

Fishery Assessment  
For  
**Lake Olivia**

February 20, 2017





## Lake Assessment

[Lake Olivia](#) is a 86-acre natural lake located in Orange County, Florida. It is unknown when the lake was formed. We noted a limited amount of cover for bass and bluegill in the form of vegetation.

The surrounding topography is characterized by flat, urban land. [Lake Olivia](#) is located in a region of the state where soils are often relatively fertile, and highly alkaline (high pH). Ponds constructed on such soils usually do not require the application of agricultural lime to ensure a successful fertilization program. At the time of our visit, total water alkalinity was measured at **27.3** 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. [Lake Olivia](#) has not been fertilized in the recent past.

[Lake Olivia](#) appeared to have a light plankton bloom at the time of our visit.

[Lake Olivia](#) contains areas along the margins and in the upper end that are less than 3 feet deep and highly susceptible to aquatic weed growth. During the evaluation, we observed a moderate infestation of water lily and a light infestation of cattail, pickerelweed, tape grass, and water pennywort growing along the margins. Descriptions of these plants can be found in the Aquatic Weed Identification section of this report.

It is unknown when [Lake Olivia](#) was originally stocked. Fish harvest has been limited in the recent past. Harvest, and its importance in structuring fish communities will be discussed later in this report.



[Lake Olivia](#), February 2017.



## Fishery Assessment

The fishery in [Lake Olivia](#) was sampled with standard boat-mounted electrofishing equipment. The sample contained largemouth bass, copperside bluegill, inland silversides, killifish, and redear sunfish (shellcracker). Currently, largemouth bass are functioning as the primary predators in [Lake Olivia](#). The bluegill, killifish, silversides, and shellcracker are the prey.

Largemouth bass ranging in size from 6 to 18 inches in total length were collected in high abundance (Figure 2). The bass population was dominated by two distinct size ranges: 7 to 8 inches and 14 to 15 inches. Largemouth bass 14 inches and smaller represent the primary targets for harvest over the coming months.

Bluegill and shellcracker were collected ranging in size from 4 to 8 inches in total length. Figure 3 depicts the length distribution of the bluegill population. Of note, relatively few intermediate (3-5") bluegill were collected. However, mature adult bluegill were relatively abundant in the sample. These items collectively require management attention.

The average relative weight of adult bass collected from [Lake Olivia](#) was 86 (Figure 4). In other words, most of the adult bass were in relatively poor condition. The bass population is dominated by skinny, slow growing individuals.

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

Management inputs aimed at shifting the fishery toward balance are listed in the Recommended Management Activities section of this report.

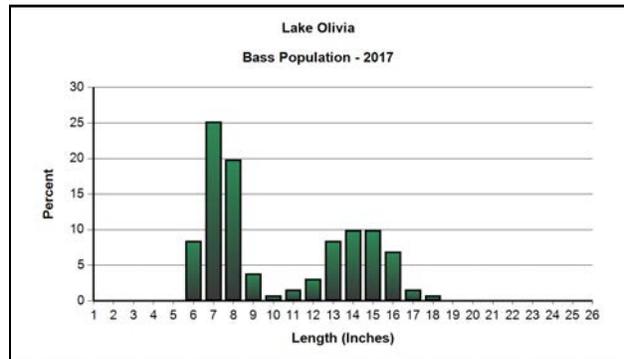


Figure 2. Length distribution of bass collected from [Lake Olivia](#) in February 2017.

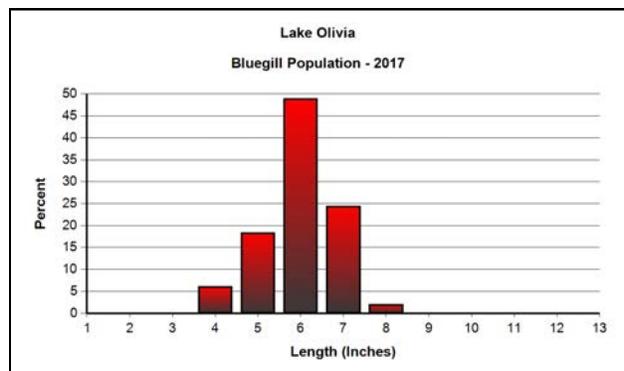


Figure 3. Length distribution of bluegill collected from [Lake Olivia](#) in February 2017.

