October 14, 2019

Mr. Danny Lee
Madison County Board of Supervisors
P.O. Box 608
Canton, MS 39046

Dear Mr. Lee:

Enclosed, please find your copy of the Management Plan we recently completed for Madison Lake.

Madison Lake is presently functioning as a dynamic, balanced fishery. As such, our management recommendations center primarily on reducing the total number of adult predators (largemouth bass and catfish) and improving the conditions for the production of forage through enhancing the pond's fertility level:

- Maintain the current fertilization regime.
- Initiate a supplemental feeding regime in Spring 2020.
- Largemouth bass (10"-14") should be harvested at 5 per angler per day.
- Harvest bluegill at 10 per angler per day.
- Harvest catfish at 5 per angler per day.
- Install 12 Honey Hole Trees in Winter 2019.
- Conduct an electrofishing balance assessment (Annual Evaluation) roughly one year from this date.

Overall, this fishery is ready for use and will benefit from some proper harvest of bass. To ensure a healthy forage base, proper fertilizing each year is necessary. The bluegill population would benefit from a feeding program but I have concerns about placing fish feeders at the pond with limited security. Although structure was installed last year, additional structure may be installed at anytime. I am looking forward to assessing the fishery next year. I am certain the bass population will continue to improve.

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

Good fishing,

Scott Kirk
Fisheries Biologist, MS

Management Plan
For
Madison Lake

October 9, 2019

Introduction

As an integral part of the ongoing management program for Madison Lake, Southeastern Pond Management conducted a comprehensive evaluation of the 14 acre impoundment on October 9, 2019. 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 Danny Lee, provide the basis for this management plan.

The goal of this management plan is to create and maintain a balanced fish community in Madison Lake. 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 Madison Lake 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 Madison Lake, October 2019.

Pond Assessment

At the time of our visit, total water alkalinity in Madison Lake was measured at **30** parts per million (ppm). This level of alkalinity is well above the minimum recommended threshold of 20 ppm, and represents conditions suitable for effective fertilization. Madison Lake has been fertilized adequately in the recent past.

Bass harvest was reported as none. This level of harvest has proven adequate. 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 observed a very light infestation of water primrose growing along the margins. A description of this plant may be found in the Aquatic Weed Identification section of this report.

Madison Lake appeared to have an excellent plankton bloom at the time of our visit, the result of consistent fertilization.

Madison Lake, October 2019.

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.

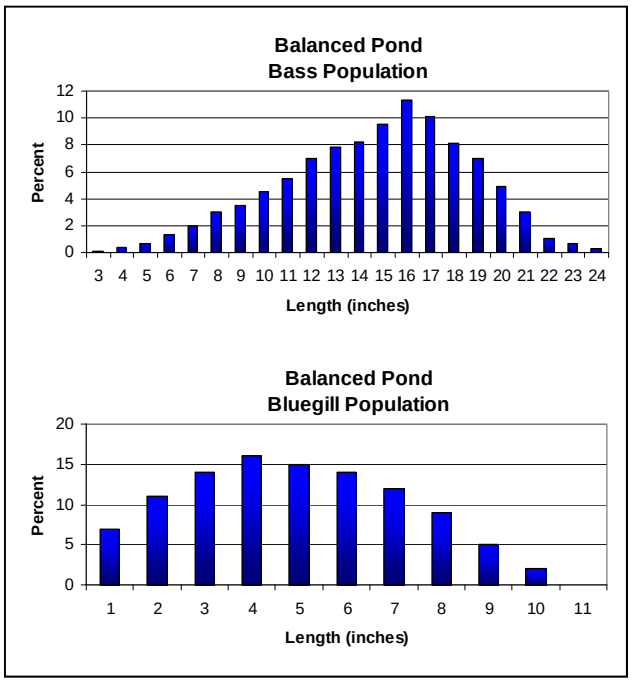


Figure 1. Length distribution of bass and bluegill in a typical balanced pond.

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 Madison Lake was sampled with standard boat-mounted electrofishing equipment. The sample contained largemouth bass, coppernose bluegill, threadfin shad and redear sunfish (shellcracker). Currently, largemouth bass are functioning as the primary predators in Madison Lake. The bluegill, shad and shellcracker are the prey.

