FISH SURVEY REPORT

Indian Lake Report

Prepared for: Indian Lake Improvement Association

Indianapolis, IN 46236

July 2021

AQUATIC CONTROL Est. 1966
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418 W. State Rd, 258
Seymour, IN 47274
www.aquaticcontrol.com

Introduction

A survey of the fish community and other physical, biological, and chemical factors directly affecting the fish community was completed at Indian Lake on June 8, 2021. 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 lev - els. 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	57	-
Temperature (F)	78.1	-
Dissolved Oxygen (ppm)	12.6	5.0+
pH	8.28	6-9
Alkalinity (ppm)	162	20+
Total Hardness (ppm)	198	20+
Total Phosphorus (ppm)	0.06	0.01-0.09
Total Nitrogen (ppm)	1.01	1.0-10.0

The results of selected physio-chemical parameters from Indian Lake are presented in Table 1. Dissolved oxygen, pH, alkalinity, and hardness levels were all in acceptable ranges. Water temperature slowly decreases as depth increases. Dissolved oxygen is sufficient to only three feet. The nitrogen to phosphorus ratio is 16:1 on the surface. This indicates there is potential for abundant blue-green algae growth during warmer months of the year. Overall, water quality parameters indicate Indian Lake appears to be capable of supporting a healthy fish population.

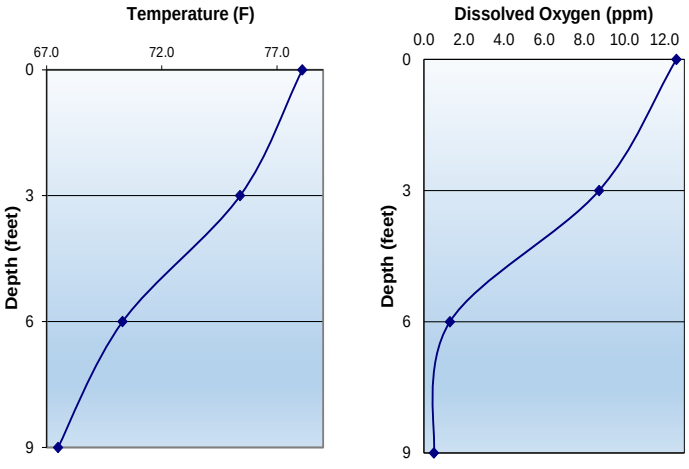

Figure 1. Temperature and Dissolved Oxygen profiles.

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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 237 fish weighing 214.47 pounds and representing nine species was collected from Indian 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.

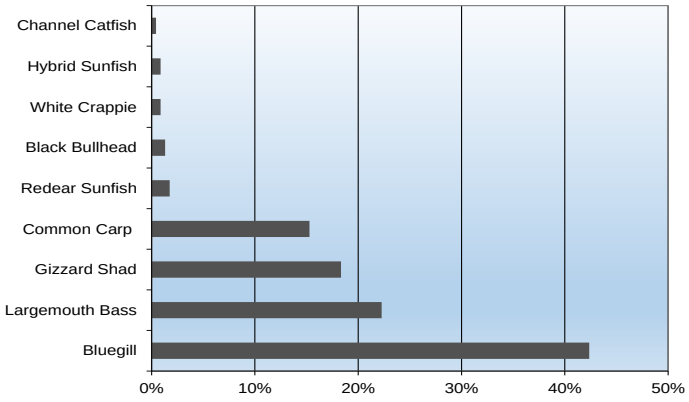
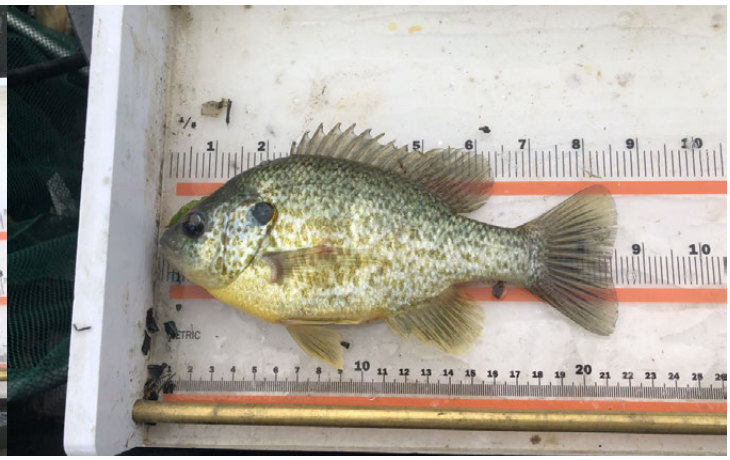


Figure 2. Relative abundance of species collected.

