Fish Survey Report

Silverlake Enterprised Lake

Submitted to:

Silver Lake Homes Association

113 Silver Lake Circle

Raymore MO, 64083

Submitted by:

Aquatic Control, Inc.

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Introduction

A survey of the fish community and other physical, biological, and chemical factors directly affecting the fish community was completed at Silver Lake on October 19, 2020. The major objectives of this survey and report are:

1. To provide a current status report on the fish community of the lake.
2. To compare the current characteristics of the fish community with established indices and averages.
3. To provide recommendations for management strategies to enhance or sustain the sport fish community.

Water Chemistry

When managing an aquatic ecosystem the quality of water should always be considered first. If a lake or pond is perfectly constructed with abundant food and habitat, but has poor water quality, the fishery will ultimately suffer and never reach it's full potential. Although oxygen is typically not a year-round issue there are certain situations that can cause oxygen to drop to detrimental levels. If parameters such as pH or alkalinity are too low or too high it can put tremendous stress on the organisms living in it or even create a toxic environment all together. Other important parameters to consider are nitrogen and phosphorus levels. Nitrogen and phosphorus are two major nutrients that drive the plant growth in an aquatic ecosystem. If the ratio of nitrogen to phosphorus is below 17:1 there is potential for blue-green algae to become abundant. These species of algae can create a stressful environment for fish due to disruption of the food web.

Table 1. Selected lake and water quality parameters.

	Surface	Ideal Range
Acres	53.3	-
Temperature (F)	55.8	-
Dissolved Oxygen (ppm)	8.78	5.0+
pH	7.85	6-9
Alkalinity (ppm)	76	20+
Total Hardness (ppm)	92	20+
Total Phosphorus (ppm)	0.02	0.01-0.09
Total Nitrogen (ppm)	0.98	1.0-10.0

The results of selected physio-chemical parameters from Silver Lake are presented in Table 1. Dissolved oxygen, pH, alkalinity, and hardness levels were all in acceptable ranges. The lake had relatively uniform temperature and dissolved oxygen throughout the water column (Figure 1). The nitrogen to phosphorus ratio is 49:1 on the surface. This indicates there is little potential for abundant blue-green algae growth during warmer months of the year. Overall, water quality parameters indicate Silver Lake appears to be capable of supporting a healthy fish population.

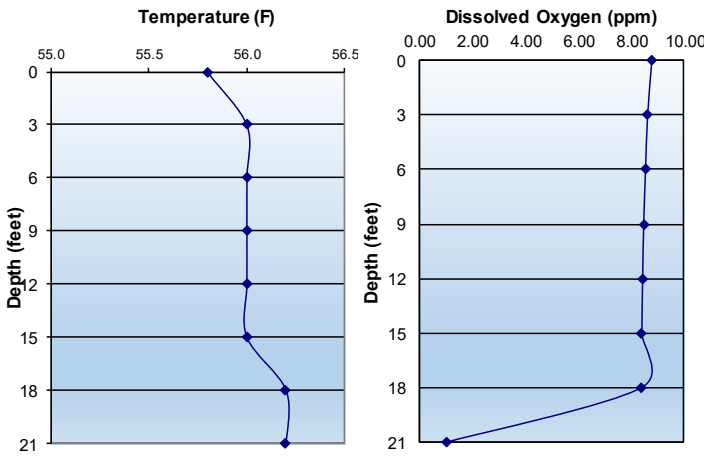

Figure 1. Temperature and Dissolved Oxygen profiles.

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Fish Collection

Fish sampling was done with the use of an electrofishing boat. Electrofishing is simply the use of electricity to capture fish for the evaluation of population status. Electrofishing equipment used in this survey consisted of a 16-foot aluminum boat equipped with a Midwest Lake Electrofishing Systems Infinity Box powered by a 6500-watt portable generator and two booms mounted with Wisconsin style rings. Electrofishing was done around the entirety of the shoreline and totaled one hour of shocking.

All fish collected were placed in water filled containers aboard the sampling boat for processing. Each fish collected was measured to the nearest half-inch. Five fish in each half-inch group were weighed to determine average and relative weights. Relative weight is a condition factor used to determine the overall plumpness of an individual fish. Relative weight values from 90-100 indicate good condition while anything under 90 is considered in poor condition. It can be assumed that fish with higher relative weights are finding enough food and are growing at a higher rate than fish with a lower relative weight.

