June 19, 2018

Mr. Gary Hasenfus
P.O. Box 97
Lake Lure, NC 28746

Dear Mr. Hasenfus:

Enclosed, please find the Management Plan we recently completed for Lake Lure.

Lake Lure is presently functioning as a dynamic, slightly bass-crowded fishery. As such, our management recommendations center primarily on reducing the total number of adult predators (largemouth bass), introducing supplemental forage (threadfin shad), and improving the conditions for the production of forage through enhancing the amount of structure for fish habitat:

- Largemouth bass (14" and less) should be harvested, up to a total of ~14,400 pounds per year.
- Continue stocking threadfin shad on an annual basis.
- Continue adding structure to enhance fish habitat.
- Conduct an electrofishing balance assessment (Annual Evaluation) roughly three years from this date.

Mr. Hasenfus, we are always available to discuss these recommendations or answer any other questions you might have.

Good fishing,

Mike Rigdon

Management Plan
For
Lake Lure

May 24, 2018

Introduction

As an integral part of the ongoing management program for Lake Lure, Southeastern Pond Management conducted a comprehensive evaluation of the 720 acre impoundment on May 24, 2018. A representative sample of the fish community was collected by electrofishing to accurately assess the present state of balance. In addition, a water chemistry test was conducted to determine total alkalinity. The degree of aquatic weed infestation was also recorded. Results of these assessments, plus consultation with Mr. Gary Hasenfus, provide the basis for this management plan.

The goal of this management plan is to create and maintain a balanced fish community in Lake Lure. The following evaluation report and management plan details and explains our recommendations with the following goals in mind:

- Create conditions favorable for the consistent production of "quality size" and "trophy size" largemouth bass (Table 1).
- Create conditions favorable for the consistent production of "quality size" bluegill (Table 1).
- Generally maintain a high level of water quality as well as an aesthetically pleasing environment for aquatic recreation.

Table 1.

	LMB	Bluegill
"Quality Size"	16-20"	7-10"
"Trophy Size"	20"+	10"+

It is important to note that quality fishing will not be accomplished "overnight". As you read through this plan, bear in mind that the specific activities we have recommended are not one-time inputs, but rather a collection of ongoing management activities that will establish and maintain long-term quality fishing. Proper pond management, like the management of any natural resource, is an ongoing process. Each management input is recommended individually; however, it should be noted that the *management program* suffers if all activities are not implemented. Feel free to contact us and further discuss management ideas you may have.

Previous evaluations of Lake Lure have resulted in the thoughtful outline of management options in an effort to approach your stated management goals. Our latest findings, as well as management recommendations, result from our most recent visit and are contained within the following pages.

Electrofishing equipment was used to collect a fish sample from Lake Lure, Month 2009.

Pond Assessment

At the time of our visit, total water alkalinity in Lake Lure was measured at **6.3** parts per million (ppm). This level of alkalinity is well below the minimum recommended threshold of 20 ppm, and represents conditions unsuitable for effective fertilization. Lake Lure has not been fertilized adequately in the recent past.

Bass harvest was reported as limited. This level of harvest has proven inadequate. Harvest, and its importance in structuring fish communities will be discussed in more detail in the Recommended Management Activities section of this report.

During the evaluation, we did not observe any problematic aquatic vegetation. Aquatic weeds and problems associated with them will be discusse in the Aquatic Weed Control section of this report.

Lake Lure appeared to have a light plankton bloom at the time of our visit.

Lake Lure, Month 2009.

Fish Community Balance

Ponds and the animals they support are governed by a predator-prey relationship. The interactions of predator and prey are characterized by a concept we refer to as *balance*. By definition, suitable balance in a fish community is characterized by a healthy distribution of both predator and prey over a wide range of age and size classes. In order to assess the relative balance of a fish community, the species functioning as predators and the species functioning as prey must be defined. **Predators** are species which rely on other fish as their primary food source. **Prey** species rely on sources other than fish for their food source.

Classic balance in small impoundments is defined by several parameters, not the least of which involves a suitable ratio (by weight) of predator to prey. Further, the key to maintaining balance in a sport fish pond is a healthy size distribution of both predator and prey. If one size-class becomes overly abundant or lacking, a condition of imbalance results. By analyzing an electrofishing sample it is possible to determine the state of balance within a given fish community.

In fisheries science, the *condition* of individual fish is used as another indicator of the overall balance of the entire fish community. Relative weight (Wr) is an index used to categorize the condition of fish within a given population. Calculated Wr values greater than 100 indicate plump, robust fish. Wr values less than 100 suggest that individuals are in less than excellent condition, perhaps the result of some predator:prey imbalance. Wr values less than 85 would indicate malnourished fish; a sign of intense competition for forage.

