

SPOON LAKE MANAGEMENT PLAN

1.01 – WATER QUALITY TESTING

OBJECTIVE: To increase knowledge and the understanding of the specific issues impacting Spoon Lake.

LAKE TESTING PROTOCOL

Nutrient sampling of the lake will allow the Board and management to establish baseline values in order to assess water quality in effort to prevent problems before they occur.

The lake will be inspected on a one (1) time per month basis during the months of April through October. Water samples will be taken at a minimum of 4 designated sample sites during those inspections. The following parameters will be monitored:

Temperature	pH	Hardness
Turbidity	Total Phosphorus	Dissolved Oxygen
Alkalinity,	Conductivity	Free Reactive Phosphorus

The outcomes of those tests along with recommendations and analysis of the results will be provided in a written format to the Board and management following each testing period.

Testing will also determine if there are any toxic algae species present. The Board will be immediately notified if there are any human or animal concerns resulting from the presence of toxic algae.

BEACH AREA TESTING PROTOCOL

To prevent illnesses associated with swimming, Lakeview and Windemere beaches will be sampled to ensure that bacterial levels are within limits established in the Swimming Facility Code.

Two samples will be taken every two weeks, beginning in May and concluding in September. Sampling will take place in both the shallow and deep areas of the beach. Those samples will be mailed to PDC Laboratories in Peoria for analysis.

Sampling Criteria

- If both sample results exceed 235 cfu per 100 mL, the beach will be immediately closed.
- If one of the sample results exceeds the 235 level, we will submit two additional samples. If either of those re-sample results exceeds 235 cfu/100mL, the beach will remain closed.

- Beaches will only be reopened when both samples collected on the same day have less than 235 cfu/100mL.
 - The IDPH requirements also contain a maximum standard for fecal coliform bacteria (500 cfu per 100 mL); the same testing frequency and closing procedures apply.
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2.01 - WEED MANAGEMENT

OBJECTIVE: To sustain the lake with at least 40% of the lake bottom growing in native vegetation.

WEED MANAGEMENT STRATEGY

A combination of efforts including; scouting, mapping, chemical and mechanical control methods will be employed.

PLANT SURVEYS AND WEED MAPPING

Aquatic plant surveys provide important information about the type and distribution of plants. They are used to detect the presence of invasive plant species and help management make informed decisions.

Two surveys will be scheduled annually – once in the spring, and again in late summer/early fall. The results of the survey will be mapped to identify problem areas containing nonnative invasive aquatics.

Native Aquatic Plants benefit the lake in many ways. They protect the shoreline from erosion, provide habitat for fish and other aquatic life, and tie up nutrients. In lakes with abundant aquatic plant life, excess nutrients are not available to fuel algae growth.

Nonnative Invasive Aquatics

There are two main invasive nonnative aquatic species that impact water quality and recreational activities on Spoon Lake.

Curlyleaf Pondweed is a particular problem because it starts growing in the fall and grows all winter. In the spring shades it out native plants before they can get started. Curlyleaf dies back in early July, releasing the nutrients tied up in the plant at a time when the light and temperature conditions are most favorable to algae growth.

Eurasian Watermilfoil grows all summer and does not impact water quality in the same way as Curlyleaf. It impacts water quality by forming dense mats that crowd out native plants and reduces recreational activities. Treating large areas of Milfoil in mid to late summer has the potential to release nutrients at a time most favorable to algae growth.

CHEMICAL TREATMENT STRATEGY

When the lake develops dense stands of non-native aquatic vegetation that interferes with intended uses and upsets water quality, chemical applications are needed to reduce plant populations to manageable levels. The most important factors that will be utilized prior to the application of any herbicides will be the safety of people using the water and the health of wildlife, fish and waterfowl.

Process

The first step in the process is proper plant identification and assessing overall need. After the spring lake survey, staff will consult with our lake biologist to develop a chemical treatment plan.