A total of 487 fish weighing 135.51 pounds and representing nine species was collected from Silver Lake. The relative abundance of these species can be found in figure 2 and a full data table can be found at the end of this report. The data collected are adequate for management implications; however, there will be unanswered questions regarding aspects of the fish population and other related factors of the biological community in the lake. All fish numbers used in the report are based on the samples collected and should not be interpreted to be absolute or estimated numbers of fish in the lake.

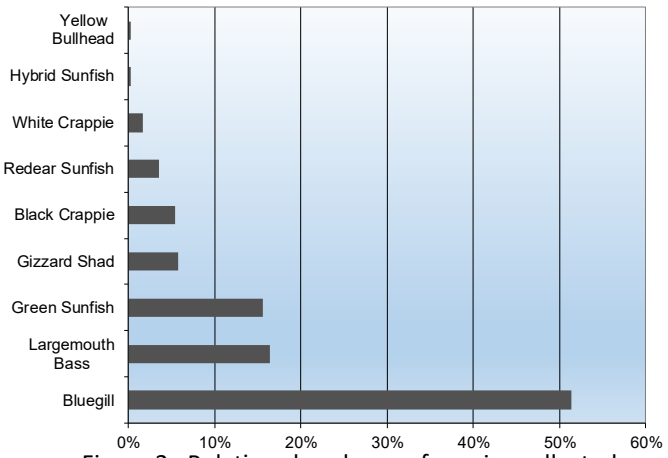

Figure 2. Relative abundance of species collected.


Skinny Largemouth Bass caught during survey.


Largest fish caught during survey.

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Predator-Prey Relationship

Even the most diverse systems can be broken down into predator-prey relationships. Often times the Largemouth Bass-Bluegill relationship is the most important. Bluegill are a great prey item for Largemouth Bass because they spawn multiple times a year and are continually creating food for Largemouth Bass. Managing for one species typically involves influencing both and as one of these populations change the other typically changes with it. In a balanced state both Largemouth Bass and Bluegill can experience proper growth rates.

Bluegill

<u>Silver Lake</u>—Bluegill

Bluegill ranged in size from less than 3.0 to 8.5 inches (Figure 3). Approximately 27% of Bluegill collected were 3.0 inches or less, indicating successful reproduction occurred in 2020. There was a high number of quality Bluegill collected. This led to a proportional stock density (PSD) of 58 which is above the desired range of 20-40 for Bluegill (proportion of quality fish within a population). The relative weight values of Bluegill collected at Silver Lake ranged from 83 to 111 (Figure 4). High relative weights along with a low population of intermediate Bluegill and the high proportion of larger individuals indicates that Bluegill are currently heavily predated upon, especially at very small size classes.

When looking at the Bluegill length distribution graph (Figure 3), it is apparent that there is a high level of predation on individuals less than 3.5 inches in length. This is likely due to the high abundance of Black and White Crappie. Black and White Crappie both have a tendency to become very abundant and have the potential to cause detriments to fish communities. Overall Bluegill recruitment in larger size classes appears to have good survival despite predation from Largemouth Bass and other species.

Lack of structure likely contributes to low survival of Bluegill. Without places to hide young and developing Bluegill are unable to escape predation. Increasing structure, stocking Bluegill and Redear Sunfish, and harvesting predators will all be important steps in improving the Bluegill population.