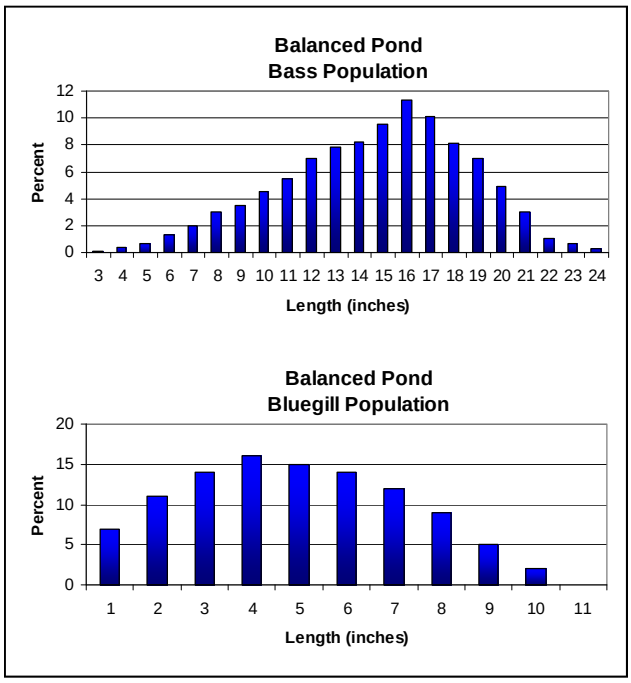


Figure 1. Length distribution of bass and bluegill in a typical balanced pond.

Figure 1 depicts balanced populations of predator and prey in a typical sport fish pond. Note that all sizes are well represented; no noticeable gaps are present.

Predator and prey fish are measured and weighed to analyze the overall balance of the fish community.

Fishery Assessment

The fishery in Lake Lure was sampled with standard boat-mounted electrofishing equipment. The sample contained largemouth bass, white bass, smallmouth bass, crappie, yellow perch, bluegill, spotted sucker, gizzard shad and catfish. Currently, largemouth bass, white bass, yellow perch, smallmouth bass, crappie, and catfish are functioning as the primary predators in Lake Lure. The bluegill, sucker, and shad are the prey.

Largemouth bass ranging in size from 5 to 21 inches in total length were collected in moderate abundance. The length distribution of largemouth bass (Figure 2) reveals the presence of bass over a wide range of size classes. This represents significant improvement from 2011, most likely the result of improved bass harvest, adding structure, and introduction of threadfin shad.

The average relative weight of adult bass in our most recent sample additionally reflects a slight decrease over 2011. This year's average relative weight was 81, as compared to 2011, 89 (Figure 4).

Largemouth bass 14 inches and smaller represent the primary targets for harvest over the coming months.

The larger bass collected from Lake Lure were individually tagged with an identification number so their growth can be monitored (refer to the Tagged Fish Data section of the report).

Bluegill were collected ranging in size from 2 to 8 inches in total length. Figure 3 depicts the length distribution of the bluegill population. Of note, a lack of intermediate (3-5") bluegill and other forage was collected. Further, mature adult bluegill were relatively scarce in the sample.

Overall, we characterize the fish community in Lake Lure as bass-crowded. A more detailed explanation of bass-crowded ponds in general, and Lake Lure in particular is located in the Current State of Balance section of this report.

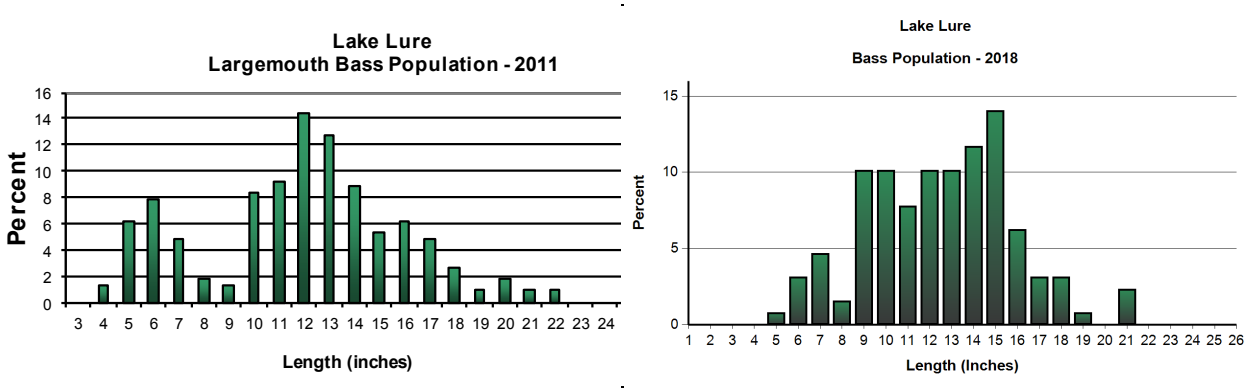


Figure 2. Comparison of the length distribution of bass collected in Lake Lure in May 2011 and May 2018.