Largest Largemouth Bass caught during survey.



Redear 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

Indian Lake —Bluegill

Bluegill ranged in size from less than 3.0 to 7.5 inches (Figure 3). Approximately 24% of Bluegill collected were 3.0 inches or less, indicating reproduction did occur in 2020. There was a large number of Bluegill collected 6.0 inches and larger. This led to a proportional stock density (PSD) of 57, 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 Indian Lake ranged from 80 to 118 (Figure 4). Relative weights appear to decrease with size.

The Bluegill population appears to show lower competition at smaller size classes and higher competition among adult size classes. Due to very muddy water conditions the smaller Bluegill may have been slightly under represented during the survey, but there appears to be a dip in the prevalence of 3.5-4.0 inch Bluegill. This is commonly seen in predator heavy systems, but Indian Lake does not appear to have an overabundance of predators. The presence of Common Carp could be impacting spawning success and demonstrating a similar pattern in the data. Once Bluegill reach 5.5 inches survival appears to increase dramatically. As Bluegill stack up near 6.0 inches growth is likely slowing down, leaving the top end of the Bluegill around 7.5 inches.

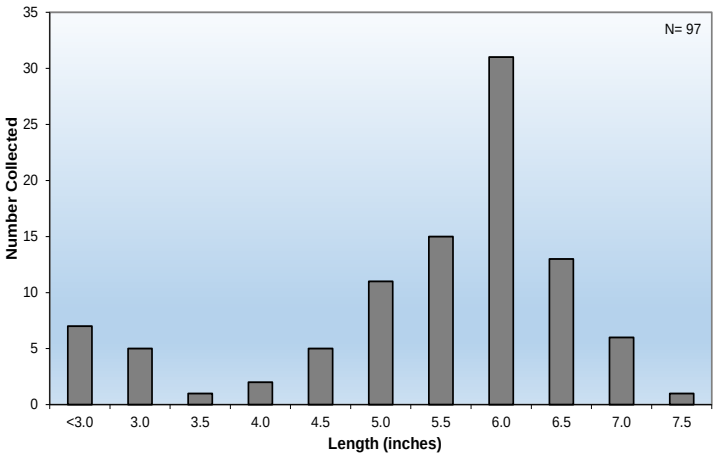

Figure 3. Length frequency distribution of Bluegill

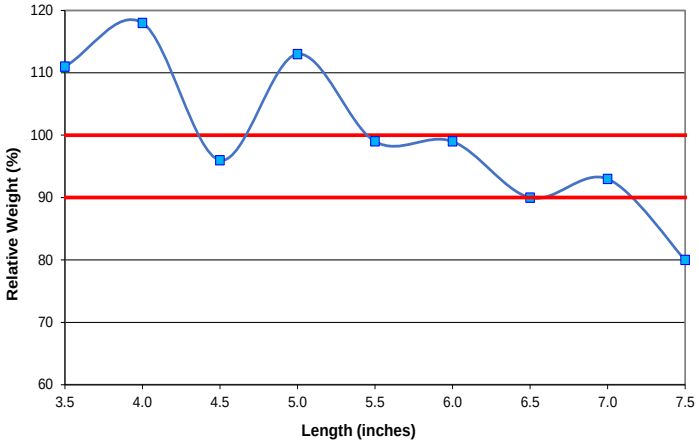

Figure 4. Bluegill relative weights

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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.

Largemouth Bass

Indian Lake —Largemouth Bass

A total of 51 Largemouth Bass ranging in size from less than 3.0 to 17.5 inches was collected (Figure 5). Approximately 22% of Largemouth Bass collected were less than 7.0 inches. This indicates reproduction and recruitment is occurring, but 16% of these were young-of-year. The distribution of Largemouth Bass is spread across several size classes, but is more prevalent above 12.0 inches. This led to a PSD of 78 for Largemouth Bass, which is above the desired range of 40-60. Relative weights ranged from 87 to 120 (Figure 6). The majority of relative weights fell above the 90 mark. This is an indicator that most Largemouth Bass are finding enough food.

