boaters.
    - I ride a PWC occasionally, but there are too many churning up the lake. Many PWC drivers don't appear to care about anyone else, or know they shouldn't jump wakes, get too close, and don't yield.
    - Would like to see restrictions on age limits for jet skis. We have a pontoon boat we use once or twice each month, the only problem we have ever had is jet skis getting to close to our boat. Also it would appear the operators are young. There should also be a speed limit on these.
    - Jet ski's do not obey no wake - come within 2-3 feet of our pier and cause disruption.
    - Too many sea doos, who don't care how close they come to you.
    - I'm totally against PWC noise.

- PWC must be regulated. They are inexpensive and popular and their numbers are going to increase. They are noisy way out of proportion and should not be allowed to spoil everyone on shore's day. They are going to become the lakes biggest problem.

12 people feel that jet skis should be banned from the lake.

- Uncontrolled number of jet skis plus wild plus erratic driving disrupts lake habitat and will not get better unless banned from Rock Lake.
- PWC should be banned in at least 5 years.
- Ban jet skis - nuisance, noisy, polluting!
- Banning of pwc's would dramatically reduce congestion in the area of sandy beach and enhance safety on the lake. Many pwc operators don't practice safe boating principles and are discourteous to others. As a skier, they have followed me in my wake on multiple occasions. At other times they have cut across the path ahead of our boat and have passed over our towrope before we can remove it from the water. In most cases they don't appear to be intentionally malicious, they are just so intent on enjoying themselves they aren't thinking about safety. Many appear to be unaware of boating rules. Its too bad people aren't required to pass a test before being allowed to operate a motorized boat or pwc.

- PWC's should be a minimum of 300 feet from piers or more.

Waterskiing/Towing

- The lake is near impossible to ski on weekends because it is so churned up. If you don't ski the 1st and last half hour of allowed time, you don't enjoy any smooth water.
- There's not too many fisherman, but sometimes seem kind of hostile if your skiing, tubing. We try to give a lot of space, but sometimes there so many its tough.
- Water-skiers ski too close to shore.
- Water skiers get too close to piers, flying past at high speed.
- If skiers and tubers would go in one direction - would help.
- I'd like to ban towing all the time.

Sailing/Canoeing/Kayaking

- Promote sailing with time periods set aside for safety of sailboats.
- We always enjoyed seeing sailboats on the lake and now there are not so many. We think it's partly a safety issue because we have seen motor boats closer to sailboats than the 100ft required.
- Non-motorized users need to have their designated time too. Whether designated days/hours - late if canoeing/kayaking would love to have a time they don't need to fear getting run over.

Swimming/Beaches

- There are chopped weeds on surface where I swim.
- Since we don't live in town we are charged to use the good beach and I think some of that should be change also.
- During swimming lessons the boat traffic is quite heavy.
- The only additional comment I'd like to make is the beach area needs some additional work to enhance families to gather more and enjoy the lake as well as bike and walk trails.
- Would like Sandy Beach improved. Clean up geese duties on regular basis, new sand.
- Only one park has a good beach area. I like the way families can go to the right side and the kids stay on the left. I wish all the parks did that and had nice sandy beaches for swimming and an area to park my boat on shore.
- Extend swimming hours at night to midnight or 2am.
- How about getting grass to grow at Sandy Beach.

Lifeguards

- 6 commenters want lifeguard coverage at the beaches.
    - If someone drowns at a city owned/operated beach, I think it would be a huge liability problem. Busy weekend should be covered at least.

- I wish we would see lifeguards more often, even if there must be fewer guards at one time. It would be safer to have fewer (rather than none) and it is better to have even a teenager with some authority than no one.

Boat Size and Horsepower

- 14 commenters want to limit the size of motors allowed on the lake.
  - Would love to see a couple of years banned use of motor boats over a certain horsepower.
  - Motors over a 100hp, restricted.
  - Shoreline damage could be reduced greatly if motors weren't so large, creating constant wave action. 50 or 75 hp should be the max. Motor size should be no larger than 75 horse power.
  - Limit horsepower of motors used on Rock Lake. This would solve most of the problems.
  - Too many big boats - limit HP to 120 to 135 - limit speeds and will reduce some boats.
- 10 commenters want to limit the size of a boat allowed on Rock Lake.
  - Enforce a boat size limit of less than or equal to 22 feet.
  - Also, limiting the size of boats (pontoons not included) would improve the safety on the lake.
  - Boats over 17 feet, restricted.
  - Please, please, please put a limit on the size/horsepower of the boats allowed on the lake. Many are way too big for this little lake. Number and size of boats needs to be significantly cut back! It's getting out of hand and wrecking the lake!
  - We saw this lake deteriorate significantly - there are too many large boats.
- Require 4-stroke motors on towing boats (no 2-stroke motors).
- 2 cycle outboard boat motors should be banned in at least 5 years.
- One idea is to ban 2 stroke engines because of oil pollution!