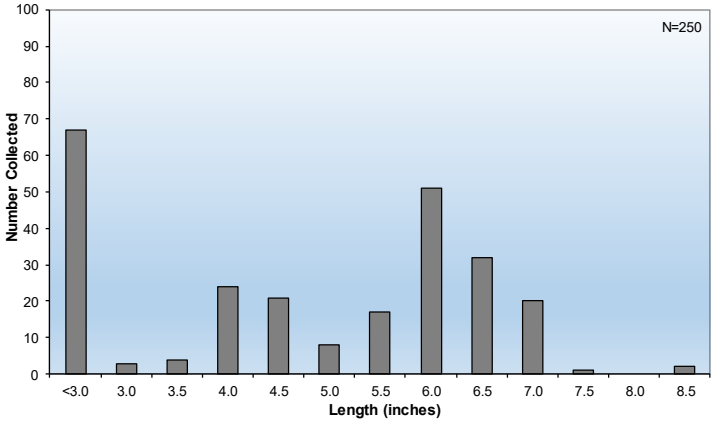

Figure 3. Length frequency distribution of Bluegill

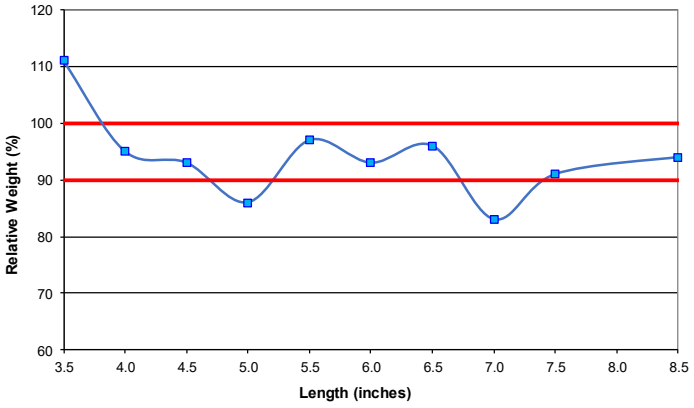

Figure 4. Bluegill relative weights

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Predator-Prey Relationship

Largemouth Bass are an opportunistic predator that will eat just about any species of fish they can catch. To keep a Largemouth Bass growing properly there needs to be several different sizes of forage available. This allows the bass to continually find the optimal size of prey as it continues to grow. When the optimal size of prey is available the fish can conserve energy, resulting in a higher growth rate. If the prey is too small a Largemouth Bass could potentially spend more energy chasing a meal than it gains by eating it. This results in skinny and slow growing fish. Managing a forage base to create a variety of sizes is key to creating a healthy and balanced Largemouth Bass population.

Silver Lake—Largemouth Bass

A total of 80 Largemouth Bass ranging in size from 4.0 to 19.0 inches was collected (Figure 5). Approximately 33% of Largemouth Bass were 8.0 inches and smaller. This indicates successful reproduction has occurred in 2020. The majority of Largemouth Bass sampled were between 10.0 to 16.5 inches. This led to a PSD of 71 for Largemouth Bass, which is above the desired range of 40-60. Relative weights ranged from 75 to 108 (Figure 6). The majority of relative weights fell above the 90 mark. This is an indicator that most Largemouth Bass are finding enough food.

Largemouth Bass

Largemouth Bass appear to have a healthy population at this time. Their catch rate was about 80 per hour which is high but not excessively so. The length frequency shows a good distribution across a lot of different size classes. Relative weights appear to be good across all size classes. Even with Gizzard Shad present Largemouth Bass appear to spawning successfully, but potentially recruiting inconsistently. The reduction in individuals in the 7.0—10.0 inch size classes is very likely a poor year class. This is not necessarily a bad thing as the overall abundance of Largemouth Bass is slightly high and still performing extremely well with several individuals recording relative weights above 100 and even some above 110.

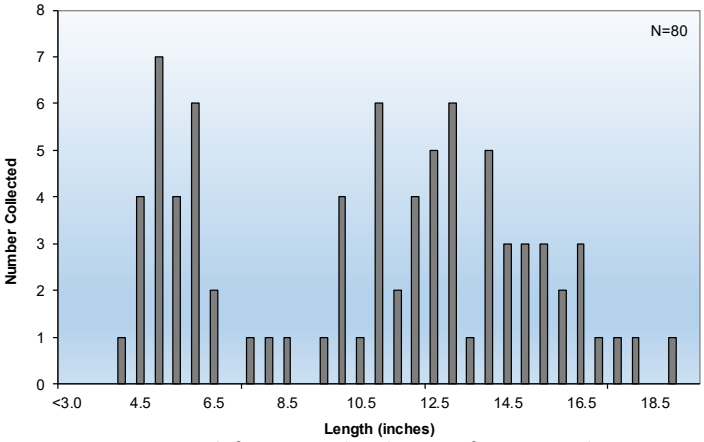

Figure 5. Length frequency distribution of Largemouth Bass

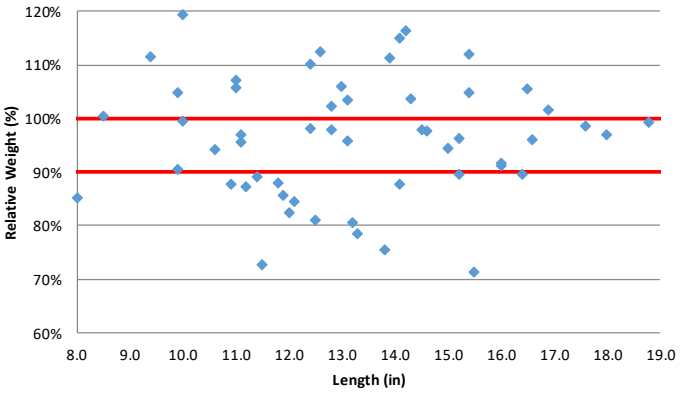

Figure 6. Largemouth Bass relative weights

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Predator-Prey Relationship (Gizzard Shad)