Threadfin shad have become an important component of the forage base in Madison Lake. We observed several different size groups, indicating a healthy population. Maintaining a healthy shad population will be important for Madison Lake to continue producing quality and trophy size bass.

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 the previous year, most likely the result of additional yearly growth.

The average relative weight of adult bass in our most recent sample reflects a slight decline over last year. This year's average relative weight was 94, as compared to last year, which was 97 (Figure 4).

Largemouth bass 10-14 inches represent the primary targets for harvest over the coming months. We harvested no pounds of bass during the evaluation.

Bluegill and shellcracker were collected ranging in size from 2 to 7 inches in total length. Figure 3 depicts the length distribution of the bluegill population. Of note, a good number of intermediate (3-5") bluegill and other forage was collected. Further, mature adult bluegill were relatively abundant in the sample.

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

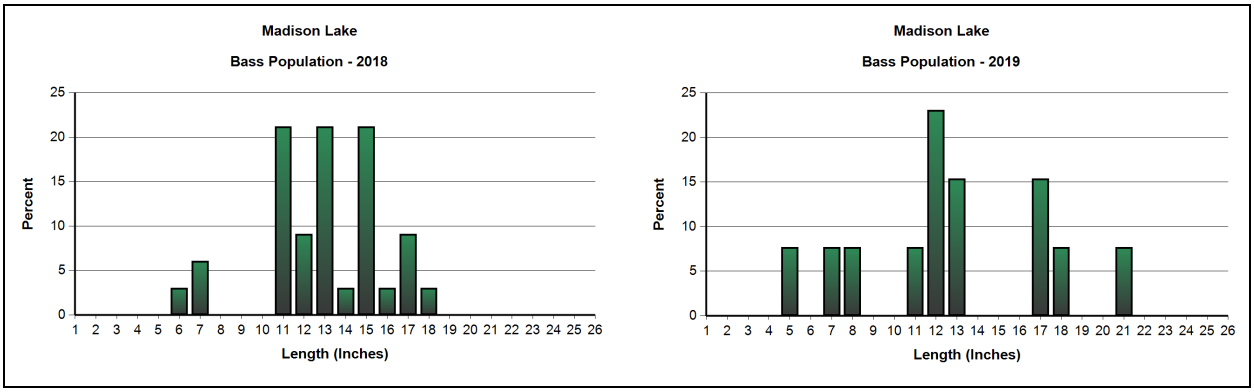


Figure 2. Comparison of the length distribution of bass collected in Madison Lake in October 2018 and October 2019.

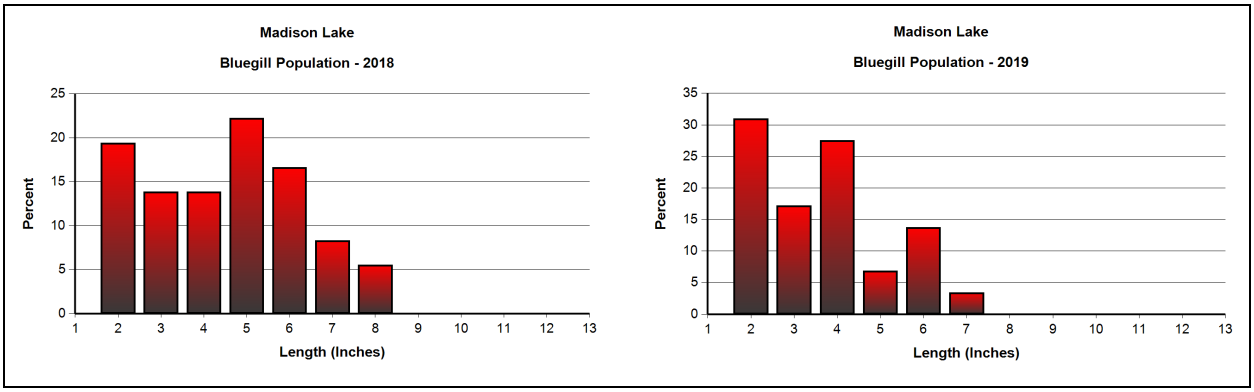


Figure 3. Comparison of the length distribution of bluegill collected from Madison Lake in October 2018 and October 2019.