Noise

- 5 commenters are concerned with noise pollution.
  - The level of noise pollution creates a sense of living next to a race track not a pristine lake.
  - We have to get a better handle on noise. Noise needs to be sited/fined/banned.
  - I hate jet skiing, motorized boating, and water skiing because of noise pollution. One person's rights are not more important then the rights of people to enjoy the lake from noise pollution.
  - I think it is just terrible to listen to the hum or roar of the engines on any early summer weekday evening or especially summer weekend. I think the motor boats are a huge issue on our small lake. No tranquility there anymore.
- 4 commenters believe that the noise from PWCs is an issue.
- 2 commenters said that noise on the weekends is worse than during the week days.
- I'm also curious as to why fishermen seem to be a favorite group when recommendations are made for regulations and ordinances. Especially noise related recommendations. Bass boats powered by 250 horse outboards fly past my house almost daily at 50 m.p.h. at 6 am. This is much more offensive than a pwc using the lake after 7pm. Why is this offensive noise not the subject of ever increasing ordinances like pwc's are?
- Golf cart noise is worse.
- Using the lake quietly is almost impossible.
- Noise includes snowmobiles.

Safety/Boater Behavior

- I've had a number of poor experiences with recreational boaters and water skiers. I feel unsafe out on the lake in my kayak during peak hours, as I feel too many boater pay to little attention to the rest of us.
- Some frustrated ski boats go in between which is hazardous to all concerned. This has gotten worse the past year or so since ski and jet ski restrictions went on creates a hazard for all. Too many fishermen are anchoring in groups in wake areas where skiers, boats, and jet skis usually go. In order to not break the law, boaters have to zig zag around these boats. Maybe we need a boat, jet ski, ski lane where no one can anchor. Or fish in a no wake area.
- Pwc and towing can be safe at any time if the congestion is controlled.

- I have loved the lake since I was a small child. The most disappointing change is the behavior of the boaters. Weekdays are a pleasure at the lake; weekends are the luck of the draw. I have been a property owner in Lake Mills for almost 20 years; unfortunately the individuals that exhibit bad behavior are not only "visitors". The area of greatest concern is the "rock pile". Many boaters consume excessive amounts of alcohol (and are allowed to operate their boats), use foul and inappropriate language - regardless of the others present. And put the safety of some participants at risk. My family personally experienced an assault in this area - my young son, age 8, was "blasted" in the face with a forceful deluge of water from a "water cannon" by a male adult, completely unknown to us. My son was terrified and became afraid to swim in the lake following the episode. Although we reported the incident to the lake patrolman, no action was taken.
- We have to get a better handle on offensive boaters! Offensive behavior needs to be sited/fined/banned.
- Boats drive too fast and too close to our swim raft, and we often feel it is too dangerous for our kids to swim.
- We don't even use our boat on the weekends much because we don't feel safe.
- Too many fishermen and water skiers make it too dangerous at times, and we often feel "forced" to stop using the lake.
- We have always enjoyed the lake but there always be hot shot boaters that take pleasure in just about hitting you and ruining your fishing. People fishing from the trestle need to be more alert that the boats come in and out from there.
- Question number 7 [Which statement best describes your experience with other boaters?]: fisherman problems!
- I firmly believe that every one needs to be educated in the rules of right of way. But then I feel that there should not be a boat driver on the water without taking a boating safety class.