Timing

Most aquatic weeds begin growing in early spring when water temperatures reach 55°F to 60°F. The spring months of April and May, when the water temperatures are between 60 and 70 degrees, is the ideal time to apply herbicides. At this time, weeds are small and much easier to control than during the summer. Treating larger areas of weeds in mid-summer runs the risk of depleting the water of oxygen and causing a fish kill. During this period, the release of nutrients also contributes to algae growth.

Training

All staff members applying chemical treatments to the lake will receive proper training and maintain an aquatic commercial applicators license issued by the state.

Winter Water Level Drawdown

Each year the water level of the lake is dropped 30 inches below full pool on December 1st and the weir gate is left partially open until the ice is off the lake. The winter draw down of the lake is a practical and inexpensive way to manage aquatic weeds along the shoreline. However, curly leaf pondweed has shown resistance to freezing effects. As such, chemical treatments close to the shoreline are inevitable.

Current Oak Run Aquatic Weed Control Policy

1. Association personnel will tour the lake once a week beginning when the water temperature reaches 60 degrees and treat selected areas as needed.
2. The association will treat problem areas of the lake when the surface area of a selected body of water is 20% or more covered with aquatic vegetation
3. It is the responsibility of lakefront property owners to control aquatic vegetation within 25 feet of the shoreline. If weed control is necessary, property owners may only use manual techniques such as cutting, raking and hand pulling.
4. No person shall apply a primary pesticide to kill weeds in the lake without written permission from the Board of directors.

5. If chemical treatment is requested of association personnel within 25 feet of the shoreline, a fee will be charged for the service. Requests should be made 10 days in advance of the treatment date. A form will be filled out, signed and payment will be made within 30 days of said chemical treatment
6. The association shall reserve the right to deny any request for weed spraying when it is believed that chemical treatment is not justified.
7. Current Fee for Service - \$100 for up to 100 feet of shoreline and \$1.00 for each additional foot up to \$150

WEED HARVESTING

More aggressive weed harvesting will be employed to lessen the reliance on chemical use for weed control. Reducing the reliance on chemical treatments will also reduce the amount of nutrients released into the water from dying and decaying plant material.

Advantages of weed harvesting:

- Immediate relief from nuisance plants that interfere with navigation and recreation
- Mechanical control reduces the need for chemical control.
- A biomass of vegetation is removed from the lake, along with nitrogen, phosphorus and potassium that are bound up in the vegetation
- The living plants left behind continue to absorb the polluting nutrients that are used for growth
- Harvesting vegetation from the lake greatly reduces the tons of biomass that will eventually die and decompose, consume oxygen, and release nutrients back into the water column to grow more weeds and algae in the future.
- Harvesting the biomass reduces the build-up of muck and sediment on the bottom that occurs from the rotting weeds

Weed Harvesting Equipment

The association currently operates a 1995 Aquarius Systems HM-420 Plant Harvester with a 7ft cutter head and a SC-23 Shore Conveyor. Plans in 2022 are to add a second harvester to improve speed and efficiency.

Use Protocol

Sunlight, water temperature, runoff, overall weather conditions, and growth cycles of the plant all play a role in the need for harvester use. Generally speaking, both harvesters will be used from May through September when problem weeds are present.

Eurasian Milfoil and Curly Leaf are perennial plants that reproduce through vegetative fragmentation. Harvesting these plants has the potential to increase density and spread the plants to uninfected areas. These two plants will continue to be treated chemically when necessary.

Because of extremely slow transport and offload speeds, it is believed that one harvester will be stationed on the north end of the lake and one on the south end. Plans in 2022 are to construct off-load sites and road ways in Windemere and the 3-Tubes Coves to speed up the disposal of material. Depending on the logistics of handling the material, a dedicated offload barge may be a consideration in 2023.