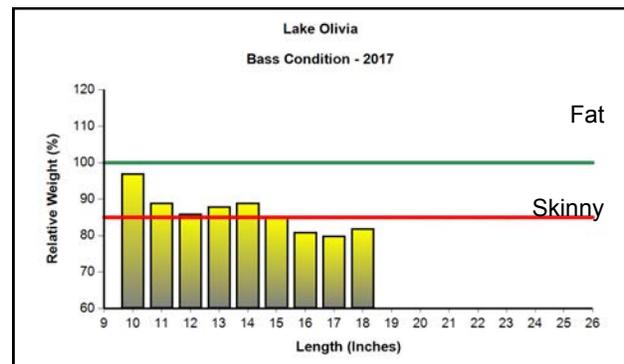


Figure 4. Relative weights ( $W_r$ ) of adult largemouth bass collected from [Lake Olivia](#) in February 2017.



## Introduction

Management of bass-bluegill sportfish ponds in the Southeast is based on the ideas of H.S. Swingle, founder of the Fisheries Management program at Auburn University. [Southeastern Pond Management](#) combines Dr. Swingle's management principles with the latest and most innovative management techniques to provide quality pond care. Successful pond management is based on assessing and manipulating pond fertility, aquatic weeds, and fish populations. Control of these three factors allows fish ponds to provide the maximum benefit to the pond owner. It is important to note that "benefit" is defined by the owner and can take the form of trophy bass, trophy bluegill, or a well-balanced fish community. Fortunately, modern pond management is flexible enough to fine-tune a pond to precisely fit the goals of the owner.

[Southeastern Pond Management](#) visited Orange County on February 20, 2017, in order to conduct a comprehensive evaluation of the 86 acre [Lake Olivia](#). A representative sample of the fish community was collected by electrofishing to accurately assess the present state of balance between the predator and prey species. In addition, the physical and chemical properties of the water were inspected to assess water quality. The degree of aquatic weed infestation was also recorded. Results of these assessments, plus consultation with Christian Visscher, provide the basis for this management plan.

The goal of this management plan is to create and maintain a balanced fish community in [Lake Olivia](#). 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"+

This report is designed with the above interests in mind. Normally, we feel most comfortable with the recommendations listed at the end of this report. However, we encourage you to pursue whatever goals you may choose. In addition, although parts of this report may seem quite technical, we include this information only to clearly illustrate the present fish community structure. As biologists, we depend on the electrofishing survey to show us where management input is necessary.

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.



Electrofishing equipment was used to collect a fish sample from [Lake Olivia](#), February 2017.



## Fish Community Balance

Lakes 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 lake 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 ( $W_r$ ) is an index used to categorize the condition of fish within a given population. Calculated  $W_r$  values greater than 100 indicate

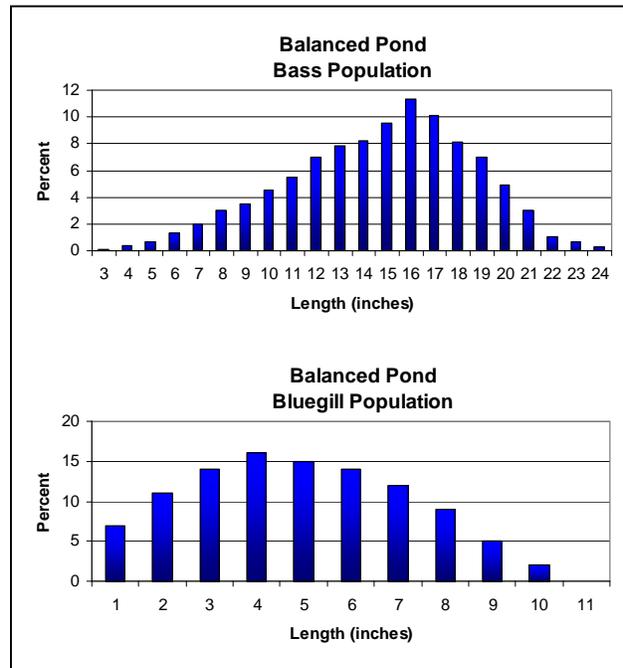


Figure 1. Length distribution of bass and bluegill in a typical balanced pond.