Gizzard Shad were also found in Silver Lake. This is another commonly known forage species that can make up a large percentage of a predators diet when available at smaller sizes, but can often come with more negatives than positives. The first issue caused by Gizzard Shad is the reduction in recruitment. Gizzard Shad are a filter feeding species that consume large amounts of phytoplankton and zooplankton. Unfortunately, this is exactly what all larval fish eat as soon as they are hatched. When Gizzard Shad are in large abundances they can compete with these larval fish for food and greatly impact recruitment of species such as Largemouth Bass.

In some lakes Gizzard Shad can reproduce very quickly and grow extremely fast. These may sound like great attributes for a forage fish, but often times Gizzard Shad grow too large for Largemouth Bass to consume. While the juvenile size classes of Gizzard Shad are beneficial as forage, they provide no benefit at adult size classes and can have negative impacts on water quality. Without a large enough predator to consume them these fish will never transfer their biomass up the food chain into a more desirable fish. Due to these issues the Gizzard Shad population should be closely monitored and the following management options should be considered.

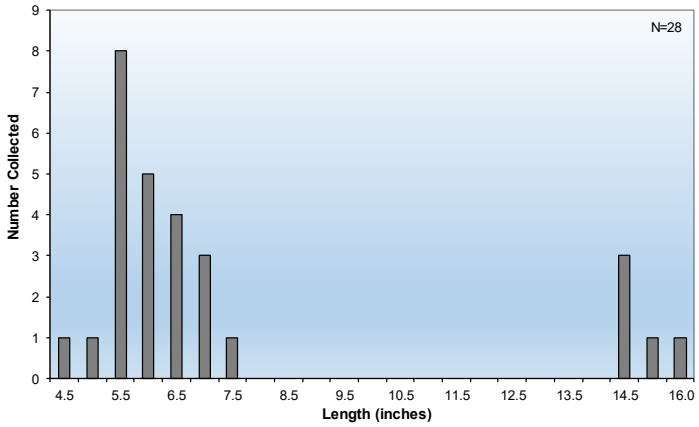

Figure 7. Length frequency distribution of Gizzard Shad

Gizzard Shad

Management Options

There are only a few options when trying to manage Gizzard Shad populations. One method is chemical eradication. This can be very costly on large lakes and results in dead fish throughout the lake. The other method commonly used to manage Gizzard Shad in impoundments is the supplemental stocking of large predators such as Hybrid Striped Bass or Muskellunge. By introducing a large apex predator some of the adult sized Gizzard Shad can then be consumed. This does not always improve the recruitment issue previously discussed, but it does provide an additional angling opportunity to the lake. If the Gizzard Shad population is large enough these stockings can be done with little to no impact on the existing Largemouth Bass fishery.

Silver Lake Gizzard Shad

Currently, the Gizzard Shad population appears to have an abundance of small Gizzard Shad and few very large individuals. This is good, because it creates additional forage for Largemouth Bass, Crappie and other species. Introducing Hybrid Striped Bass is an option that introduce an additional game species to the lake if desired. If quality Largemouth Bass is one of the goals for Silver Lake, Hybrid Striped Bass should not be stocked at this point. Largemouth Bass are thriving right now while predators numbers are higher than ideal.

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Harvest

Harvesting fish is often one of the most important and under utilized management practices in a pond or lake. Harvesting, or culling, fish is simply the act of intentionally removing fish from a specific population to decrease competition among the remaining individuals. The culture of catch and release bass fishing started in the 1970's and still has a strong hold on fisherman today. There is a misconception that taking a fish out of a system will be detrimental to the population and if released someone could catch that fish again after it has "grown up." The reality is in some situations there is too much competition and the next time that fish is caught it could be the exact same size a year later. By removing that fish, and others, it leaves more food available for the remaining individuals to continue to grow each and every year.

Example of Stunted Largemouth Bass

Ponds and lakes can both become overrun with predators or prey. Each scenario presents a different set of problems. In a predator (Largemouth Bass) dominant system prey populations are decimated and the lack of food results in slow or stunted growth. In a prey (Bluegill) dominated system spawning and recruitment success of other species can be negatively impacted due to egg predation or direct competition with young-of-year fish, along with slow growth within the population.