Wind and Wave Action Hazards

The barge operates on two large paddle wheels which makes maneuvering difficult when wind and wave action are present. Staff are often asked to get in between docks and other shoreline equipment, which creates a hazard to personal property and our equipment.

It is suggested that the Board adopt a policy which limits the weed harvester operation to 40' from the shoreline.

Options for the removal of weeds within 40' of the shoreline include, signing up for the inhouse spray program or the consideration for the purchase of a small more maneuverable harvester and charge a fee for its use. Small harvesters used for those purposes are in the \$85,000 range.

3.01 - SHORELINE MANAGEMENT

<p>OBJECTIVE: To protect the shoreline from erosive wind and boat driven wave action.</p>
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SHORELINE AREA

Spoon Lake has approximately 19 miles of shoreline. About 2.75 miles (14%) of lakeshore frontage is Association owned and maintained and 16.25 miles (86%) is privately owned and maintained.

SHORELINE INSPECTIONS

Each spring and fall, the AEC Inspector and management will inspect the shoreline to identify areas in need of upgrades. A list of those areas in need of work and an action plan will be documented.

Responsibility

The Association will ensure protection of all common area shorelines through planning and budgetary procedures. The AEC Committee will safeguard the shoreline on private properties through the utilization of AEC Rule 400.7 which mandates that shorelines be maintained.

Education

The Association will use the Communicator newspaper and website at various times throughout the year to promote the benefits and responsibility of shoreline maintenance. Educational materials and information on best practices for shoreline protection will be provided upon request.

4.01 - DREDGING AND SEDIMENTATION SURVEYS

OBJECTIVE – To maintain up-to-date information on the status of silt loading in various zones of the lake in order to identify potential problem areas.

SILT DEPTH INSPECTIONS

In the fall of each year, staff will take depth measurements in seven inflow areas of the lake to determine the level of sediment deposits. Every five years, more extensive sediment mapping will take place.

History of Large-Scale Sediment Removal Projects

Previous sediment removal efforts included dredging various coves in 1992, 2000, and 2012. The scope of those dredging efforts:

Year	Cubic Yards Removed
1992	131,500 CY
2000	30,100 CY
2012	58,200 CY

Long Range Plan

The Associations has tentatively scheduled the dredging of various coves in 2023/24 at an estimated cost of \$1.1M. The cost in 2012 to remove 58,000 CY was \$649,863

Cost Share Dredging

There are numerous smaller coves and areas around the lake where hydraulic dredging is not a feasible solution due to pumping distances and staging costs. In order to provide a measure of relief in these areas, the Association has engaged in numerous smaller-scale cost share dredging and dry dam projects with lakefront owners. Most all projects were shared at a 50/50 level. In 2020, the Association adopted a formal framework and application for this program.

5.01 - Watershed Management

OBJECTIVE – To identify problems and threats to our water resource and develop a framework to address those specific issues necessary to protect the overall quality of the lake.

SPOON LAKE WATERSHED

Spoon Lake is a 570-acre reservoir with an 11,053-acre watershed (19:1). The two main tributaries into the lake are located at Three Tubes (Sugar Creek) and the North Boat Launch. Those drainage areas make up the vast majority of the watershed. Inflow areas consist primarily of agricultural land which makes the lake more susceptible to nutrient enrichment from nonpoint source pollution.

SOURCES OF POLLUTANTS IN THE WATERSHED

SOURCE	RANK	CAUSE
Stormwater runoff in the watershed outside the development.	1	Sediments and nutrients from stream bank and farm field runoff.
Stormwater runoff inside the development	1	Lack of runoff diversion methods from roadway culverts. Lack of vegetation in runoff areas.
Lawncare Activities	1	Overapplication of fertilizers and herbicides. Failure to maintain buffer strips and poor timing of applications.
Wildlife	2	Excessive goose droppings from resident geese. Disruption of the lake bottom by an overabundance of Carp.
Septic System	3	Outdated or improperly maintained systems
Shoreline Erosion	4	Lack of shoreline protection, impact of boating activities and wind driven wave action.
Construction	5	Lack of adequate erosion control measures during construction