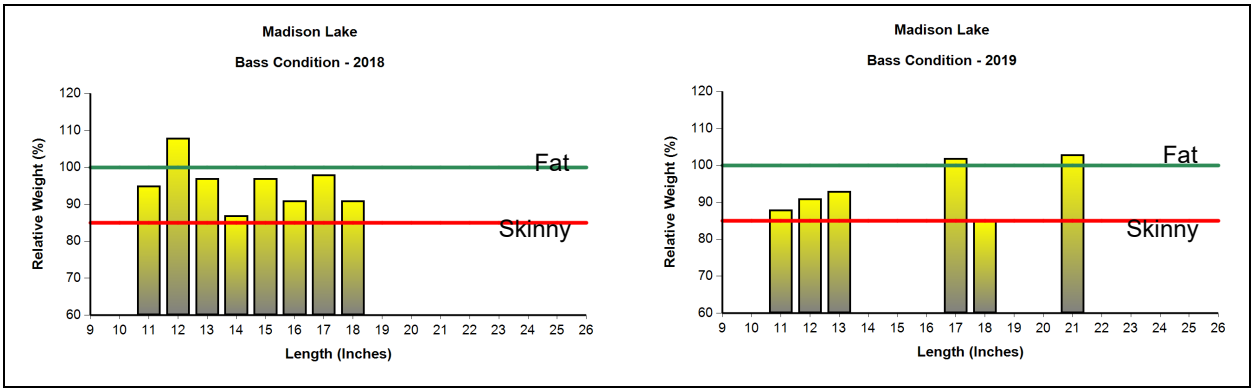


Figure 4. Relative weight distribution of adult largemouth bass collected from Madison Lake in October 2018 and October 2019.

Balance

Most pond management activities are centered on creating or maintaining a balanced fish community. A balanced sport fish pond is preferred by most anglers because it provides quality bass and bluegill, both in terms of number and size. A balanced fish community is characterized by a wide size distribution of bass, bluegill and other forage species; adequate reproduction of all species is present.

As mentioned previously, our recent electrofishing sample from Madison Lake contained a healthy distribution of bass across many different size groups. Additionally, the majority of the bass were in good condition with relative weights ranging from 86 to 102. Bass in the 17 to 21 inch length group were in excellent condition, indicating an abundant forage base for this length group of bass. However, bass in the 11 to 13 inch group were in slightly poorer condition, indicating the need for selective bass harvest and/or supplemental forage stocking to maintain a well balanced fishery.

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 high relative abundance of intermediate size prey is often an indication of a balanced pond.

When a state of balance exists, intermediate size prey are among the most abundant segment of the overall fish community. Under these conditions, bass typically grow quickly, and are capable of reaching their full growth potential.

During our electrofishing sample, we observed a healthy forage base, particularly the distribution of intermediate sized prey. In order to maintain the predatory:prey balance and the continued growth of bass in Madison Lake, it will be necessary to ensure that conditions for the production of forage such as fertilization, supplemental feeding and selective bass harvest are sustained or even enhanced.

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, a bass-crowded condition is the likely result. This usually leads to a low quality bass fishery.

Strategies to improve the quality of the bass and bluegill fishing are discussed in the Recommended Management Activities section of the report.

A balanced pond supports an abundance of bass, bluegill and other forage species of all sizes.

Fish Harvest

One of the keys to a balanced fish community as well as the growth of trophy largemouth bass in your pond is the selective removal of largemouth bass. Largemouth bass, when present with bluegill as their primary source of forage, produce an annual surplus which must be harvested in order to maintain balance. Bass harvest rates are designed to reduce the level of predation on the bluegill population as well as increase the growth rate and condition of the remaining bass. Recommended harvest quotas often change in response to population changes and should be re-evaluated annually. In your pond, selective harvest of the smaller, more abundant size range, at a rate of **10 to 20 pounds per acre per year,** is recommended at this time. Harvesting largemouth bass can be accomplished by the following methods:

(1) Hook and Line Harvest: Largemouth bass of the appropriate size should be removed whenever they are caught up to the harvest goals. A record should be kept of the total number and weight of bass removed during each fishing trip. Larger bass, those presently exceeding the size limit, may be "protected" since these represent the potential trophy bass in the pond.