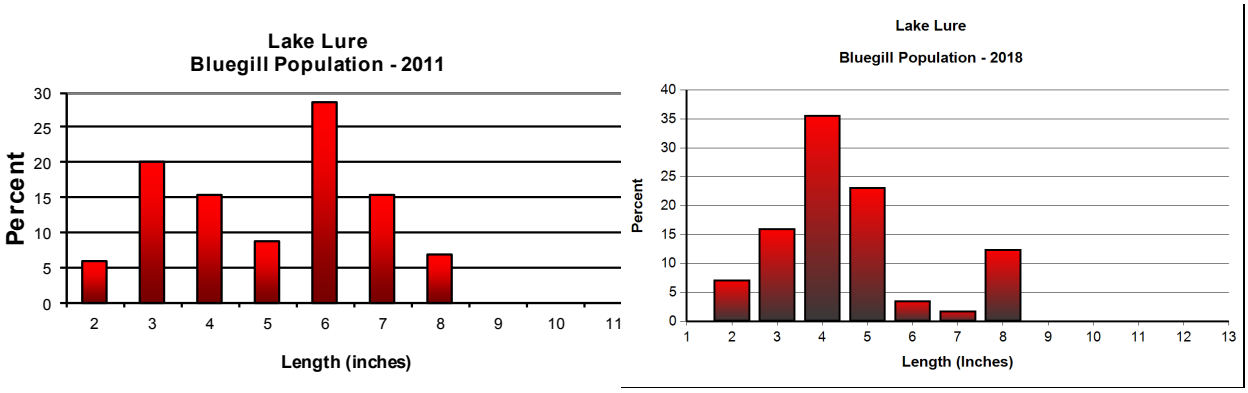


Figure 3. Comparison of the length distribution of bluegill collected from Lake Lure in May 2011 and May 2018.

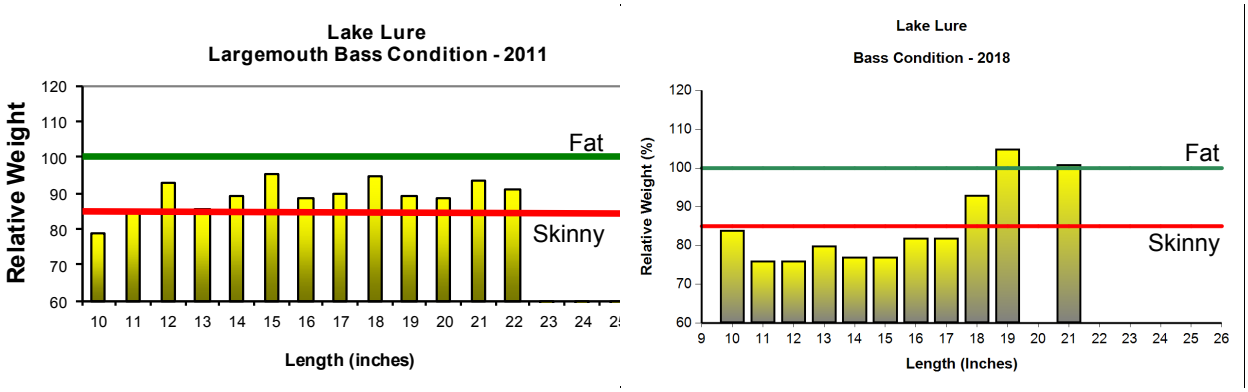


Figure 4. Relative weight distribution of adult largemouth bass collected from Lake Lure in May 2011 and May 2018.

Length, Weight, and Condition of Tagged Bass in Lake Lure
May 24, 2018

Tag #	Length (in)	Weight (lbs)	W_r
18322	21.2	5.5	100 %
18321	19.4	4.4	105 %
18320	20.7	5.2	102 %
18319	17.3	2.7	92 %
18318	21.0	5.5	102 %
18317	17.7	3.1	98 %
18316	18.0	3.2	98 %
18315	18.5	3.0	86 %

Age

Along with available forage and genetics, age is a very important factor to consider when managing a largemouth bass population. A common assumption among pond owners is to look at a small bass and assume that it's a young fish. In reality it could be an older fish that has spent most of its life "stunted" or stuck in a certain size range due to lack of forage.

During our evaluation of Lake Lure we harvested several bass which we aged. These fish were aged using the otolith method. Otoliths, or ear bones, are one way to age fish much the same way one can age a tree by counting the growth rings in a cross-section of a stump. Each year of growth creates a new ring. The diagram below illustrates the growth rings from a bass known to be five years old.

Table 1 shows the bass sampled from Big Lake. Table 2 shows the average size for each age class collected in 2018. Table 3 shows the average size for each age class collected in 2011. As you can see, most of bass (10 to 14 inches) are 2 to 6 years old. This is an improvement from the last study done in 2011 where most of the 14 inch fish were 6 years old. When growing at a satisfactory rate, bass 13" to 15" should only be 2 years old maximum. This slow growth rate indicates a lack of available forage. Increased harvest of small bass and supplemental stocking of threadfin shad will be increase the growth rates of bass in all size classes.