STORM WATER RUNOFF

It is believed that the main source of nitrogen and phosphorous that enters the lake is through storm water runoff. Excess nutrient rich runoff leads to the increased growth of nonnative aquatic plants and sustained algae blooms. Algal blooms that result from the nutrient load can ultimately lead to eutrophication and to the long-term detriment of the lake ecosystem. Storm water runoff from within the development can deposit road salts, oil, grease and fuel into the lake.

Opportunities to control nutrient loading from storm water runoff:

1. Educate land owners within the watershed about nonpoint source pollution and how to reduce stormwater runoff to surface waters.
2. Work with the Knox County Soil Conservation Office and landowners to identify opportunities to reduce storm water runoff.
3. Take advantage of 319 Grant funding to assist neighboring land owners with shoreline stabilization efforts in tributaries leading to the lake.
4. Investigate opportunities to install additional dry dams.
5. Begin water quality testing program to identify problem areas and sources of nutrient loading.
6. Install sheet piling to form a dry dam or divert water into the wetland area north of the North Boat Launch, in the upstream channel, to allow suspended solids to settle before reaching the lake.
7. Identify areas in which to install buffer strips and other natural areas to trap sediment and nutrients.

Opportunities to control Lawncares impact of water quality

- Ban the use of fertilizers containing phosphorus from within the development.
- Educate owners on best practices for applying lawn fertilizers to prevent runoff into the lake.
- Hold owners accountable for intentionally blowing leaves and grass clippings into the lake.
- Inform lawncare companies on the Associations ban on the use of phosphorous within the development.
- Encourage the use of buffer strips along the shoreline to slow runoff and filtration of all fertilizers and pesticides into the lake.

Opportunities to control the impact of septic discharge

- Periodically tour shoreline to identify septic systems which may not be performing properly. Identify those that produce a discharge smell, foaming or water discoloration.
- Perform water quality testing on any systems that are showing signs of failure.
- Respond to all complaints from adjacent homeowners and keep a database of complaints
- Work with the Spoon Valley Lake Sanitary District to identify faulty septic systems
- Meet one-on-one with property owners who may have potential septic system problems. Provide assistance to address problems.

Opportunities to control the impact wildlife have on nutrient loading

- Reduce the numbers of Carp in the lake.
 - Phosphates that are bound to silt are released by Carp stirring up the lake bottom. Over the past several years, we have had subpar results from in-house seining efforts, resulting in an abundance of Carp in the lake. Changes in weather patterns during early spring, heavy weed growth, and simply not dedicating enough time and effort to the program, were contributing factors.
 - Renewed efforts should include contracting for their removal, in addition to the Association's in-house efforts.
- Reduce the number of resident geese within the development.
 - The Association has seen a significant increase in the numbers of resident geese throughout the winter months. A single goose will drop 3 pounds of fecal matter containing nitrogen, and potentially e-coli per day.
 - Due to the numbers of bubblers in use, the concentration of droppings in coves and other areas has led to increased nutrient levels, weed growth and damage to shorefront property. Consideration should be given to eliminating their use.
 - Efforts to reduce the number of resident geese should include continuing with early hunting efforts and developing a plan for egg addling and spraying.

Opportunities to control the impact construction projects can have on the lake.

- Develop a protocol through the AEC Committee to conduct more frequent inspections of construction projects on lakefront properties.
- Hold violators accountable through a progressive fine structure.

Dry Dam Construction

Over the past 15 years the Association has constructed 30 dry dams of various sizes, in various runoff areas leading to the lake. The purpose of this project was twofold:

1. To slow the rate of water flow in order to reduce stream bank cutting.
2. To back up inflow to allow suspended sediments to settle out before reaching the lake.