(2) Electrofishing Harvest: Selective bass harvest through electrofishing is a particularly effective management tool. This method of harvest may be quite productive if hook-and-line efforts are not adequate. The cost for this service is based on time spent (hourly). We will keep close records of the total number and weight of individuals removed.

A measuring device should be kept handy to determine the correct size bass to harvest.

One important point is that bluegill and shellcracker harvest is strictly optional in balanced ponds. It is not necessary to harvest a certain weight of bluegill per acre to maintain the predator/prey balance or to prevent bluegill overpopulation. The bass will more than adequately control bluegill numbers. Typically, a generous amount of adult bluegill can be harvested in a well-fertilized, balanced lake. However, over-harvest of bluegill may be a concern, depending on the number of anglers and fishing pressure. We often recommend limiting bluegill harvest to **10 per person per day** in bass-crowded ponds to prevent over-harvest. In severely bass-crowded ponds, we recommend **suspending bluegill harvest** until the population increases through management efforts.

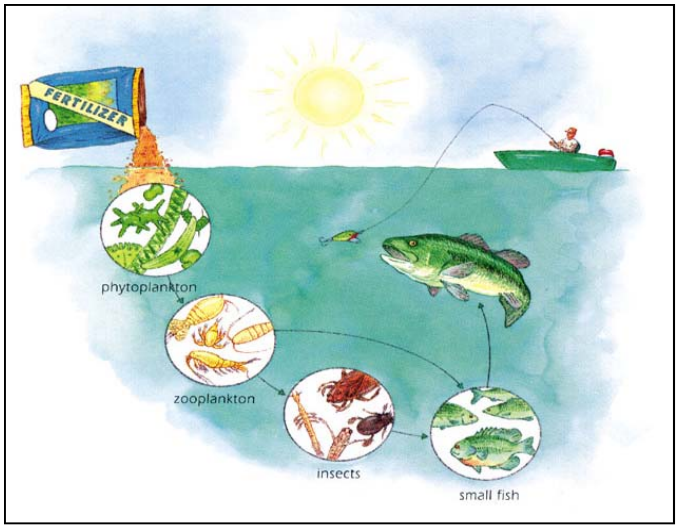
Bass must be harvested at the proper rate each year in order to maintain a balanced fish community in small impoundments.

Fertilization

The concept of *carrying capacity* describes the total weight of fish a pond is capable of producing. A given body of water, subject to varying levels of fertility, has a finite limit, or carrying capacity, in terms of the overall biomass which it can support. Lake fertility limits the number as well as the average and maximum size of fish present.

The limiting nutrient in most freshwater systems, as it relates to plankton production and a generally high level of fertility, is phosphorous. Phosphorous must be added on a regular basis during the growing season in order to stimulate significant plankton growth. Plankton, both plant and animal, are the base of the food chain in ponds. Infertile ponds, those with low alkalinity and relatively little nutrient input, are characterized by low levels of plankton production. In effect, this limits the amount of food available to the small insects and insect larvae which are the next link in the food chain. The *ripple effect* of low fertility is observed far up the food chain, all the way to the primary predators, largemouth bass. In order to create and maintain a high level of plankton production, thus providing conditions most favorable for fish production, fertilizing on a regular basis is required.

Fertilization is the most basic and important element necessary to create an environment conducive to the production and growth of sport fish. Fertilization takes place during the growing season, from March through October. We recommend SportMAX® Water Soluble Pond Fertilizer (10-52-4), applied at a rate of 4-8 pounds per surface acre per application. Fertilizer should be applied according to the Standard Pond Fertilization Schedule:



Food chain of a typical fertilized pond.

SportMAX® Water Soluble Pond Fertilizer can be poured directly into the prop wash of a small motor. A well fertilized pond should have 18 to 24 inches of visibility.