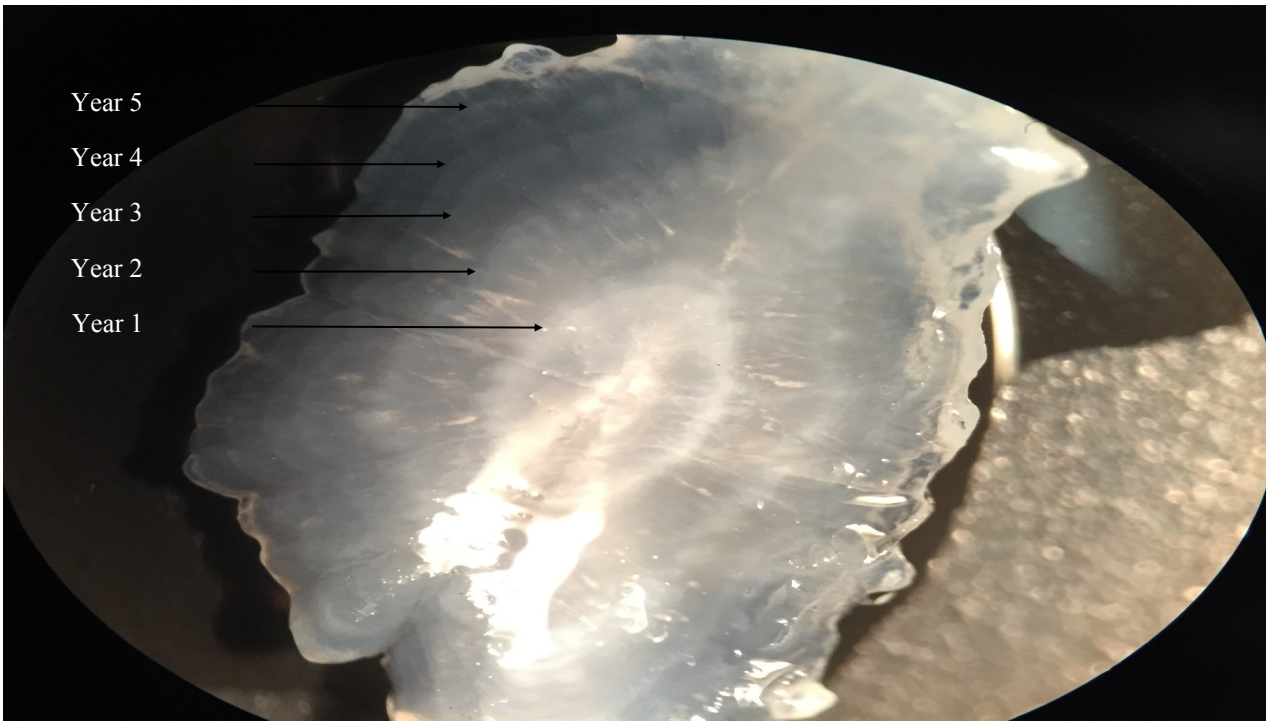


Table 1

Age

Table 1

Fish	Length (mm)	Length (inches)	Weight (grams)	Weight (lbs)	Age (yrs.)
1	357	14.06	504	1.11	3
2	318	12.52	354	0.78	2
3	308	12.13	374	0.82	1
4	337	13.27	442	0.97	4
5	366	14.41	559	1.23	5
6	306	12.05	312	0.69	2
7	304	11.97	286	0.63	2
8	326	12.83	407	0.90	4
9	275	10.83	217	0.48	1
10	369	14.53	566	1.25	4
11	311	12.24	345	0.76	1
12	304	11.97	287	0.63	2
13	339	13.35	416	0.92	2
14	316	12.44	372	0.82	2
15	368	14.49	548	1.21	6
16	368	14.49	609	1.34	4
17	295	11.61	287	0.63	2
18	314	12.36	353	0.78	2
19	313	12.32	274	0.60	2
20	281	11.06	261	0.57	1
21	351	13.82	532	1.17	3
22	279	10.98	212	0.47	1
23	331	13.03	403	0.89	2
24	268	10.55	186	0.41	1
25	330	12.99	398	0.88	3
26	283	11.14	243	0.54	1
27	342	13.46	510	1.12	3
28	348	13.70	458	1.01	3
29	365	14.37	544	1.20	4
30	363	14.29	496	1.09	2

Table 2. Length-at-age data for sub-sample of 11 to 14 inch largemouth bass collected from lake Lure in May 2018.

Age	Year Class	Number	Mean Length (inches)
1	2017	7	11.28
2	2016	11	12.54
3	2015	5	13.61
4	2014	5	13.90
5	2013	1	14.41
6	2012	1	14.49

Table 3. Length-at-age data for sub-sample of 11 to 14 inch largemouth bass collected from lake Lure in May 2011.

Age	Year Class	Number	Mean Length (inches)
2	2009	7	11.6
3	2008	12	12.2
4	2007	11	12.5
5	2006	1	13.1
6	2005	2	13.9

Bass-Crowded

Bass-crowded is an imbalanced condition that is relatively common in private ponds and is characterized by large numbers of small, skinny bass, and relatively few but unusually large adult bluegill. In this situation, bass growth is stunted due primarily to a lack of adequate nutrition. The largemouth bass is such an efficient predator that, if not controlled through responsible harvest, it will severely reduce its own food supply. Under these conditions, bass will perform poorly and will never reach their full growth potential.