Fixing these issues requires targeted annual harvest. In an unbalanced system generally only one species requires a heavy amount of the harvest, while in a balanced system fish should be removed from most populations to maintain a continuous level of growth.

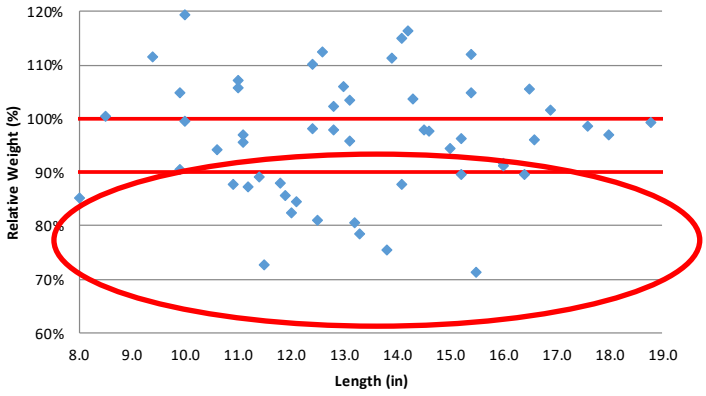

Figure 8. Bluegill length frequency

Silver Lake currently has an abundance of predators that are targeting the very small 3.0-3.5 inch forage. Black and White Crappie are likely the predominant source of predation of 3.0-3.5 inch forage fish. Harvesting all Crappie species will help to improve their growth rates and the growth rates of other predator species. Crappie reproduce at a high rate and currently appear very abundant. This indicates overharvest is very unlikely. Harvesting skinny Largemouth Bass under 13.0 inches will help to improve their overall growth and allow them to grow to larger sizes. A Limit of 5 fish per day under 13.0 inches in length would be beneficial.

While the top end of the Bluegill population may have been hit hard by the fish kill, there is still room for harvest in this population as well.

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Structure and Habitat

Structure and habitat are an extremely important factor to consider no matter what body of water is being managed. Just like anything else, the amount of structure in a lake should be kept in moderation. Too much or too little can lead to predictable scenarios. When very little or no structure is available Largemouth Bass spend too much time roaming around looking for food instead of saving energy and waiting near a piece of structure for food to swim by. The other end of the spectrum allows so many places for Bluegill or other prey species to hide that Largemouth Bass can't efficiently catch their prey. In both scenarios Largemouth Bass tend to have low relative weights even with proper harvest rates in place. In most cases roughly 20% of the shoreline containing structure is sufficient. This number can vary depending on the complexity of the cover.

Adding structure to a pond can be beneficial in a variety of ways. It can be a great way to increase the survival of small juvenile fish. This provides a forage base with a wide range of sizes available for your predators. Another benefit of adding structure to a pond is that they attract fish. Strategically placing structure can give you places that you can reliably catch fish.

Fish structure can take many different forms . Aquatic vegetation, brush piles, Christmas trees, and a variety of man-made structures can all be utilized by fish. All of these different structure types have different benefits that make them good management options. Aquatic vegetation

American Pondweed

Largemouth Bass utilizing a Mossback Root Wad Kit

grows on its own but can be hard to manage at times. Brush piles and Christmas trees are often free, but will break down over time and need to be replaced. Manufactured structure can be costly initially, but will last a lifetime. Variety is important when assessing structure in a body of water. Adding structures of varied complexity and in varied depth can help to provide habitat to a variety of fish at different stages of life.

Silver Lake had very little structure at the time of the survey. Structure mostly took the form of sunken woody structure and docks. Additional structure would create multiple benefits to the fishery in Silver Lake. Increasing the amount of submersed vegetation would improve the habitat within the lake and help to improve water quality. Vegetation can reduce the frequency and intensity of planktonic blooms. Planktonic blooms likely caused the fish kill that occurred in August 2020. Aquatic Control offers native plantings to introduce desirable plant species to Silver Lake. Sinking woody structure in areas that it will not be a nuisance can be an effective way to supplement overall habitat. Artificial structure is a good option to be used as a fish attractor for lot owners that want to improve fishing near their dock.

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Summary/Recommendations

Currently the fishery in Silver Lake has an overabundance of predators. The most important step in improving the fishery will be encouraging the harvest of Black and White Crappie along with Largemouth Bass 13.0 inches and under. Reducing this predation pressure will allow Crappie and Largemouth Bass to grow at a higher rate. Reducing predation on early stages of Bluegill growth will also help to increase the forage base. Harvest of Largemouth Bass can be taken even a step further. Harvest should be focused on the noticeably skinny fish in the population. This will help promote the better genetics and behavioral traits in the lake.