Standard Pond Fertilization Schedule

- Beginning in early March, make three applications at two week intervals.
- Make the next three applications at three week intervals.
- Thereafter, apply once per month or whenever visibility exceeds 18-24 inches.
- Cease fertilization by the end of October.

We offer a convenient **Fertilization Service**, which completely removes the burden and nuisance of fertilizing your lake. Our trained technicians will visit your pond, at prescribed intervals, carefully measuring and recording water visibility and applying the proper dosage of fertilizer. Our visits are conveniently recorded on a small sign, situated on the pond bank. In addition, we regularly check and log total water alkalinity as well as keep an eye out for potentially problematic vegetation.

If you elect to fertilize on your own, **we can supply you with a season's worth of material, prior to the scheduled start of the season**. SportMAX® comes conveniently packaged in heavy duty, water-resistent plastic bags; ideally, it may be stored in a barn or equipment shed sufficient to keep the direct elements away.

SportMAX® is easy to use; proper application involves simply pouring the material directly from the bag into the open water — no mixing… no mess!

Recommended application rates for SportMAX® range from 4 to 8 pounds per acre. Particularly in the early season, the higher rate is often necessary to stimulate a plankton bloom. Generally by the middle part of the season, the lower rate is adequate.

Supplemental Feeding

Feeding bluegill pellet food is a proven management practice used to increase the number of "quality" and "trophy" size bluegill in ponds. Feeding produces unusually large and healthy bluegill and increases their reproductive potential. In addition, feeding concentrates fish for improved catch rates and provides entertainment from watching the fish eat. Given these benefits we recommend initiating an intensive feeding program in your pond.

In an effort to benefit the entire bluegill population, fish food should be applied from at least 1 feeding station for every 5 acres of water. Each feeding station should dispense feed at a rate of 5-10 lbs/day during the growing season (March - October). The daily ration should be divided into 3 short feeding periods, such as: early morning, late morning, and late afternoon. Several short periods are necessary to reduce feed waste because bluegill have small stomachs and will not consume much at once. Most commercial floating catfish fingerling pellets are suitable for feeding bluegill. These types of feeds are readily available on the market; Purina® makes an excellent pellet, under the name, "Game Fish Chow". Game Fish Chow is made up of several different pellet sizes that can be consumed by a wide size range of bluegill.

Optimally, choose a floating ration with multiple pellet sizes.

For an additional boost to the bluegill population, feeding in the winter is an option. Winter feeding keeps the bluegill plump and healthy during a period when natural food is not readily available. To improve consumption in the cold months, a sinking feed may be used. Sinking feed can be purchased during the winter at most dealers that normally stock fish food. Several feeding periods should be maintained for the winter also. However, the timer on the feeder should be changed in late October to adjust for the shorter day length.

Supplemental feeding attracts bluegill to certain areas so they are easier to catch.

We market Sweeney and Texas Hunter automated game and fish feeders. Simply put, these feeders are the finest of their kind. Sweeney directional feeders are offered in two sizes (AF1100 - 75 pound capacity and AF1300 - 225 pound capacity) and three colors (galvanized, hunter green and camo). Texas Hunter directional feeders are also offered in two sizes (DF125 - 75 pound capacity and DF425 - 225 pound capacity) and they are only available in green. They are powered by rechargeable 12-volt batteries and most models come equipped with a solar charger. Sweeney and Texas Hunter directional feeders may be conveniently mounted on the bank or on piers.

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.

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.

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.

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

Given the present state of vegetation in your pond, chemical control is recommended. This approach involves the use of aquatic-approved herbicides to reduce or eradicate aquatic weeds. We are commercially licensed to apply aquatic-approved herbicides. Our treatments are warranted to control existing weed growth. We cannot, however, warrant against re-growth; the integrated approach to controlling nuisance vegetation is your best insurance against weed problems in the future. The cost and timing of our recommended herbicide treatment are listed in the Recommended Management Activities section of this report.

Color photos, including distinguishing characteristics and growth habits of the aquatic vegetation in your pond, are listed in the following Aquatic Weed Identification section.

Common Name: Water Primrose

Scientific Name: *Ludwigia* sp.

Distinguishing Characteristics:
Leaves arranged oppositely. Flowers yellow if present.