Enforcement

- 5 commenters think that the time restrictions for towing and PWCs are not adequately enforced.
    - Need stronger "no wake" enforcement after 7 p.m. - especially Fri, Sat, Sun evenings.
    - Skiing and jet skis after hours on north end of lake, knowing city patrol lives on south end by bartels beach and can't see up on the north side.
- 5 people think that the enforcement is excessive.
    - The enforcement is excessive, especially toward Illinois plates I've been told.
    - The enforcement of rules and writing of citations is inconsistent and at times excessive.
- 4 commenters think there should be more or better enforcement.
    - More law enforcement so fisherman can fish more often.
    - Increased enforcement of existing rules on holidays and weekends, especially during early and late hours, need immediate addressing.
    - The lake needs better control on weekends, though no one in their right mind would take a boat out. I have personally noticed large boats with Illinois licenses not obeying any rules.
    - I would like to see a little better enforcement of current regulations. Authorities did a fine job controlling no wake in 2004 when the water was so high.
- 3 commenters think that the law enforcement should increase their hours.
    - We need full time law enforcement on Rock Lake.
    - More weekend patrol needed.
    - Additional Police Lake Patrols would benefit all as it becomes dangerous on weekend summer days.
- 3 commenters think that the enforcement is poor.
    - Poor enforcement on weekends.
    - The boating enforcement is poor, especially since the patrols were decreased.
    - Enforcement at times is as bad as lack of compliance. Harassment is uncomfortable from enforcement also.
- 3 commenters think that the boating enforcement is good or adequate.
    - Sometimes the enforcement is excessive, most times good.
    - Most weekends the law enforcement presence is appropriate.
- 2 commenters think that the fines should be increased (including for trailer parking violations).

- Keep the lake rule enforcement fair and simple to understand, clear and easy enforcement systems are easier to enforce. Good systems have fewer problems. There is a time and place for all: fishermen, jet skis, water skiers.
- The S-N-W from sunset to sunrise is not enforced.
- Enforce the no wake areas. They are currently a joke.
- Haven't seen any enforcing, but have seen authorities on water.
- Never encountered any patrol on lake.
- There are too many boaters that are drinking heavily. Boats need to be boarded and searched for the amount of alcohol that is consumed by many boat owners. Especially boaters from Woodland Beach and Sandy Beach. They come back from boating and are intoxicated. Boat drivers need more searches and breathe tests.
- Sometimes the enforcement doesn't target the big fast boats.
- Want stricter enforcement at dock use.
- Rules seem to be enforced strictly against skiers, not at all against jet skis.
- Lake rule enforcement - too much to residents, not enough for non-residents. Lake rule enforcement should be on a warning basis for lake residents - or a 2 strike rule. We pay high taxes to live here, I feel we could be warned before fined.
- Many boaters don't follow common sense rules. I hate to see too much enforcement. But blatant offenses should be corrected.
- Patrol boats should patrol and not sit around so much. Visibility of patrols cuts down on violations too.
- Officer Erwin stopped us once and acted like a cross between a nazi and a member of the three stooges.
- The female officer needs therapy.
- Last summer I was stopped in a new boat that didn't have registration numbers on it because it was new. We showed that the numbers were coming in. He then told us to make sure to keep our distance of other boats. I didn't think we were that close but it was just a warning. We were wakeboarding and had a person in the water. The DNR boat left and a speedboat came by very fast about thirty feet away from us. They never got stopped and they should have got a ticket. The DNR boat was still very close to us and didn't see them. Then later on our wake boarder fell down and a pontoon almost hit him if he didn't start yelling at him the pontoon never said sorry for almost hitting our friend. I know the DNR can't watch and see everything but I didn't like what happened that day.

Shoreland Zoning/Development

- 3 commenters think that there is too much shoreland development
    - I do know that the lakeshore has been heavily developed with lack of long term insight as to the lasting effects. The marginal building practices of building in known flood areas.
- There are too many boathouses on the lake frontage.
- Current allowance of 500 square feet boathouse is excessive. 200-250 sq ft would be reasonable and only on certain grades or slopes. I believe the height max is 8 feet which leads to a lot of ugly buildings with flat roofs which become decks even though prohibited. 12 ft high with one story restriction would allow pitched roof and much more appealing structures.
- Shoreland fines are too low to be effective.
- In a few years we will regret the way Shorewood hills is developing. We are quickly loosing the small town atmosphere we have all grown to love.
- I'm wondering how the massive house on Ferry Drive could be built there so close to the lake. An example of insufficient shoreline zoning rules.
- I have relatives that live on the lake. In my opinion they have too many rules all ready as to what they can or can't do with their shoreline.
- Don't make any more shoreline restrictions for home owners. The long term owners got to tailor their shore so other should be able to. P.S. I don't live on the shore what's fair is fair.
- It seems to me that regulations for shoreline developments are certainly needed but greatly over emphasized. Common sense regulations are fine but it is becoming very difficult with new restrictions to do shoreline work. I have seen far too many disputes over shoreline development occur that a little common sense give and take would have solved. When a few inches or a couple of feet come into a setback situation - that's getting pretty bad! Again, we would like to see more emphasis on runoff control and a more common sense and working

relationship with lake residents. We all have to live on or near this lake and development and changes will continue to occur. We can't make it as it was 200 years ago.
- Need to enforce shoreline rules.
- Shoreland habitat needs to be addressed! Clearing and destroying natural habitats.
- In these days, with population steadily increasing, private ownership of lakeshore property should be strongly discouraged. The public shouldn't lose anymore lakeshore to private owners.