plump, robust fish.  $W_r$  values less than 100 suggest that individuals are in less than excellent condition, perhaps the result of some predator:prey imbalance.  $W_r$  values less than 85 would indicate malnourished fish; a sign of intense competition for forage.

Figure 1 depicts balanced populations of predator and prey in a typical sport fish lake. 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.



## Bass-Crowded

Bass-crowded is an imbalanced condition that is relatively common in private lakes 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 lakes. 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 lake. 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 Olivia](#) 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 lakes, 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 Olivia](#).



Typical bass from a bass-crowded pond.

In a typical fertilized sport fish lake, 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.



## Fish Harvest

One of the keys to a balanced fish community, as well as the growth of trophy largemouth bass in your lake, 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. We generally recommend harvesting the smaller, more abundant size range of bass at a rate of **25 to 35 pounds per acre per year**. 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. 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



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

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.

One important point is that bluegill and shellcracker harvest is strictly optional in balanced lakes. 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 lakes to prevent over-harvest. In severely bass-crowded lakes, 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.



## 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. The presence of a variety of forage types, occupying different habitats within the lake, 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. Lakes 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.

We also recommend stocking **intermediate copperside bluegill**. The term, *intermediate*, refers to their size: roughly 3 to 5 inches. Stocking intermediate bluegill will accomplish three important things: first, 3 to 5 inches represents an ideal forage size for the abundant stunted bass in your lake. The introduction of intermediate bluegill will directly increase the growth of these bass, by putting a suitable-size prey item in their mouths. Secondly, and most importantly, is the resulting increase in the amount of bluegill reproduction in



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



An abundant supply of intermediate size bluegill is a requirement for a balanced pond.

your lake. Intermediate bluegill are sexually mature; they will spawn initially at the first spawning period subsequent to their introduction. Naturally, as they are multiple-spawners, these newly introduced bluegill will additionally spawn roughly once per month throughout the entire spawning season (May - October). The dramatic increase in the amount of bluegill reproduction will ultimately lead to a "flood" of bluegill in the intermediate size range. A final benefit, copperside bluegill are highly aggressive surface feeders and will readily consume pellet feed. In fact, intermediate copperside bluegill are often stocked to stimulate northern bluegill to consume pellet feed more aggressively. Stocking rates vary depending on the lake size and status of the current bluegill population.

Stocking each of these forage types within the same year will produce the quickest and greatest results. The basic principles of lake management - the enhancement of water quality and fertility as well as the control of surplus predator production - are crucial to maintaining a well-balanced and abundant fish community. The introduction of supplemental forage can rapidly increase the growth of largemouth bass.



## 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 lake, 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 lake 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 lakes.

When choosing natural cover to be added to lakes, 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 lake. 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



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.

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.



## 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, trees 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 on 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).



## Summary of Management Recommendations

[Lake Olivia](#) is functioning as a bass-crowded system that has a moderate 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 Olivia](#) will center on reducing the total number of adult predators, introducing supplemental forage, and enhancing the conditions for the production of forage.

For [Lake Olivia](#), **harvest bass 14 inches and smaller** at a rate of **15 pounds per acre per year** (1,290 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 **suspending bluegill harvest** in [Lake Olivia](#) until the bluegill population recovers through management inputs. **Annual electrofishing evaluations** will help determine if fish harvest recommendations should be adjusted.

**Supplemental forage in the form of threadfin shad and copperside bluegill 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 Olivia](#). Water lily, water pennywort, cattail, tape grass, and pickerelweed 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 Olivia](#), 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 Olivia](#).

