# Lake Spivey Population Restoration

David Smith (with help contributing from American Sportfish Company)

**Incentives of a Healthy Largemouth Bass Population**

Largemouth Bass are the most sought-after game fish in the state of Georgia. Maintaining a healthy population of bass adds enjoyment not only to the avid angler but also to the novice fisherman. An abundance of bass that are of desirable size would lead to growth in the recreational value of Lake Spivey. A healthy bass population would certainly be an asset to the Lake Spivey Community not only for the personal enjoyment of residents but it would additionally increase interest in property ownership.

**Lake Spivey's Current Bass Population**

A body of water will not cultivate ideal sized fish if the population is unbalanced. In an electrofishing survey that took place on October 18th the results confirmed that Lake Spivey is home to an abundance of bass with below average conditions. Electrofishing it is a method used to effectively survey a population without fatalities of the fish analyzed. By transmitting electrical impulses, fish within approximately a ten foot radius are stunned for ten to fifteen minutes and float to the top of the water column. The fish are then measured, weighed, and released after the results are recorded. The results gave a condensed view of the population and by analyzing the results we have identified several factors leading to poor conditions of the bass in Lake Spivey.

**Factors Resulting in Poor Conditions of the Bass Population**

- Water quality
- Abundance of Largemouth Bass
- Small population of Threadfin Shad (the main forage of the Largemouth Bass)
- Low poundage in the Bluegill population

**Water Quality**

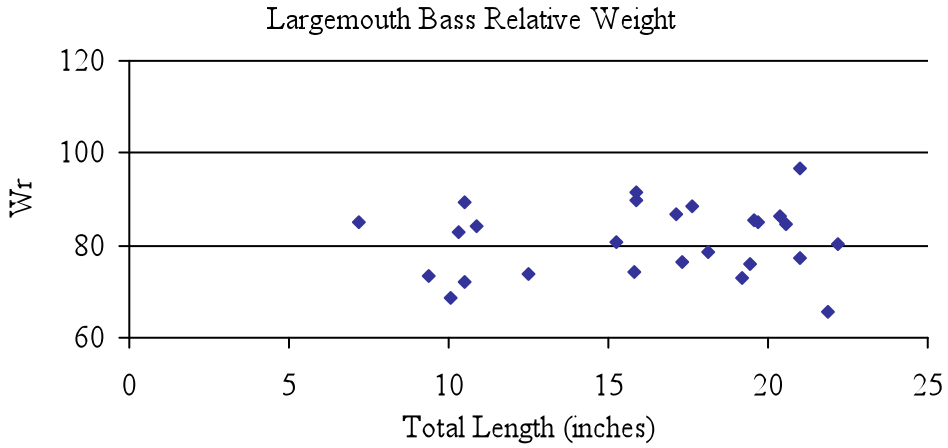
Do not be alarmed when I say that the water quality in Lake Spivey is a contributing factor. By no means is it at a hazardous level to swimmers or skiers. The problem with the water quality is that the water in Lake Spivey is not fertile. This means that it does not ideally promote the reproduction of phytoplankton (the main food source of forage fish) due to its clarity. Normally when a body of water is as infertile as Spivey, liming or fertilization is recommended; however there is no practical way to accomplish this on Lake Spivey due to the size of the lake.

**Small Population of Threadfin Shad**

Threadfin Shad are the ideal prey for Largemouth Bass. In most cases a healthy number of shad equals a healthy population of Largemouth Bass. Over the past few years, seeing schools of shad has become less frequent. Shad are very intolerant to cold weather and there is a portion of the population that dies every winter. A significant number of shad likely died in the previous two winters due to the excessively cold temperatures. This past winter would have seen even more deaths due to the drawdown. The volume of water shrank making it more susceptible to temperature change. Since its been close to ten years since we added any Threadfin Shad the population has seen a slow decrease until it dwindled to the minor numbers that are present in the lake now.

**Abundance of Largemouth Bass**

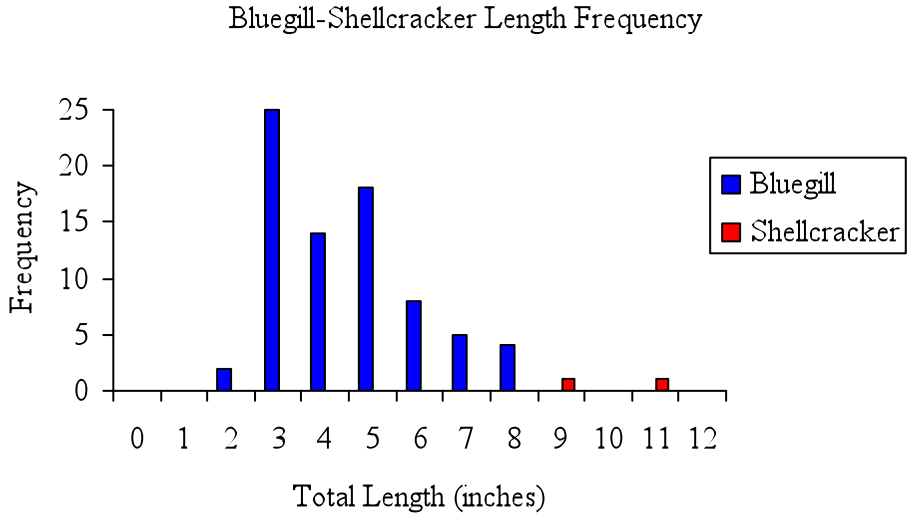
One of the main contributing factors to poor conditions is that Lake Spivey contains too many predator fish (Largemouth Bass) and not enough forage fish (Bluegill, Threadfin Shad, Golden Shiners, etc.). Due to predation over the years without supplemental stocking there is an insufficient amount of forage fish for the existing bass to exhibit quality growth. In layman's terms, the fish are competing over a limited supply of food that shrinks each year. The top picture is an example of a fish in Lake Spivey. Notice that this fish has a large head and narrow body (an indicator of lack of nourishment). This fish was twenty two inches long yet it was barely three pounds. The second picture is of a fish of similar length that exhibits ideal body conditions. A fish of this length should be at least five pounds. Notice how the second fish has a rounded shape especially past the point between the pectoral and tail fin. This example was one of the more extreme situations; however the majority of the fish we sampled displayed similar body structure.