Shoreline Erosion/Restoration
- Information and access to natural materials to help stop shoreline erosion.
- The trees aren't tall enough.
- The shorefront at Tyranena Park is in disrepair and continues to degrade with no upkeep or repair.

Pollution

Pollution from Phosphorus from Lawn Fertilizers
- 5 commenters think that phosphorus should only be banned for shoreline properties.
    - Phosphorus fertilizers should be banned on all shoreline property and where it directly affects water quality. But not the entire county and not farmers who don't over fertilize now.
- 2 commenters want phosphorus banned or reduced.
    - I support either a phosphorus ban or require that no fertilizer containing more than 5% phosphorus may be applied. There are not many (if any) fertilizers that contain no phosphorus that provide nitrogen & potassium sources that are desired for a nice growing yard.
    - Ban lawn chemicals west of Main St. This is the #1 factor in lake pollution. Boats and related issues are minor. Not non-existent, but minor by comparison. Strongly support banning phosphorus in lawn fertilizers.
- Definitely too much lawn fertilizers run off into lake. Especially by those who live on the shore.
- Way too many people fertilize their lawns when they don't need to.
- Knowing that those beautiful green lawns wash fertilizer into Rock Lake makes me very sad.
- There is absolutely no reason to have a lawn when you live on a lake. I did not plant a lawn because of phosphorus fertilizers impacting the lake.
- Encourage natural lawns rather than phosphorus fertilizing and perfect grass.
- If large percentage of lake development is above lake level then phosphorus fertilizer an issue, apply where needed.
- More research is needed on phosphorus/lawn fertilizer issue.
- Need more data on phosphorus in lawn fertilizers - define use in rock lake watershed.
- Making more restrictions on shorelines is foolish and most home owners are careful about lawn care etc so it won't affect the lake. Most people don't fertilize their lawns.
- In reference to question 21 - Do we have Madison lakes problems?
- Lakefront residents maybe could be mandated to have their property line filled with sand or water retention walls to help contain the fertilizer runoff problem.
- Question 21 [law phosphorus ban]: Let her go…

Pollution from Agriculture
- 4 commenters are concerned about manure from chicken farms.
- 2 commenters think that pollution from farms is worse than pollution from lawn fertilizers.
- Last summer I noticed very discolored water in the ditches along the bike trail west of city adjacent to a farm field of grazing cattle - Runoff?

West Channel
- There needs to be a detention pond on west side of cedar lane at channel. Neighbors need to prevent runoff into lake at this area.
- On channel, it's bad, very dirty.

- The practice of distributing manure onto the field adjacent to the creek that runs into the inlet at Cedar Lane needs to be stopped.

Runoff from Streets

- Road runoff on lot #43 Shorewood Hills road goes directly into lake. This is a massive erosion closing in channel.
- Consider reducing winter salt application on streets that drain to lake (use sand).
- Also, the city used to have a good salting/sanding policy (use primarily sand on streets draining to the lake) about 10 years ago; and they used to require that leaves stay on the tree lawns and not be put in the street. These policies should be re-instituted.
- Shorewood Hills Road needs some improvements so that salt, leaves, metals, oils, grease don't wash directly into the lake in certain areas like Mijola Shores.
- People of Lake Mills that own homes after mowing their lawns do not pick up the grass clippings which get into the sewer which goes into the lake which pollutes the water and people do use pesticides on lawns. This also applies to leaves.
- Street runoff is by far the worst problem for the lake. DNR does not have any control over the city. I have seen no weed beds go to overgrown weeds directly in front of storm sewers.
- If you're really interested in Rock Lake water quality take another look at the private drive which abuts my home lot on the North. It's unpaved and is supposed to serve two homes. It's defacto, ingress and egress for vehicles of every shape and size, and the material they keep applying to its surface keeps washing down to Ferry Drive, and into a sewer which empties into Rock Lake at Dick Devors home. The DNR rep recommended a few yours ago that they pave it, at least 30 feet up from the street. Both owners refused - no help from city government.