The presence of intermediate size (3-5") prey is critically important in sport fish ponds. These individuals are the size preferred by the more abundant, younger bass in a typical population. A low relative abundance of intermediate size prey is often an indication of a bass-crowded pond. Under these conditions, bass typically become stunted between 8 and 14 inches. Bass in this size range require an ample supply of 3-5" prey in order to grow past the stunted size and become "quality" and "trophy" adults. When a condition of balance exists, intermediate size prey are among the most abundant segment of the overall fish community. As mentioned previously, our recent electrofishing sample from Lake Lure included relatively low numbers of intermediate size bluegill, particularly in the 4 to 5 inch size range.

Under-harvest of bass is most often the cause of the bass-crowded condition. In bass-crowded populations, despite their overabundance and relatively poor condition, the adult bass spawn each year. Due to the presence of an actively reproducing prey population, these juvenile bass are able to grow quite well in their first year. In order to maintain this rate of growth past 8-10 inches however, they require a slightly larger prey item. In bass-crowded ponds, the availability of slightly larger (3-5") prey is limited. As a result, the growth rates of the bass decline dramatically and they begin to demonstrate characteristics of stunting. Recent bass harvest was reported as "limited" in Lake Lure.

Typical bass from a bass-crowded pond.

In a typical fertilized sport fish pond, bass harvest is required in order to prevent overcrowding. The old idea of "throw him back and catch him when he gets bigger" is not a sound approach in small impoundments. If sufficient harvest does not occur, the crowded condition perpetuates itself. This results in a less than quality bass fishery.

Strategies specifically geared toward improving the bass-crowded condition are discussed in the Recommended Management Activities section of this report.

Supplemental Forage Stocking

The harvest of largemouth bass at the proper size and rate can be quite challenging in sport fish lakes, especially if they are not fished extensively. When the annual largemouth bass harvest falls short of the recommended quota, stocking supplemental forage becomes extremely important in efforts to maintain an adequate forage base. An abundance of forage must be available at all times in order to maximize the growth of top-end predators such as largemouth bass. The feeding behavior and movement patterns of adult predators change frequently. Therefore, the presence of a variety of forage types, occupying different habitats within the pond, tends to maximize predator:prey encounters and improves overall foraging efficiency.

In your lake, the introduction of **threadfin shad** (*Dorosoma petenense*) will be highly constructive. The benefits to stocking threadfin shad are numerous. The combination of a relatively small adult size, coupled with their ability to reproduce in large numbers, make threadfin shad a near perfect food for the most abundant size group of largemouth bass. Most often, results of successfully establishing threadfin shad into a lake will be observed in improved growth rates for all size groups of bass. In addition, by partially shifting bass predation from bluegill to shad, more bluegill will reach the important *intermediate* size range. Finally, through subtle interactions lower in the food chain, threadfin shad effectively reduce bass *recruitment*. In other words, fewer bass fingerlings survive to adulthood, thereby reducing the annual bass surplus. The bass that are *recruited* into the adult population will enjoy an increased abundance of prey, which leads to enhanced growth rates and a larger maximum size.

Threadfin shad frequently exhibit a distinctive schooling behavior, most often in open-water areas. In fact, the shad's primary defense against predators is its ability to seek out open water, away from where predators are more likely to be waiting to ambush prey. Once the bass figure out this behavior, the jig is up. Ponds with abundant shad populations frequently enjoy excellent top-water fishing action, oftentimes in or around schools of shad in open water.

Threadfin shad typically have two distinct heavy spawning periods: in the Spring and again in early Fall. Stocking is most often recommended immediately prior to or during a heavy spawning period. Stocking rates are designed to establish a sustainable population of threadfin shad and vary depending on the size of the lake and its state of balance.

Threadfin shad are ideal forage for increasing the growth and condition of largemouth bass. Adults range from 3 to 7 inches.

Aquatic Weed Control

Aquatic weed growth can be a serious problem in recreational ponds. Weeds use up important nutrients in fertilizers that are intended for fish production, as well as interfere with normal activities such as fishing and swimming. In addition, excessive weed growth detracts from the aesthetic value of a pond, particularly if it is the focal point of a recreational area.

There are three approaches we use to prevent or reduce unwanted aquatic weeds. They can be placed in 3 different categories: chemical control, biological control, and sunlight-limiting control. Often, an integrated approach involving a combination of these tools offers the most effective solution.

Chemical control involves the use of aquatically approved herbicides to reduce or eradicate aquatic weeds. Although chemical control can be costly on large areas, it is usually the best method for a quick response.