Relative Weight (Wr) is an indication of how healthy the bass are and how they compare to an ideal bass of the same length. It is calculated by dividing the weight of a fish sampled (from Lake Spivey in this instance) by the ideal weight of a fish at that same length then this number is multiplied by 100. The overall condition of the bass population was well below the expectations in a healthy bass population. The average Relative Weight for the bass in Lake Spivey was 81. Therefore the average Lake Spivey bass is about 20 percent below ideal conditions. Wr values of 100 are average and those of 80 or below indicate thin or poor condition. In 1998, the last time a documented electrofishing survey was taken place, the relative weight of the bass was at a value of 105. This decrease in relative weight is what would be expected of a lake lacking sufficient food supply.

**Low Poundage within the Bluegill Population**

Bluegills are another important part of a Largemouth Bass' diet. A bass can normally eat a Bluegill about one-third its length, thus a 12-inch bass can eat a Bluegill up to 4 inches. The larger a food item the bass eats, the better food conversion or weight gain it experiences. A bass will typically expend as much energy capturing a 2-inch bluegill as a 4-inch one, but gains much more protein from the larger fish. A 4-inch bluegill will typically weigh six to ten times as much as a 2-inch bluegill.




The size distribution of the bluegill and other sunfish is shown in the Bluegill Length Frequency graph above. The relative abundance of bluegill in the 2- to 4-inch size is good but there is just not enough total poundage of these to support healthy bass growth. The lack of total poundage is a direct result of the extremely unfertile water. Clear water does not support high poundage of forage.

**Solutions**

The condition of Lake Spivey's fishery presents many challenges; however there are several solutions to combat these factors of poor conditions. Here are three solutions I strongly suggest we employ immediately in order to get the lake back on track to a balanced population.

· Add fish feeders to as many docks as possible
· Stock as many Threadfin Shad as our budget allows
· Harvest any bass below 14 inches

**Water Quality and Low Bluegill Poundage Solution**

There is no practical way to promote phytoplankton reproduction; however we can combat the lack of food for forage fish in other ways. We can provide an alternative food source to the forage fish by setting up feeders around the lake. I would strongly encourage homeowners to place these on their docks. If the budget allows, I believe it would be wise to offer some sort of incentive to the homeowners who add the fish feeders as a way to attract more volunteers.

Not only would adding a fish feeders provide benefits of a healthier fish population in Lake Spivey but it would also provide excellent fishing conditions under and around your dock, thus eliminating the need to take your boat out of the slip.

**Low Population of Threadfin Shad Solution**

The population of Threadfin Shad is perhaps the greatest factor in creating ideal population balance. In order to keep a body of water in balance additional forage fish to the bluegill population is pertinent in growing ideal sized Largemouth bass. Threadfins are the ideal prey because of their spawning habits. Their life span is only two to three years, however these fish make up for short lives by spawning young and often. Threadfins have eggs when they are slightly longer than two inches. That means some threadfins as young as 90 days old can reproduce. The only issue with these fish is their low tolerance to colder weather. The population of these fish needs to be kept in abundance. Through annual stocking, the fish can thrive in ideal numbers.

In late March to early April I suggest that a large stocking of Threadfins take place. After the analysis of the electroshock results, American Sportfish Company suggested that we stock one load (approximately 6000) of shad per 20-30 acres. Each one of these loads will cost $1,800. Currently in the Lake Conservation Budget there is not enough to stock the lake with the proper amount; however we can still make an impact on the population by stocking as many as possible.

**Harvesting Smaller Largemouth Bass**

Presently there are too many bass in the lake. If ever angler is on board with a selective harvesting plan we can cut the lakes numbers to the ideal amount. If a Largemouth is caught below fourteen inches I strongly suggest removal from the lake. Normally I preach catch and release but in this situation letting the fish below the fourteen inch range back into the lake will do more harm than good. I know that the average bass angler has no interest in keeping or eating their catch; however if the time is taken to ask around, I am sure that a neighbor or friend would be more than happy to take these fish off your hands. Please, if you catch a fish under fourteen inches, don't throw it back.

**Closing Notes**

Lack of management in the past has led to the current poor condition factors. I can promise that I will use every resource available to manage Lake Spivey properly. Implementation of the steps suggested will result in a healthy population of bass sooner rather than later. By utilizing the techniques discussed I can assure that there will be a noticeably positive effect on the fishing conditions of Lake Spivey seen as early as next year.