Dry Dam Inspection and Maintenance

In the spring and fall of each year, staff inspects all dry dams for damage from spring runoff and for free board capacity. If free board capacity has significantly diminished, the area upstream of the dry dam is excavated inhouse or by a contractor depending on the volume needed to be removed.

6.01 - DAM AND WATER LEVEL MANAGEMENT

OBJECTIVES – To maintain the dam in operational order while balancing the following goals: One, to maintain the lake at a constant level throughout the boating season for recreational activities. Two, to maintain a drawdown on the lake in the winter months to reduce aquatic plant populations, provide access for shoreline maintenance, minimize damage to private property and improve the health of the fishery.

DAM ELEMENTS

- The Spoon Lake Dam is an earth embankment structure approximately 60 feet high and 1,200 feet long at the crest. The dam impounds approximately 570 acres and is in the intermediate size category.
- The outlet structure consists of a concrete weir spillway that is 25 feet wide. The spillway discharges into a concrete-lined chute emptying into a concrete stilling basin.
- The resulting normal pool elevation is 652. The weir crest measurement used is five feet at pool elevation.
- The spillway is equipped with a manual draw down sluice gate with a flow line set approximately five ft. below the weir crest. The outlet hole is 36 inches in diameter.

HAZARD CLASSIFICATION

The Spoon Lake Dam is classified as CLASS 1, HIGH HAZARD POTENTIAL.

If the dam failed, substantial damage could occur to property downstream along Sugar Creek, with the possibility of loss of life.

LEGAL REQUIREMENTS

The dam is required to be inspected each year by a structural engineer licensed to review dams. A yearly inspection report is issued and we are required to follow the remedial guidelines and maintenance recommendations outlined therein.

As a condition of our permit to operate the dam, Oak Run is required to maintain an Operations and Maintenance Manual. The manual contains an Emergency Action Plan to be used in the event of a heavy rainfall or a dam failure. The EAP is reviewed and updated through tabletop exercises with local emergency management personnel every few years.

REFERENCE INFORMATION

An analysis of the dam hydraulics in the National Dam Safety Program Inspection Report estimated the “Probable Maximum Flood” (PMF) for Spoon Lake at:

- 20% of PMF or 4.6” inches of rain in a 24-hr. period is expected to create a 4.8-foot rise in lake level.
- 40% of the PMF or 9.2” inches of rain in a 24-hour period is expected to create an 8.8-foot rise in lake level. This height equals the 9-foot distance from the spillway crest to the top of dam. This flood exceeds the 100-year frequency flood.
- It is believed that due to home construction, the reshaping of land, and field tile improvements in farming over the last two decades that these estimates may be low.

Lake Level Monitoring and Maintenance

Lake levels are monitored and logged by staff. Maintenance activities conducted on the dam are logged in the maintenance journal. The maintenance superintendent, Lake Patrol personnel, and management monitor the area for unusual storm events or drought periods. The level is adjusted up or down after consultation with management.

Current Lake Closure Policy

At water levels between 8 and 12 inches over full pool, the entire lake will be declared “no-wake”. Watercraft will be allowed to operate as long as they do not exceed 5 miles per hour. At 12 inches above full pool and higher, the lake will be closed to all motorized watercraft.

Lake Lowering Rate

With the gate open at full pool, the level of the lake may drop by as much as one to two inches over a 24-hour period. The rate of decrease is dependent on the amount of inflow from tributaries and springs. During normal conditions, the rate of decrease is approximately one inch per 24 hours. As the level drops, outflow rate decreases to less than one inch per day.

During forecasted heavy rain events, the sluice gate will be opened in advance of the storm. However, due to the low rate of outflow, rain events in excess of 3 inches would need to be predicted a week in advance and the gate fully opened to have any meaningful.