The most common form of biological control is stocking grass carp. Grass carp are often introduced into ponds at low stocking densities as a preventive measure before weeds become established. However, once weeds have become established, a higher density of grass carp is needed to control them. Grass carp readily eat a variety of common weeds, do not reproduce, and are fairly inexpensive. Typically, grass carp become less effective when they reach 6 to 7 years old and must be restocked. One drawback to grass carp is their propensity to train on pellet food intended for bluegill; thereby reducing the effectiveness of a supplemental feeding program.

Grass carp are often introduced for long-term control (top). Pond dyes temporarily limit sunlight to retard aquatic weed growth (bottom).

There are also a variety of water colorants or dyes that can be added to ponds before weeds become established that limit sunlight penetration and "shade out" certain types of weeds. A regimented fertilization program is often the most effective form of sunlight-limiting control. Typically, phytoplankton blooms stimulated early in the spring through fertilization can shade out potential weed growth before it becomes a problem.

Herbicide application is typically the quickest form of weed control.

Fish Attractors

Cover, whether natural or artificial, is attractive to fish for many reasons. Cover attracts many aquatic invertebrates that are consumed by fish, protects fish from other predators, provides ambush locations for predator fish, and provides fish with shade from the sun. For these reasons, fish attractors play an important role in the management of small impoundments. By concentrating high numbers of bass, fish attractors help anglers meet recommended annual bass harvest goals. To maintain a balance between the predator and prey species within a pond, adequate predator harvest is necessary. Not only do fish attractors enhance the fishing experience by making the fish easier to locate, but the added strategy of locating each attractor creates a whole new dimension to pond fishing.

Any object placed under water has the potential to attract fish. Certain types of cover will attract more fish than others. Generally, objects with a high surface area (i.e., brush piles) will attract more fish than objects with a low surface area (i.e., large rocks). However, cover with a high surface area tends to decompose or deteriorate quicker. A variety of different cover types, whether grouped together or mixed, will attract the most fish in ponds.

When choosing natural cover to be added to ponds, keep in mind that hardwoods such as oaks and hickories last longer than softwoods. Cedar trees are also an excellent choice because their branches are finely divided and they maintain their structure for 3 to 5 years. Osage-orange (Mock-orange or "horse apple") trees, located in black belt soils, provide exceptionally long-lasting cover. Trees can be weighted using concrete blocks and wire. However, another popular method of sinking trees or limbs is by placing them in a bucket and filling with concrete. These "pickle barrels" offer excellent vertical structure. Small beds of pea gravel

Structure piles attract fish to certain areas so they are easy to locate, thereby making it easier to achieve annual harvest goals.

can be placed in 2 to 3 feet of water to attract bluegill for spawning.

Many different types of artificial material can provide good, long-lasting cover for fish. Wooden pallets will attract all sizes of fish when tied together in a triangular formation and weighted. Used tires should be tied together in rows and the rows can then be tied together. If tires are used, be sure to drill a large hole at the upper most point on each tire to allow air to escape. Large construction materials such as concrete culverts can be stacked on top of one another. Materials such as car bodies or other motorized appliances should have all potential pollutants removed before sinking. Plastic Honey Hole trees and shrubs are excellent artificial fish attractors. These structures are made of plastic and will last nearly forever. They also have a large surface area providing plenty of cover for baitfish and attracting predators.

The location and size of fish attractors is more important than the type of material used. Most small impoundments develop a thermocline during the warmer months below which oxygen is too low to support fish. To ensure the attractors are where the fish can use them year-round, a high percentage should be placed in water less than 10 feet deep. Fish will utilize cover in deeper water during the colder months. Typically, any sharp change in bottom contour is attractive to fish. Often, bottom structure such as humps, points, ridges, ditches, etc., are formed when building ponds. Cover placed in these areas is usually very productive. However, areas with a relatively flat bottom can be greatly enhanced as well with fish attractors. Placing fish attractors within casting distance of piers is also popular.

Keep in mind, it is possible to have too much cover spread out in the bottom of a pond. If too many fish attractors are put in a lake, catch rates can decline because the fish are spread out instead of concentrated. Extreme amounts of cover can decrease bass foraging ability and growth rates. Generally, fish attractors should be at least a full "cast" away from each other.

Obviously, fish attractors are not useful to anglers unless they can be found. Some attractors may be visible while others may be strategically placed in areas that are hard to find. One popular method of marking off-shore fish attractors is with a physical marker like a floating duck decoy or a metal stake. Physical markers will facilitate the addition of new cover when the attractors deteriorate over time. Triangulating between 2 or 3 spots on the bank is a more inconspicuous method of marking these spots. On larger lakes, a GPS unit can be used to store fish attractor locations. Most hand-held GPS units will allow you to navigate within several feet of a location. These locations along with their coordinates can then be plotted on a map using mapping software.

Honey Hole trees are a popular artificial cover that provide ample surface area and will last a long time.

Too much cover placed in the bottom of ponds may spread the fish out where they are difficult to locate.