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.



## Recreational Stocking Options

There are several species of freshwater fish that can be stocked to increase angling diversity as well as the overall recreational value of a sport fish lake. Some of these stocking options may have an impact on the balance of the fish community. This impact can often be minimized with conservative stocking rates and intensifying certain management activities.

**Channel catfish** (*ictalurus punctatus*) are especially popular additions to sport fish lakes. Catfish are generally easy and fun to catch, grow quickly, and good table fare. They are also direct competitors of largemouth bass. Catfish recruitment (reproduction) is usually low in ponds with a healthy bass population. However, they can impact the forage community and should be harvested before they reach large sizes. Maintaining an abundant forage base and intensifying the supplemental feeding program will reduce their impact on the fish community.

Another popular addition is the **hybrid striped bass** (*Morone chrysops x saxatilis*). Known for hard-fighting, hybrid striped bass can provide an exciting change of pace to bass angling. They are genetically sterile and adapt well to small impoundments, usually occupying more offshore, open-water areas than the largemouth bass. They will readily consume pellet fish food; their growth rates may be significantly increased by offering a high protein feed. Intensifying the feeding program and

maintaining a healthy threadfin shad population is recommended with the addition of hybrid striped bass.

A relatively new option in sport fish lakes, specifically designed to increase catch rates of bass is the introduction of **feed-trained largemouth bass**. These highly aggressive northern bass (*Micropterus salmoides salmoides*) have been trained to consume pellet fish food. Like hybrid striped bass, feed-trained bass benefit greatly from a high-protein ration.



Feed-trained Largemouth Bass

Supplemental feeding is also productive in efforts to maintain their aggressiveness and high catchability. Feed-trained bass will consume natural forage and reproduce in sport fish lakes, thus they can affect the overall balance of the fish community. The predator:prey dynamics in the lake should be considered before stocking feed-trained bass. Broadcasting a high-protein ration and stocking supplemental forage is highly recommended with the addition of feed-trained bass. Also, bass harvest rates may need to be increased to accommodate the additional fish. Feed-trained bass are typically marked in such a way as to make them easily distinguishable from other bass.



Channel Catfish



Hybrid Striped Bass



Rainbow Trout

**Rainbow trout** (*Oncorhynchus mykiss*) are frequently stocked in Southeastern lakes to increase angling opportunity during the winter. Rainbow trout become aggressive when the water cools and will actively consume high-protein pellet fish food throughout the winter. They too can have an impact on the forage community, but only for a brief time, as they perish when the water warms in mid to late spring.

**Redear sunfish** (*Lepomis microlophus*), also known as shellcracker, are traditionally stocked along with bluegill in sport fish lakes.

Redear sunfish are a perfect addition to bass/bluegill lakes because they compete very little with bluegill for food and spawning grounds. Redear

sunfish typically only spawn once a year, compared to bluegill which are multiple spawners. For this



Redear Sunfish

reason, reardear sunfish tend to decrease in numbers over time in lakes with an abundant bass population. Intermediate size reardear sunfish are often stocked in older lakes to boost the population.

Occasionally, we have available **jumbo-size Florida largemouth bass** (*Micropterus salmoides*

*floridanus*) for stocking.

These additions are popular among lake owners desiring instant results in terms of big bass. Stocking rates are generally low, resulting in virtually no adverse impacts on the structure of the existing forage base.



Jumbo Largemouth Bass



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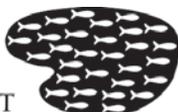
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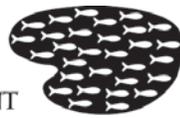
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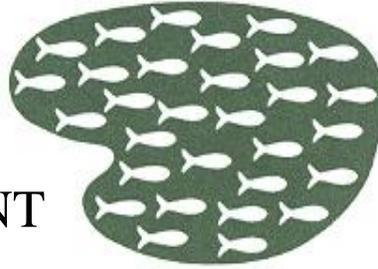








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