Issues Related to Low Lake Water Levels

- At 12 inches under pool, we are unable to pump water to irrigate the golf course and the boats ramps are posted as hazardous due to drop offs at the ends of the ramps.
- At 10 inches under pool, owners have difficulty getting watercraft off boat lifts.
- Going into the heat of the summer under full pool can be compounded by the fact that the lake can lose up to a one inch of water a day due to evapotranspiration.
- At low water levels the lake gets stagnant and is prone to weed growth and algae blooms.

Winter Drawdown

For the past 30+ years, the Association's policy has been to drawdown the lake to a level 30 inches under full pool. The purposes of the yearly drawdown are:

1. To kill nuisance aquatic plants that grow in shallow water by exposing the root systems to drying and freezing.
2. To allow access to the shoreline for structural maintenance, debris cleanup and sediment removal.
3. To protect shoreline structures from ice damage.
4. To compact exposed sediments along the shoreline
5. To increase flood storage capacity over the winter.
6. To move smaller fish out of shallow water and concentrate them in open water.

Dropping Level of Winter Drawdown

Consideration should be given to drawing down the lake 48" to 60" over the winter to increase the exposed areas around the shoreline for the following reasons:

1. To expose more nuisance aquatic plants to the effects of freezing and thawing.
2. To lessen the need for bubblers and ice accumulation on dock supports.
3. To further minimize the potential for dock damage.

Potential Detriments to increasing the drawdown level:

1. The potential for the lack of spring rains resulting in the lake being under pool at the beginning of the boating season.
2. The removal of the static pressure from seawalls.
3. The undercutting the shoreline in areas that haven't been exposed to the lower water levels in the past.

Finding the appropriate water level will take observation around the lake to see how water levels affect various shoreline areas and in particular how water and ice would contact potentially unstable areas.

7.01 - FISHERIES MANAGEMENT

OBJECTIVE – To conserve and enhance Spoon Lakes fisheries and aquatic resources for long term sustainability.

FISHERIES MANAGEMENT ACTIVITIES

Activities primarily involve habitat enhancement, conducting fish population surveys, creel limit checks, water quality analysis, aquatic vegetation and invasive species management, manipulating water levels, stocking proper sizes and species of fish, and setting harvest regulations.

FISH AND SPORTS COMMITTEE

The Oak Run Board has appointed a committee of community volunteers to assist in the enhancement of the fisheries with oversight in the following activities:

- Supervise and manage the Spring and Fall Bass Tournaments and Thursday Night Bass League.
- Oversee the Kids Fishing Derby.
- Organize and participate in work days to improve structure in the lake.
- Evaluate the fisheries biologist stocking and creel limit recommendations.
 - Assist biologist in yearly shocking efforts.
 - Make recommendations to Board about stocking, creel limits and fisheries expenditures based off the report.
- Review property owner's requests to conduct fishing tournaments and make recommendation to Board.
- Identify and produce a quality fish attractant map and keep it up to date.
- Monitor fishing activities on the lake and report any issues to Lake Patrol and/or management.
- Seek out fundraising opportunities to support programs.

Fish and Sports Committee meeting minutes will be kept in the office for review.

Fish Surveys

Electrofishing surveys will be conducted on the lake in the spring to early summer each year by a fisheries biologist. A written report of the survey results and recommendations will be provided to the Board and management for the purposes of; understanding the current state of the fishery, determining restocking needs, and setting creel limits.

Fish Stocking

After the results of the lake survey and stocking recommendations are received from the commissioned biologist, a second opinion from IDNR Fisheries Biologists will be requested. The Board will weigh those opinions and input from the Fish and Sports Committee before making a decision on yearly restocking.

Habitat Enhancement

Previous habitat enhancement projects have consisted of sinking and anchoring downed trees and branches, the placement of man-made structures and reefs, and rock beds for Walleye spawning. Once they are positioned in the lake, they will be logged on a fish attractant map which is made available upon request.

Due to the development of nearly all lakefront properties, a good portion of the existing natural fish habitat has been lost. More needs to be done to introduce natural woody structures to the lake.