Another priority will be to improve the amount of habitat present. The best way to do this in larger bodies of water is to allow desirable vegetation to grow or to introduce plant species that are desirable. Introducing woody structure such as Christmas trees, shrubs, etc. can also help to supplement this structure, but would need to be done every year or every other year due to deterioration. Artificial structure is a good option for lot owners that want to use them as fish attractors to improve fishing near their shoreline. Of these three options vegetation will be the most efficient. More vegetation present in the lake will also utilize nutrients that otherwise would be used by filamentous and planktonic algae. The recent fish kill was likely due to a large planktonic algae bloom. Implementing algae treatments and encouraging some vegetation growth will greatly decrease the likelihood of large algae blooms becoming problematic.

Restocking from the fish kill does not appear to be absolutely necessary at this time. Without sufficient information on the fish kill it is uncertain what species made up the majority of the kill, but the likely answer is Gizzard Shad. Plankton bloom crashes create low oxygen scenarios that can lower oxygen levels enough to kill fish. Gizzard Shad are very susceptible to any stress event including these oxygen crashes. Other than Gizzard Shad, the larger individuals in different populations are the most likely to go. Bigger bodied fish require more oxygen than the smaller individuals. If any resources are set aside for restocking they should be put towards 3-5 inch Bluegill and 3-4” Redear. Both of these species are in low abundances in their smaller size classes.

Green Sunfish and Yellow Bullhead are two undesirable species found in the lake. Both of these species can survive very low oxygen events. These species should be removed whenever caught, although neither population appears to be have huge negative effects on the lake at this time.

The following recommendations, **listed in order of importance**, will help protect and enhance the fishery in Silver Lake:

1. Encourage vegetation growth for habitat and to utilize excess nutrients in the lake.
2. Largemouth Bass: 5 fish per day under 13.0 inches
3. Black or White Crappie: Encourage harvest—unlimited.
4. Bluegill: 20 fish per day over 6.0 inches
5. Conduct a Standard Fish Survey in 2021 in order to monitor the effects of the above recommendations and assess needs for further management activities.
6. Remove all Green Sunfish and Bullhead when caught.
7. Stock 1,500 Channel Catfish if desired for additional game species to target.

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Other Species Present

Redear Sunfish (*Lepomis microlophus)*

Redear Sunfish are a member of the Centrarchidae(Sunfish) family and have a relative abundance of 3.65% and made up 8.09% of the catch weight. Redear Sunfish are not as fecund (reproductively successful) as Bluegill and rarely become overabundant. They can grow to large sizes and are regularly sought after by pan-fisherman. Redear Sunfish primarily feed on mollusks and invertebrates and have been shown in many cases to reduce levels of parasitism in fish populations.

Redear Sunfish

Hybrid Sunfish

Hybrid Sunfish (Lepomis spp. X Lepomis ssp.)

Hybrid sunfish are members of the Centrarchidae (Sunfish) family and were found with a relative abundance of 0.21% and made up 0.07% of the catch weight. Hybrid sunfish are often a cross between Green Sunfish and Bluegill when stocked from a hatchery. Though this is the most common cross, many different species of sunfish can hybridize if both are present. Hybrid sunfish can be desirable because they can grow to very large sizes quickly, but over time they can cause problems because through generations of reproducing some of the offspring revert back to fish resembling Green Sunfish. Any hybrid sunfish caught should be removed.

Green Sunfish *Lepomis Cyanellus*

Green Sunfish are a member of the Centrarchidae (Sunfish) family and were found to have a relative abundance of 15.61% and made up 6.73% of the catch weight. Green Sunfish can be aggressive and competitive with Bluegill and other species for food and resources therefore they are generally considered an undesirable species. Green Sunfish look superficially like Bluegill. They can easily be distinguished by their larger mouths and more rounded pectoral fins.