City Leaf Pick-up

- 5 commenters think that the leaves in the city should not be placed in the street for pick-up because this practice leads to runoff that affects the lake.
    - City needs to change its leaf collection practices in the areas where the storm sewers dump directly into the lake.
    - The City of Lake Mills is a major source of phosphorus. Until about 15 years ago the City of Lake Mills had residents put fall leaves on the tree lawn. From which they were vacuumed into a truck. New "management" decided it would be more efficient to put them in the gutter and pick them up with front end loaders. As a nod to the "environment" they suggest residents keep them 4-6" away from the curbs (thereby allowing water to drain without contacting the leaves) as though fall breezes and passing traffic would allow the leaves to just sit exactly where you put them. Lake Mills storm sewers and gutters serve as excellent sources of phosphorus.

Trash/Debris

- The level of trash and debris on the lake has always been very good.
- These is debris and trash after ice fishing.

Swimming Concerns

- 4 commenters were concerned over bacteria and chiggers and whether it is safe to swim.
    - Our lake needs to be cleaner. Children can not even swim with out the worry of breaking out the first half of season. It is terrible.
    - Does every lake have the swimming restrictions because of the bacteria? I know people that won't let their kids swim in the lake because of the bacteria. Do I as a parent of a one year old and a four year old need to worry?
    - Rarely go in or near the water. Chiggers early, high bacteria rest of summer.

Geese/Seagulls

- 27 commenters have concerns with the geese population and the pollution that they cause.

- I believe the resident goose population needs to be reduced or eliminated.
- Sea gulls and geese are adding many nutrients to water.
- I wish something could be done about the problem of geese on the beaches and the parks around the lake. They not only pollute the land but also the water around the beaches.
- Geese are becoming more and more a problem. They probably contribute to the water parasite problem (swimmers itch). As well as fertilizing the weeds and making a mess on the shore. Sea gulls seem to be increasing in number and are a real nuisance. They ruin boat lift covers with their droppings and create a mess on the piers.
- You can't even swim in the lake without getting a rash until late in the year. You've got to get the geese off the shores, beaches, and water.
- The geese population has increased significantly in the last 5 years. If the issue is not addressed it will cause high bacteria counts forcing restrictions in the use of the lake. What concerns me as a homeowner, the issue does not seem too recognized as evident by some of your questions.

Other

- Eutrification of the mill pond is my greatest concern. It is regrettable that it was not addressed when the fish hatchery changed their water intake. This change in water intake was the result of mill pond water quality deterioration, build-up of nutrients, and organic matter over the years.
- There's too much development leading to more and more impervious surfaces, which adds to the amount/quantity of run off, carrying with it pollutants, including oil, gas, salt, nutrients, pesticides and more driving algae growth and lowering water quality.
- It is not proven to be true that phosphorus causes increased algae growth in lakes.
- The water is very clean compared to many bodies of water.
- I believe there is little or nothing done to prevent the use of pesticides surrounding Rock Lake. This is just one example of pollution that threatens the life of Rock Lake and surrounding lakes. This is a crowning jewel in our district where people from all over come to enjoy it waters. Please impress upon the committee the necessity of banning the use of pesticides in the areas surrounding Rock Lake. I want to be able to enjoy the lake as well as my young be able to enjoy the lake for years to come. What is the point of having a lake so close if we can't enjoy it? Unfortunately, I don't see how long Rock Lake will be a viable recreation site if people ignore their responsibility to keep it clean. While this may sound alarmist, one only needed to be on Bartel's beach early in the swimming season last year to see the large amount of dead fish sitting on the beach, to see there is a problem.
- One of the most pressing issues with the lake is water quality, usually affected by high rains and lake levels. The problem of controlling lake level will require specific studies and the possible replacement of the dam.
- Need to control and regulate vehicles that pollute our lake.
- As the population in Lake Mills and surrounding areas has increased Rock Lake has become more popular. The over use of the lake by both fishermen and watercraft has caused an increase in pollution.
- We have to get a better handle on pollution. Boats seen polluting need to be sited/fined/banned.
- We feel riprap and/or appropriate shoreline vegetation within 15 feet of the shore would limit the shoreline erosion and detrimental runoff into the lake.
- It is my opinion that Jefferson County and its "lake residents" would be better served if lake water quality took on an increased importance. Runoff into this lake is not good - greatly increasing the sediment and covering up the possible great archeological treasure on its bottom.
- The installation of the sewer around Rock Lake in the early 1970's resulted in a major improvement with respect to water quality and clarity, including a major reduction in algae growth.
- Need to identify major sources of phosphorus into the lake and control these ASAP.
- Water Quality is the most important long term issue for Rock Lake. In this regard, I believe that an on-going program of water quality measurement be established using quantitative measures. Water quality trends, targets and pollution sources can then be defined, identified and acted upon. Taking actions without a quality measurement system would be foolish and futile.