Creel Limit Checks

Lake Patrol officers will enforce fishing and creel limit rules throughout the year during routine patrols, and fish cleaning station and ramp checks. More focused efforts will occur during the spring and fall when the fish are more active. Fines will be issued for violations, but focus has traditionally been on education, awareness and compliance with rules. Lake Patrol is always good source of information on activity, size and the health of the fishery.

Fishing Tournaments

All tournaments, whereby individuals are fishing and competing for money, prizes or gratuities in an organized manner require Board approval. Current Board sponsored events consist of, the kid's fishing derby, spring and fall bass tournaments, Thursday Night Bass League, and White Bass tournament.

Aquatic Vegetation Management

The weed harvester will be used to cut aquatic vegetation into open lanes to improve fishing habitat. This allows predator fish to graze the edges of trimmed weed beds to seek out prey.

Manipulating Water Levels

The winter lake draw down will be used to move smaller fish out of shallow water and concentrate them in open water for predator fish.

Water Quality Analysis

Decreased water quality can affect the fishery by impacting habitat, food sources and dissolved oxygen levels which in turn impact growth and reproductive abilities. Nutrient sampling of the lake will allow the Board and management to establish baseline values in order to assess water quality in effort to prevent problems before they occur.

Summary - Goals and Objectives

Water Quality Testing	<ul style="list-style-type: none"> • Initiate nutrient sampling program in 2022. • Develop goals and objectives based off results of testing. • Test beach and swim areas every two weeks May - September.
Weed Management	<ul style="list-style-type: none"> • Scout and map nonnative nuisance aquatic plant growth. • Reduce chemical applications to “spot spray as needed”. • Review current aquatic weed spraying policy. • Use the weed harvesters as the principal means of weed management. • Consider increasing annual lake drawdown to 4’ or 5’ below pool to target weeds along the shoreline. • Review the logistics of the weed harvesting operation to determine what changes are needed to make the process more efficient. • Separate and track weed harvesting costs.
Shoreline Management	<ul style="list-style-type: none"> • Inspect shoreline for areas in need of upgrade in the spring and fall • Document survey results with an action plan to bring violations into compliance • Review AEC procedures and the fine structure for those not in compliance. • Instruct Lake Patrol to be vigilant on enforcing operational distances to the shoreline – wake producing watercraft. • Use the Communicator and website to educate owners
Dredging and Sedimentation	<ul style="list-style-type: none"> • Continue taking silt depth measurements of the lake. • Promote cost share program. • Develop an estimated dredging budget by cove to determine what is feasible given budget constraints. • Seek out and engage engineering firms on the projected dredging project.
Watershed Management	<ul style="list-style-type: none"> • Use nutrient testing results to identify problem areas and sources of nutrient loading. • Educate land owners within the watershed about nonpoint source pollution. • Work with the Knox County Soil Conservation Office and landowners to identify opportunities to reduce storm water runoff. • Look into 319 Grant Funding opportunities. • Continue dry dam inspection program and seek out opportunities to install additional structures. • Investigate diverting water flow into the wetland area north of the North Boat Launch. • Educate owners on the impact lawncare and septic systems have on water quality. • Implement aggressive efforts for the removal of Carp and resident geese.

<p>Dam and water level management</p>	<ul style="list-style-type: none"> • Continue with dam inspection and maintenance program. • Continue to log and update all dam activities. • Investigate cost and logistics of replacing the sluice gate. • Consider lowering the lake earlier and to lower levels.
<p>Fisheries Management</p>	<ul style="list-style-type: none"> • Continue with yearly electroshocking survey. • Continue yearly stocking program. • Double up efforts to install more woody structure in the lake. • Investigate the cost of professional lake mapping services to enhance the quality of information being provided. • Increase creel limit checks. • Use weed harvester to enhance fishing opportunities.