Green Sunfish

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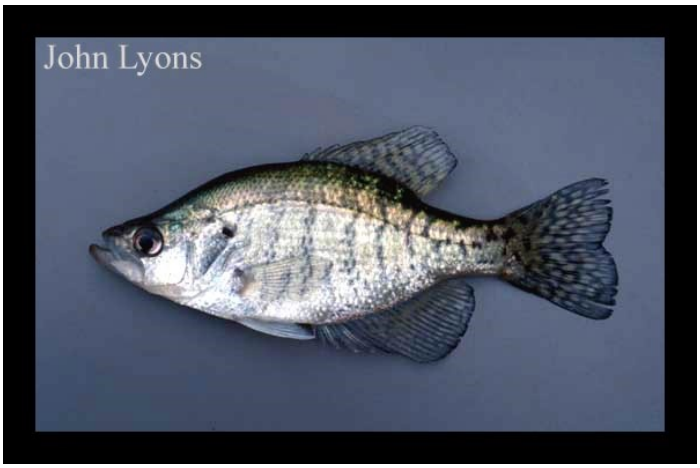
Other Species Present

Black Crappie (*Pomoxis nigromaculatus)*

Black Crappie are members of the Centrarchidae(Sunfish) family. Black Crappie had a relative abundance of 5.34% and made up 5.02% of the catch weight. Black Crappie can be difficult to manage in a pond ecosystem and in many cases are advised against in systems less than 10 acres. This is due to the tendency of Crappie ssp. becoming overabundant and stunted in smaller systems. In situations where Crappie are stocked, Black Crappie are usually the more advisable species due to lower reproduction in comparison to White Crappie. Black Crappie eat a variety of organisms while developing into adulthood, and then as adults tend to only eat small fish. Crappie ssp. tend to sit deeper in the water column and often do not show up well in electrofishing surveys.

Black Crappie



White Crappie

White Crappie (Pomoxis annularis)

White Crappie are members of the Centrarchidae(Sunfish) family and were found to have a relative abundance of 1.64% and made up 0.85% of the catch weight. White Crappie are difficult to manage in a pond setting and are often advised against in systems that are less than 10 acres. This is due to Crappie ssp. tendency to become overabundant and stunted in smaller systems. In situations where Crappie are to be stocked into a smaller body of water, Black Crappie would be the preferred species because they tend to have a lower rate of reproduction. White Crappie eat a variety of organisms while developing into adulthood, and then as adults tend to only eat small fish. Crappie ssp. tend to sit deeper in the water column and often do not show up well in electrofishing surveys.

Yellow Bullhead (*Ameiurus nebulosus*)

Yellow Bullhead is in the Ictaluridae (Catfish) Family and had a relative abundance of 0.21% and made up 0.58% of the catch weight. Yellow Bullhead will eat a variety of food items such as macroinvertebrates, small fish, detritus, etc. Yellow Bullhead are not generally considered a desirable fish species. They can become very abundant and compete with more desirable species. They do not grow very large and are not often used as table fare.

Yellow Bullhead

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Fish Collection Tables

Size Group (IN)	NUMBER	PERCENTAGE	AVERAGE WEIGHT (lbs.)	TOTAL WEIGHT (lbs.)	RELATIVE WEIGHT
BLUEGILL					
<3.0	67	26.80%	0.01	0.67	-
3.0	3	1.20%	0.02	0.05	-
3.5	4	1.60%	0.03	0.12	111
4.0	24	9.60%	0.04	0.96	95
4.5	21	8.40%	0.06	1.22	93
5.0	8	3.20%	0.08	0.61	86
5.5	17	6.80%	0.12	2.01	97
6.0	51	20.40%	0.15	7.65	93
6.5	32	12.80%	0.20	6.46	96
7.0	20	8.00%	0.22	4.48	83
7.5	1	0.40%	0.31	0.31	91
8.5	2	0.80%	0.49	0.97	94
TOTAL	250			24.84	
LARGEMOUTH BASS					
4.0	1	1.25%	0.04	0.04	-
4.5	4	5.00%	0.05	0.19	-
5.0	7	8.75%	0.06	0.44	-
5.5	4	5.00%	0.08	0.30	-
6.0	6	7.50%	0.11	0.65	-
6.5	2	2.50%	0.13	0.26	-
7.5	1	1.25%	0.20	0.20	-
8.0	1	1.25%	0.21	0.21	85
8.5	1	1.25%	0.30	0.30	100
9.5	1	1.25%	0.46	0.46	108
10.0	4	5.00%	0.51	2.05	102
10.5	1	1.25%	0.57	0.57	97
11.0	6	7.50%	0.67	4.01	98
11.5	2	2.50%	0.63	1.25	80
12.0	4	5.00%	0.76	3.02	84
12.5	5	6.25%	0.95	4.73	92
13.0	6	7.50%	1.13	6.79	98
13.5	1	1.25%	0.98	0.98	75
14.0	5	6.25%	1.50	7.50	102
14.5	3	3.75%	1.63	4.88	99
15.0	3	3.75%	1.76	5.28	96
15.5	3	3.75%	1.92	5.77	95
16.0	2	2.50%	2.06	4.11	91
16.5	3	3.75%	2.41	7.23	97
17.0	1	1.25%	2.72	2.72	100
17.5	1	1.25%	3.01	3.01	100
18.0	1	1.25%	3.18	3.18	97
19.5	1	1.25%	3.74	3.74	96
TOTAL	80			73.87	