Growth Habit:
Emersed. Could be sprawling across surface of water or erect in moist areas along the shoreline.

Management Program Impact:
Low to moderate. Favorable in small amounts.

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

Madison Lake is functioning as a balanced system that has a moderate level of fertility. Several management inputs are necessary to maintain a state of balance as well as increase the total density of sport fish. The management activities we are recommending for Madison Lake will center on reducing the total number of adult predators and enhancing the conditions for the production of forage.

To maintain a high density of sport fish as well as help control aquatic vegetation, we recommend **continuing an intensive fertilization program** in Madison Lake. **SportMax® Water Soluble Pond Fertilizer** (10-52-4) should be applied according to the *Standard Pond Fertilization Schedule*.

For Madison Lake, **harvest bass 10-14 inches at 5 per angler per day**. 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 Madison Lake **to 10 per angler per day. Harvest catfish at 5 per angler per day. Annual electrofishing evaluations** will help determine if fish harvest recommendations should be adjusted.

We recommend **initiating an intensive supplemental feeding program** in Madison Lake. Fish food should be applied from 3 feeding stations at a rate of at least 5 lbs/ feeder/day from March through October.

Aquatic weed control will also be an integral part of the management program for Madison Lake. Water primrose has 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 Madison Lake, if they should become a problem in the future, is by herbicide application.

Finally, **installing Honey Hole Trees** would increase the catch rates of sport fish in Madison Lake.

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.

FERTILIZATION ROUTE

ANNUALLY
2019-20

Current Status: Awaiting Owner Approval

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Continue fertilization program

COST: $ 159.00 per application*

* Price subject to change. Cost includes 4 pounds of fertilizer per acre applied by our technicians according to the Standard Pond Fertilization Schedule. Additional fertilizer may be applied to achieve desired results. Cost of additional fertilizer is $1.95 per pound, also subject to change.

LEVEL 1

ANNUAL HARVEST

ANNUALLY
2019-20

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Harvest 5 per angler per day at 10-14” in size

COST:
Hook and line: N/A
Electrofishing: $350.00/hour.*

*An additional mileage charge will be added.

LEVEL 1

BG HARVEST

ANNUALLY
2019-20

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Harvest bluegill at 10 per angler per day

COST: N/A

LEVEL 1

CATFISH HARVEST

ANNUALLY
2019-20

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Harvest catfish at 5 per angler per day

COST:
Hook and line: N/A

LEVEL 1

ADD STRUCTURE

WINTER 2019

COST: $ 180.00/each*

* Additional mileage fee will be added.

Current Status: Awaiting Owner Approval

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Install 12 Honey Hole Trees

LEVEL 2

SUPPLEMENTAL FEEDING

SPRING 2020

COST: $ 850.00 each*

* This price includes a Texas Hunter DF-175 directional fish feeder, solar charger, rechargeable battery, assembly, and installation. An additional delivery charge will be added.

Current Status: Awaiting Owner Approval

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Install 3 Texas Hunter DF-175 directional fish feeders
Feed at a rate of 5-10 pounds/day from each feeder

LEVEL 1

ANNUAL EVALUATION

FALL 2020

COST: $ 850.00*

* 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

LEVEL 1

Bass Harvest Records

Date	Number Harvested	Total Pounds Harvested	Comments

Bass Harvest Records

Date	Number Harvested	Total Pounds Harvested	Comments

Tagged Fish Data

Date	Tag Number	Length (in.)	Weight (lbs.)	Comments

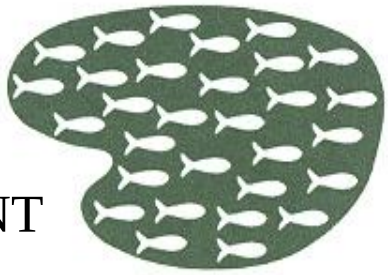
Fertilizer Application Records

Date	Water Color	Water Visibility (in.)	Fertilizer Applied (lbs.)	Comments

Other Records

Date	Comments

SOUTHEASTERN
POND
MANAGEMENT



"Managing Your Liquid Assets"

Southeastern Pond Management

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