- Question 21 would all be blamed on the farmer. The lake was maybe clearer when cows actually drank and urinated in the water then now. They have taken away all the marsh inlets and put houses around the lake leaving no natural form of cleaning runoff before it gets into the lake.

Water Clarity

- 29 commenters said that the water clarity depends on a variety of characteristics including time of year, time of the week (weekday versus weekend), use, weather, and the location on lake.
- 9 commenters think that the water clarity is becoming worse as compared to many years ago.
    - Over thirty years we noticed the water clarity diminishing.
    - 15 years ago, we could see the bottom easily, all over. Now, our shoreline is frequently murky and yucky. If we start now, we can reverse this. To wait might make it impossible to change.
    - The water clarity is getting cloudier each year! Especially with heavy boat traffic. We are losing water clarity with each summer. We must do something to stop this decline in water quality.
- 3 commenters thought that the water clarity in 2004 was poor.
- The water clarity is bad on the North side.
- Water clarity improved immensely after sewer was installed 25+ years ago.

Water Levels

- 15 commenters think that the water level varies from year to year and can depend on such things as precipitation.
    - Too much high and low water levels!
    - Water level variation is the problem. Summer 2003 got so low, had trouble getting boat off lift. Summer 2004 was high, leading to some erosion of shoreline facilities.
    - Most of the aggravations I endure are generally not too controllable such as too much or too little rainfall causing too high or too low water levels. Anyone who uses Rock Lake regularly knows that the water level is determined by the winter snow fall and how much it rains throughout the season. The lake can be too high and low in the same season.
- 3 commenters think that the water level is good.
- 2 commenters think that the water level is too high.
- 3 commenters think that the water level is too low.
    - Water level is almost always too low & the dam is opened too much letting levels drop.
    - The lake level is way too low. We are losing or lost spawning and rearing places on Rock Lake. Let the water come up and then leave it alone. The marsh is way too low which is spawning and rearing habitat for fish and migratory birds.
- 3 commenters think that the spring water level is too high.
    - In the spring the water level at times has been so high we can't get though the trestle and are not able to enjoy the main lake.
- 4 commenters think that the summer water level is too low.
    - In terms of water levels, summer levels - danger, way too low. Previous spawning areas that are not dry. Also low duck numbers on Marsh compared to high water levels in the past.
    - The water level in the summer is way to low - can not get boat off trailer at sandy beach launch on occasion.
- 1 commenter thinks that the summer water level is too high: There have been times when I can't get our pontoon boat through the trestle because the water is too high in the early summer.
- 3 commenters think that the fall water level is too low.
    - For the most part the lake level is fairly good the only problem I run into is in the fall sept and oct. I like to fish these months but by the end of sept the lake is already down so low you can't even get your boat in water to get it off the trailer at the Mill Pond landing. I guess I never understand why it had to be drawn down that far so early when it generally doesn't freeze over until December.
- 3 commenters think that the winter water level is too low.
    - Water level is too low for ice fishing in the marsh. I wanted to be lowered to deter shoreline ice breakup damage, do it in March, not December.