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Fish Collection Tables

BLACK CRAPPIE

4.0	1	3.85%	0.04	0.04
5.5	1	3.85%	0.08	0.08
6.0	5	19.23%	0.10	0.50
6.5	3	11.54%	0.15	0.44
7.0	1	3.85%	0.17	0.17
7.5	1	3.85%	0.23	0.23
8.0	5	19.23%	0.25	1.25
8.5	5	19.23%	0.29	1.46
9.0	1	3.85%	0.36	0.36
10.0	1	3.85%	0.50	0.50
10.5	1	3.85%	0.54	0.54
13.5	1	3.85%	1.23	1.23
TOTAL	26			6.80

GIZZARD SHAD

4.5	1	3.57%	0.030	0.03
5.0	1	3.57%	0.050	0.05
5.5	8	28.57%	0.048	0.10
6.0	5	17.86%	0.076	0.38
6.5	4	14.29%	0.088	0.35
7.0	3	10.71%	0.140	0.42
7.5	1	3.57%	0.140	0.14
14.5	3	10.71%	1.260	3.78
15.0	1	3.57%	1.060	1.06
16.0	1	3.57%	1.360	1.36
TOTAL	28			7.67

REDEAR SUNFISH

8.5	3	17.65%	0.46	1.37
9.0	5	29.41%	0.53	2.65
9.5	4	23.53%	0.71	2.83
10.0	4	23.53%	0.76	3.05
10.5	1	5.88%	1.00	1.00
TOTAL	17			10.90

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GREEN SUNFISH

3.0	3	3.95%	0.02	0.07
3.5	4	5.26%	0.03	0.11
4.0	5	6.58%	0.03	0.17
4.5	16	21.05%	0.06	0.90
5.0	13	17.11%	0.09	1.14
5.5	6	7.89%	0.11	0.64
6.0	12	15.79%	0.16	1.90
6.5	5	6.58%	0.18	0.89
7.0	7	9.21%	0.24	1.67
7.5	4	5.26%	0.29	1.17
8.5	1	1.32%	0.47	0.47
TOTAL	76			9.12

WHITE CRAPPIE

4.0	1	12.50%	0.04	0.04
4.5	1	12.50%	0.04	0.04
6.5	1	12.50%	0.14	0.14
7.0	1	12.50%	0.13	0.13
7.5	3	37.50%	0.18	0.53
8.0	1	12.50%	0.27	0.27
TOTAL	8			1.15

HYBRID SUNFISH

5.0	1	100.00%	0.09	0.09
TOTAL	1			0.09

YELLOW BULLHEAD

11.5	1	100.00%	0.79	0.79
TOTAL	1			0.79

Species	Scientific Name	N	%N	Size Range (in.)	Total weight (lbs.)	%Wt.	N/hr.
Bluegill	*Lepomis macrochirus*	250	51.33%	<3.0-8.5	24.84	18.33%	250
Largemouth Bass	*Micropterus salmoides*	80	16.43%	4.0-19.0	73.87	54.51%	80
Green Sunfish	*Lepomis cyanellus*	76	15.61%	3.0-8.5	9.12	6.73%	76
Gizzard Shad	*Dorosoma cepedianum*	28	5.75%	4.5-16.0	7.95	5.87%	28
Black Crappie	*Pomoxis nigromaculatus*	26	5.34%	4.0-13.5	6.80	5.02%	26
Redear Sunfish	*Lepomis microlophus*	17	3.49%	8.5-10.5	10.90	8.04%	17
White Crappie	*Pomoxis annularis*	8	1.64%	4.0-8.0	1.15	0.85%	8
Hybrid Sunfish	*Lepomis ssp. X Lepomis ssp.*	1	0.21%	5	0.09	0.07%	1
Yellow Bullhead	*Ameiurus natalis*	1	0.21%	11.5	0.79	0.58%	1
Total		487			135.51		

N = number of individuals
%N = percent number of a species as compared to the total number of fish collected
%Wt = percent weight of a species as compared to the total weight of all fish collected
N/hr. = catch rate of species (number of fish of a species collected per hour of electrofishing effort)