Dam and Shoreline Maintenance

Dam and shoreline maintenance should be addressed periodically to ensure the integrity of the dam and overall recreational value of the pond. The dam should be kept free of trees; roots may eventually tunnel into the dam, creating weak spots. If mature trees are already present, they should not be cut down, as dead and decaying roots are potentially more harmful. Generally, tress less than 4 inches in diameter at breast height do not have roots penetrating the core of the dam and should be removed before they become a threat to the structure of the dam.

In an effort to prevent erosion the entire dam should be covered with a manageable grass. Large rock is recommended at the waterline along the dam face if there is the potential for erosion from wave action. The spillway should also have some type of erosion prevention. The amount and frequency of water flow should determine the type. The bottom and sides of the spillway should be lined with large rock or concrete if water flows across it often. For spillways that are used less frequently, well maintained grass provides sufficient erosion protection. Spillways should be checked periodically and any debris should be cleared.

Additionally, the shoreline and surrounding watershed should be vegetated to prevent erosion and muddy water. If necessary, livestock should be provided limited access to the pond. Heavier vegetation should be trimmed or treated with herbicide.

Beavers and muskrats can cause aesthetic and structural damage to sport fish lakes. Large rock placed along the waterline of the dam will usually prevent beavers and muskrats from boring in. Trees can be protected by wrapping steel mesh around the base of the tree to a height of about 4 feet. Otters often visit ponds from nearby creeks and can have a significant impact of the fish population. Droppings with scales and fish bones are evidence of otter visits. These nuisance animals should be removed as soon as detected. Techniques include body-gripping traps, snares, foothold traps, and shooting. Permits and licenses may be required.

Beavers and muskrats can bore in to the side of the dam and weaken its structure. Emergency spillways should be lined with concrete if they receive heavy flow (inset).

Annual Evaluation

In addition to ongoing management, your pond should be checked on a regular basis. Our annual maintenance plan includes an aquatic weed assessment, a water test to determine lime requirement, and an electrofishing balance check to assess the fish community.

Regular electrofishing evaluations are necessary to assess the effectiveness of a management program. Electrofishing allows us to stay on top of the pond's condition in order to make necessary changes in management recommendations.

Annual electrofishing evaluations determine the effectiveness of management practices.

Summary of Management Recommendations

Lake Lure is functioning as a bass-crowded system that has a low level of fertility. Several management inputs are necessary to restore balance as well as increase the total density of sport fish. The management activities we are recommending for Lake Lure will center on reducing the total number of adult predators, introducing supplemental forage, and enhancing the conditions for the production of forage.

For Lake Lure, **harvest bass 14 inches and smaller** at a rate of **20 pounds per acre per year** (14,400 lbs./yr.). The recommended bass harvest rate and size will likely change over the next few years as the fish community responds to management inputs.

We recommend **limiting bluegill harvest** in Lake Lure to a "consumptive" level, meaning ONLY bluegill which are intended for table fare should be removed; the over-harvest of adult bluegill, particularly during the spawning season, may lead to a decrease in the total number of mature, adult bluegill and a corresponding decline in angling catch per unit of effort. **Annual electrofishing evaluations** will help determine if fish harvest recommendations should be adjusted.

Supplemental forage in the form of threadfin shad should be stocked in order to enhance the growth and condition of the largemouth bass.

Aquatic weed control will also be an integral part of the management program for Lake Lure. During the evaluation we did not observe any problematic aquatic vegetation. However, many aquatic plants have the potential to multiply quickly and should be monitored closely, particularly during the growing season. We feel that the quickest and most efficient way to control aquatic weeds in Lake Lure, if they should become a problem in the future, is by herbicide application.

Finally, **additional cover in the form of brush or rock piles** would increase the catch rates of sport fish in Lake Lure.

The management activities we recommend over the course of the next twelve months are listed in the following pages. In an effort to assist in the prioritization of these management inputs, we have developed a simple color-coding system. You will note this system in the bottom right-hand corner of the respective Management Recommendations to follow:

LEVEL 1	Highest priority. Generally, require immediate attention.
LEVEL 2	Secondary in importance to Level 1. Directed toward achieving your stated management objectives.
LEVEL 3	Increase enjoyment and/or functionality of your pond but have less impact on the overall management program.

ANNUAL HARVEST

ANNUALLY

COST:
Hook and line: N/A

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Harvest ~14,400 pounds of LMB (14" inches and less)

LEVEL 1

ADD STRUCTURE

SPRING 2014

COST: N/A

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Install fish structure/cover

LEVEL 2

THREADFIN SHAD

SPRING 2019

COST: $ 5,000.00*

Current Status: Awaiting Owner Approval

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Stock 2 loads (~20,000) adult threadfin shad

LEVEL 1

ANNUAL EVALUATION

SPRING 2021

COST: $ 2,700.00*

* This price includes comprehensive written Management Report. An additional mileage charge will be added.