- Water level depends on rain etc. & lowering too much.
- The arbitrary and un-natural schedule of changing lake levels is unfavorable to fish population as well as other wildlife. At this time there are four muskrat "houses", built last fall when water level was lowered so far they had to build them out in "deeper" water rather than in, or close, to the vegetated area they normally would prefer (south of the main pond) (little or no water in vegetated area).
- The shoreland habitat is better since lake level adjusted correctly.
- Summer levels need to be monitored better. Lake Mills is doing a poor job in summer.
- The lake level needs to be consistently managed to prevent shoreline damage and erosion.
- Important to lower lake level during winter season to minimize ice damage.
- I know the level can be regulated somewhat and I think that could be done better. During drier seasons the lake should be "held back" to keep the level higher.
- When occasions arise where heavy rains cause lake level to rise, I feel the city needs to have a better plan to get the lake "opened" sooner. Either give residents five days to adjust or remove piers, or pump water out to fish hatchery sooner.
- I would like to see the water level held at a higher level in the spring. Not taken down to the bear minimum. Hold some back for drought time. They can always let some out, but you cannot put any back in drought conditions.
- Maintain a higher water level in spring so the marsh is not so low. This is where the bluegill and other fish spawn.
- In the spring - bring the water level up sooner.
- You guys open the gates after the Rock River goes down. Well that leaves all the lifts too high and the launches unusable except for the north end.
- Who is responsible for cleaning and releasing water at the Mill Pond/Amer. Legion? Had that been handled, Rock Lake would not have tolerated such a long slow/no/wake.
- Most significant long term problems such as amount of water being diverted from lake (Fish Hatchery 20" pipe) and take down levels need immediate addressing.
- I watch at the American Legion every Friday night - Rock Lake is being drained steady for about the last 3 years.
- Can't control water levels on a natural lake - not allowed by DNR.
- The system for controlling the lake level is unsatisfactory. An automatic control gate should be a top priority for RLIA.
- with the dam we have, we can't expect to have optimum levels.
- On the water level - What about Spring? Who is responsible for lifting the slow/no wake after spring rain and flooding, Rock Lake was the last in the area to lift it.
- I'd like to state that I have contacted the DNR twice on the past year regarding the low water levels. The marsh especially is extremely low and those in the Topel properties are having a major problem w/shore erosion. The DNR has had deaf ears.

Education
- I am not educated enough to know what causes the actual problems.
- Concerns regarding increasing traffic and speeds on CTH B, ice safety, water quality of lake. Ideas and information I can get that will help Rock Lake without over enforcing rules and regulations.
- There needs to be more education for all boat users. All boaters should be required to take a boater safety course.
- I would like to see the full study before I make decisions on use/abuse of the lake.
- Promote through education the advantages to our lake through practicing catch and release by all anglers.

Other Comments
- 19 commenters expressing their love of Rock Lake and their hope that it does not get worse.
    - My family has been enjoying this lake for over half a century. We take pride in our property as Lake Mills taxpayers as well as state. We would like the 4th, 5th etc., generations of our family and everyone to have the same enjoyment.

- Please preserve Rock Lake the best you can. Encourage non-motorized recreational use as much as possible to decrease water pollution and noise.
- We have a beautiful lake and we should take care of the environment around it.
- In filling out this questionnaire, I realize I am not very knowledgeable about lake water quality and ecology, nor about the factors that significantly impact it. I think it is good that organizations such as Rock Lake Improvement Association are monitoring and discussing the lake. Hopefully careful use and management will allow future generations to enjoy this beautiful lake as much as we have.
- We have been a resident of Lake Mills, Rock Lake area for 9 years and we are very happy with our summer home. It is a wonderful lake. Clean, clear, and inviting.
- I've enjoyed Lake Mills since I was a kid (12 yrs old) on weekends. It's always been beautiful and still is. Observing it over 58 years it's held up well. You are doing a great job - but there is a lot of pressure on the lake with population growth and new methods of life (like fertilizers etc).
- Our overall opinion of the condition of Rock Lake and Lake Mills is still a very positive one. Again Rock Lake is still a very beautiful lake to spend good quality family time on. Boating, swimming, tubing, fishing, etc. has been a wonderful family tradition for us!
- Rock Lake is an incredible resource. We need to preserve and protect it from overuse and degradation.
- In general I think Rock Lake is a great lake and is well run and well maintained.
- We love the lake and are happy to support your efforts to keep it nice.
- We enjoy Rock Lake year round. We will support any efforts to increase the quality and longevity of this resource.

