

A photograph of a pond surrounded by trees, with text overlaid on the image. The pond is in the foreground, reflecting the sky and trees. The water is clear, showing a rocky bottom. The trees are dense and green, surrounding the pond. The sky is blue with some light clouds.

Management Plan  
For  
**2.5 Acre Pond**

April 30, 2020



## 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 The Jemison Farm on April 30, 2020, in order to conduct a comprehensive evaluation of the 2.5 acre [2.5 Acre Pond](#). 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 provide the basis for this management plan.

The goal of this management plan is to create and maintain a balanced fish community in [2.5 Acre Pond](#). 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.

This report is designed with the above interests

Table 1.

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

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 [2.5 Acre Pond](#), April 2020.



## Pond Assessment

[2.5 Acre Pond](#) is a 2.5-acre watershed impoundment located in Chilton County, Alabama. It is unknown when the pond was originally impounded. An emergency spillway is present. In addition, we noted no amount of cover for bass and bluegill.

The surrounding topography is characterized by rolling hills of mostly pine and some hardwood tree growth. [2.5 Acre Pond](#) is located in a region of the state where soils are often relatively infertile, and highly acidic (low pH). Ponds constructed on such soils usually require the application of agricultural lime to ensure a successful fertilization program. At the time of our visit, total water alkalinity 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. [2.5 Acre Pond](#) has not been adequately fertilized in the recent past.

[2.5 Acre Pond](#) appeared to have no plankton bloom at the time of our visit, the result of no fertilization.

[2.5 Acre Pond](#) 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 light infestation of southern naiad growing along the margins. A description of this plant may be found in the Aquatic Weed Identification section of this report.

It is unknown when [2.5 Acre Pond](#) was originally stocked. Fish harvest has been reported as none in the recent past. Harvest, and its importance in structuring fish communities will be discussed later in this report.



[2.5 Acre Pond](#), April 2020.



## 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

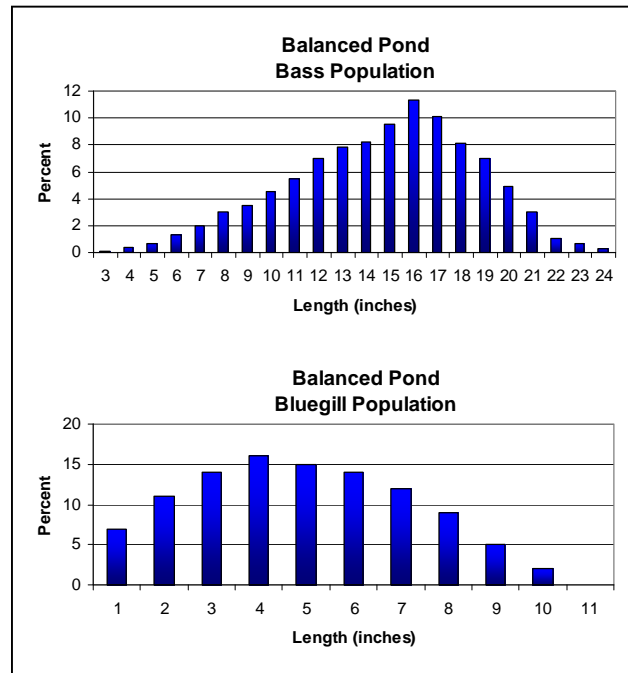


Figure 1. Length distribution of bass and bluegill in a typical balanced pond.

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 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 **2.5 Acre Pond** was sampled with standard boat-mounted electrofishing equipment. The sample contained spotted bass, crappie, catfish and Northern bluegill. Currently, spotted bass, crappie and catfish are functioning as the primary predators in **2.5 Acre Pond**. The bluegill are the prey.

Bluegill were collected ranging in size from 3 to 7 inches in total length. Figure 3 depicts the length distribution of the bluegill population. Of note, relatively few intermediate (3-5”) bluegill were collected. Further, mature adult bluegill were nearly absent from the sample. These items collectively require management attention.

Overall, we characterize the fish community in **2.5 Acre Pond** as predator-crowded. A more detailed explanation of predator-crowded ponds in general, and **2.5 Acre Pond** 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.

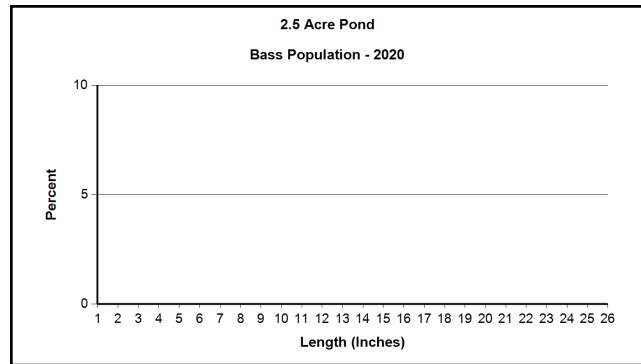


Figure 2. Length distribution of bass collected from **2.5 Acre Pond** in April 2020.

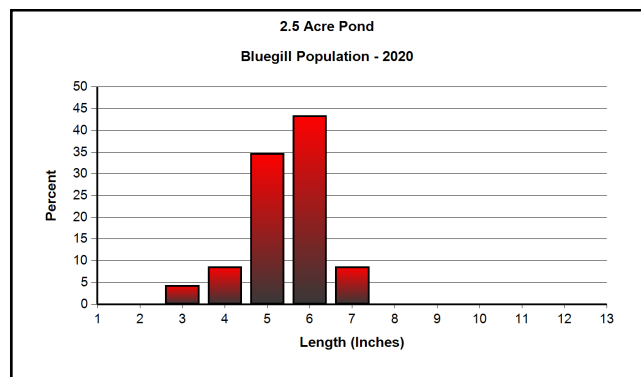


Figure 3. Length distribution of bluegill collected from **2.5 Acre Pond** in April 2020.

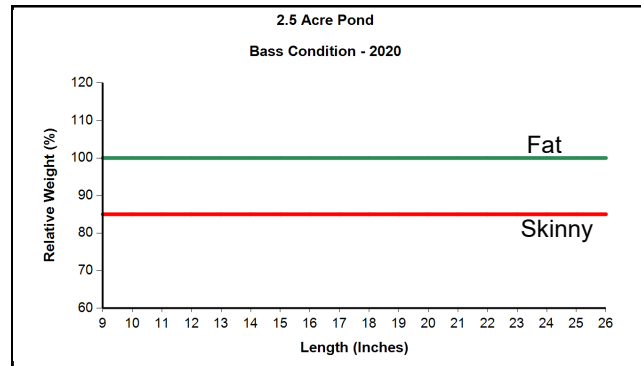


Figure 4. Relative weights ( $W_r$ ) of adult largemouth bass collected from **2.5 Acre Pond** in April 2020.