Current Status: Awaiting Owner Approval

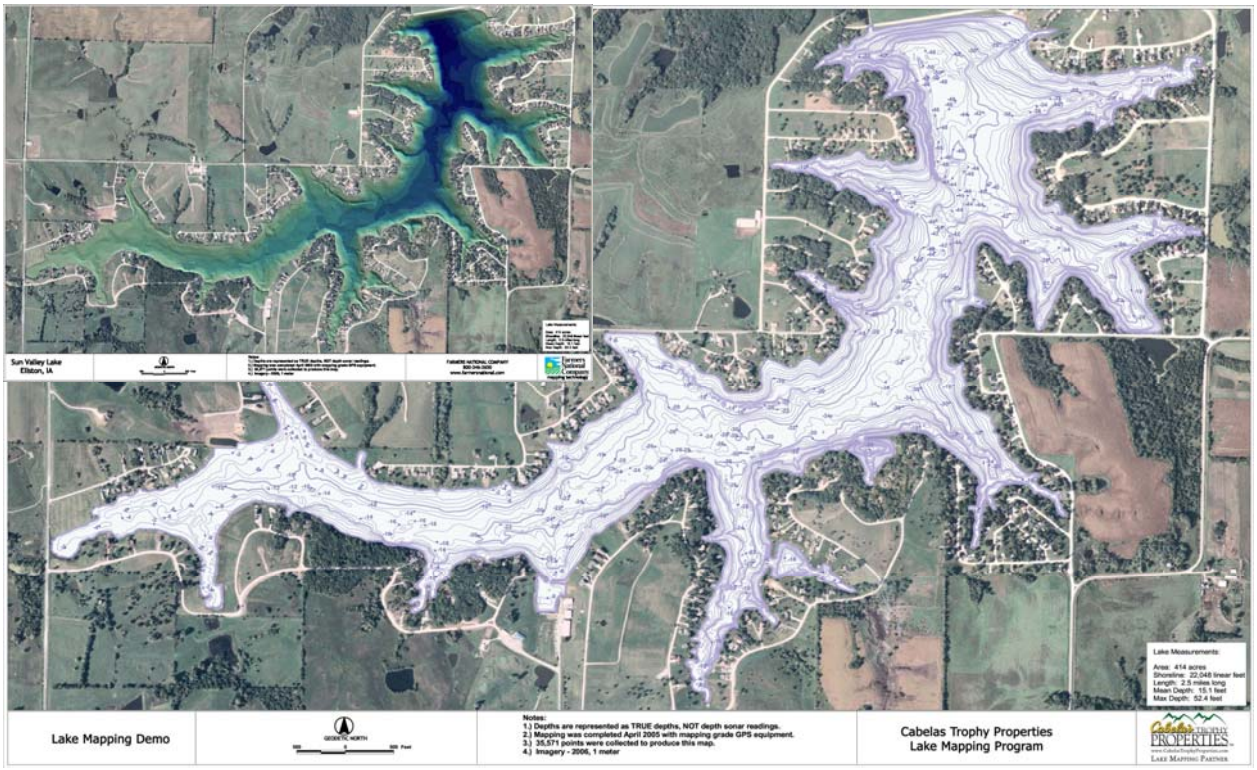
☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Annual electrofishing evaluation with otolith aging

LEVEL 1



Lake and Land Mapping

Southeastern Pond Management (SPM) has partnered with Cabela's Trophy Properties to bring you the most innovative designs of lake and land mapping. Using state of the art Global Positioning Systems (GPS) together with an advanced depth sounder, not only can we map your property, we now have the technology to create more advanced lake maps. This technology allows us to pinpoint humps, stumps, channels, and many other fish attracting features of your lake.

Lake mapping is a widely used tool for marking fishing hotspots in lakes and reservoirs, but when applied to private waters, these maps can be a useful management tool as well. Our lake maps will estimate the exact acreage and volume of your lake, which can assist with many management activities such as fish stocking, aquatic weed control, and sediment accumulation and removal. We offer a variety of different lake map options including contour mapping, 3D mapping, and electronic swim through technology. The 3D swim through technology allows you to experience your lake from the eyes of the fish!

Pond Mapping

Land mapping technology is an extremely useful tool for property managers, hunting clubs, timber management or just recreational enjoyment. We can design several different land maps including contour maps, aerial imagery, and electronic fly through technology. These maps can display features such as property boundaries, green fields, and many more.

We offer maps in all different sizes from 8"x11" up to large scale wall maps. Our biologists will work closely with you in deciding which type and various features are best suited for the design of your new SPM lake or land map. If you are interested in learning more about the Lake and Land Mapping program we offer, please contact us and we will gladly answer any questions you may have.

Cabela's TROPHY PROPERTIES™
www.CabelasTrophyProperties.com
LAKE MAPPING PARTNER

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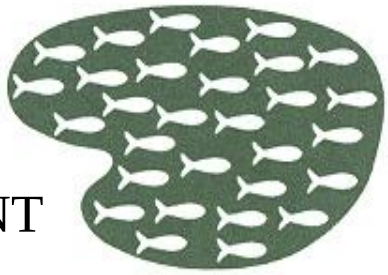

"Managing Your Liquid Assets"

Southeastern Pond Management

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