- 8 commenters expressed thanks for working on Rock Lake issues and said keep up the good work.
    - Your association and water conservation department have done a great job in providing the perfect lake condition. This is why so many people use it. You score an A+.
    - Please keep up your good, worthwhile work. Your efforts are so important and are appreciated!
- Impressed that time is being taken towards efforts to improve Rock Lake.
- We would favor the establishment of a lake management district.
- The City of Lake Mills has to become proactive. Current management is ineffective and unconcerned. They don't seem to understand the tremendous value of Rock Lake.
- We would like to enter in dialogue with the county to preserve the north end of the park in a natural state. Margot Peters is also interested. We are contemplating future usage for North end (Shultz's Bay) as County Park (extension to Rock Lake Cty Park) - Carolyn Wey
- Lake property owners pay higher taxes generally than other properties. The majority of this tax goes to schools. Find a way to use part of that tax to fund lake preservation projects, water quality monitoring, fish stocking, shoreline restoration!
- Problems are minimal.
- More people, more noise, and more debris, and more unsafe boating.
- Since I have lived in Lake Mills (1960) the lake has gone downhill. I know many hometown people that don't use the lake for many different reasons 1) Congestion 2) Noise 3) Too many jet ski's, boats, etc 4) lake clarity.
- Though I applaud the efforts and intentions of the Rock Lake Improvement Assc., I'm also concerned that it represents a small cross-section of the users of Rock Lake - over 50, over 60, and intent on regulating the "higher energy" activities on the lake, such as are valued by younger people... pwc's, skiing, etc. Speed sports.
- We live on the backwater and must go though the RR trestle to enter into the main lake. We own a pontoon and it is very difficult to maneuver it under the trestle due to both the height of the overall trestle and the width between boards. Having to lie down while you're driving the pontoon under the trestle is unsafe and ridiculous.
- I would love to be able to take my child to my lake access ice skating in winter. But, when the runoff goes down the drain and drains into the lake, the ice melts. We have fallen in more that once. How convenient to have lake rights and not be able to enjoy it so close to my home.
- We moved to Lake Mills from Madison in October. One of our main reasons was Sandy Beach. It has always been an enjoyable beach but is getting a little crowded with people coming from other cities.
- Ban people from Illinois!
- Always look for problems so we can be restricted from enjoying our property. Most residents have common sense.

- If a private owner wants to beautify their shoreline let them. We all benefit. People who live here respect it. People who don't live here don't care about it and ruin it for us.
- Don't Care!
- I also feel there is way too much out of staters here. But this because of the lake but those are people are just ride down on the lake and don't have much respect for families and children at the beaches. Like the jet ski's and motor boats cause a lot of noise and big waves for the little guys to enjoy the water.
- We don't do any activities. We don't go to the lake.
- Currently we make no or little use of lake. We do not boat on Rock Lake.
- What happened to the "freedom of access" to the lake shoreline that was a part of the Wisconsin statues? Our parents were allowed to walk around the whole perimeter of Wisconsin lakes and rivers.
- The paddle boats are being rented out even though they are broken. Last year there was no effort to fix them.
- I enjoy duck hunting on lake.
- Need more spots to duck hunt on the lake.
- For the last fifty years the lake has been very similar to the dead sea. There is no viable input any more to give a decent exchange rate to help solve all these quality problems of the water.
- I am interested in issues relating to mud lake.
- If the pyramids really exist, why don't they put out information on them?

Comments on Survey
- 5 commenters expressed thanks for the opportunity to provide input through the survey.
- Good questionnaire - Overall, lake management seems to be going well. Committee is very aware of issues and is attempting to correct/avoid problems before they become major issues.
- I think some of the questions are very leading, trying to get the answers the survey creator wants. Especially #'s 12 and 13.
- This survey was entirely too long.
- This is the most negative survey I have ever seen. Frankly, it is one-sided. Why not ask what people enjoy, what could be done to improve use - STOP being selfish about using Rock Lake. Encourage more use - how about improving signage! Encouraging young families to fish and swim and respect the water. You can't regulate an appreciation for the lake. You must Educate!
- Question 20 is very misleading. [What do you fee are the top 3 factors that contribute to problems in Rock Lake?]
- There is no reason to answer this survey. I haven't used the lake for any reason since I moved here.
- I hope decisions are not made purely by popularity or lack thereof as a survey might suggest.
- I am concerned that in making your decisions you will not include your long term summer residents. We are a vital part of your community and should be involved in decision making. I am grateful for this chance to voice my opinions.

Comments Not Directly Related to Rock Lake
- I support moving Hwy B behind the homes on the north end of the lake and converting the current road bed to park land linking the city and county parks.
- I would like to see traffic on CTH B (5,000 cars and trucks a day) diverted to a frontage road next to the highway and away from the lakeshore.
- The Korth Park building does not need to be more than $1 million. A simple park shelter with bathrooms is all that is needed. Like the North End Park. North side park needs sand volleyball court.
- Leave Korth Park alone - No more structures. This was supposed to be a low impact area.
- People in Shorewood Hills pay the highest taxes.
- By the way, we are probably the only people without a golf cart - we walk to the lake - and wish the carts could be banned.
- Parking cars is an issue on my road. Speeding traffic also.
- As summer resident, the city of Lake Mills spare no ??? to get out of state dollars. Latest $240 annual garbage charge. Empty cans for nine months. "OSLO" says boycott local merchants since we do not vote but pay school taxes.

Appendix I

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