The population of Largemouth Bass at Indian Lake appear to be doing well. Reproduction was successful, individuals are demonstrating good relative weights, and individuals were collected up to 17.5 inches.

Recruitment is likely low or inconsistent from year to year due to abundant Bluegill, Gizzard Shad, and Common Carp. All three species can contribute to poor Largemouth Bass recruitment in different ways. This has kept the Largemouth Bass population in check with little harvest from anglers. The lower population level is proving to result in good body condition (relative weight) across all size classes.

Black grub was present in the majority of Largemouth Bass collected. This is a common freshwater parasite known to rarely kill its host, but will take away from growth. These parasites were present in several species collected during the survey.

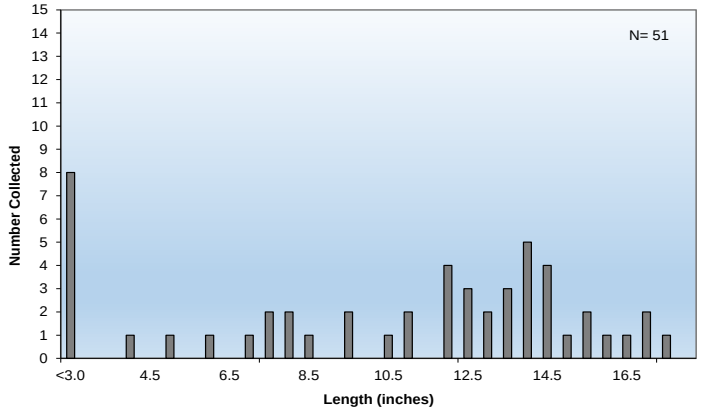

Figure 5. Length frequency distribution of Largemouth Bass

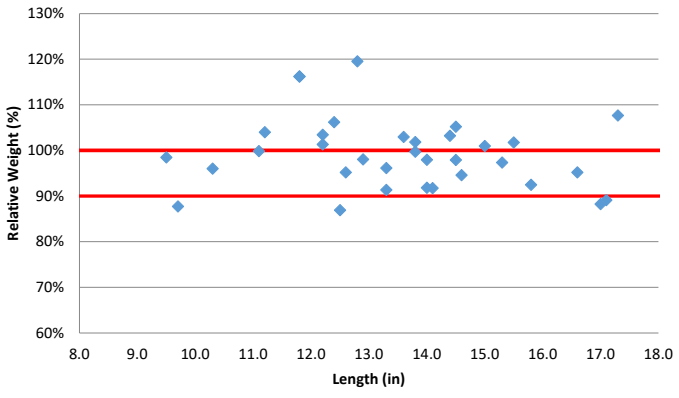

Figure 6. Largemouth Bass relative weights

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Predator-Prey Relationship (Gizzard Shad)

Gizzard Shad were also found in Lake Kesslerwood West. 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.

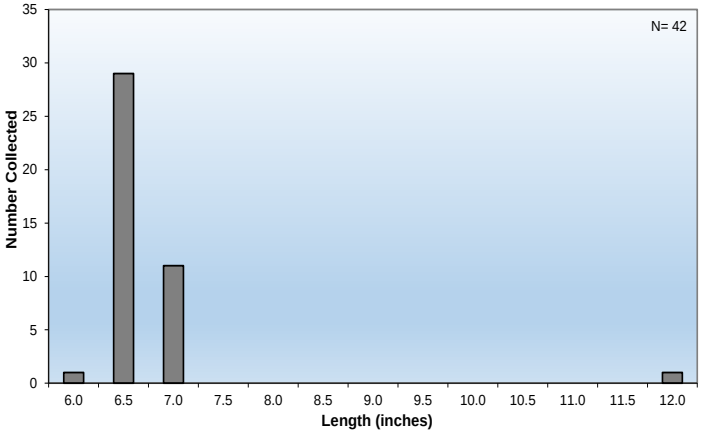

Figure 7. Length frequency distribution of Gizzard Shad

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.

Indian Lake—Gizzard Shad

Indian Lake contains a large Gizzard Shad population. This species was observed in larger number than what the data demonstrates and was found in all areas of the lake. The population at this time mostly consists of smaller individuals in the 6.0-7.0 inch range. This allows the largest predators in the lake to utilize them. One 12.0 inch Gizzard Shad was collected. Once Gizzard Shad reach this size they become useless biomass that can not be transferred up the food chain. The Gizzard Shad population appears to be large enough to support an additional predator if desired.

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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.

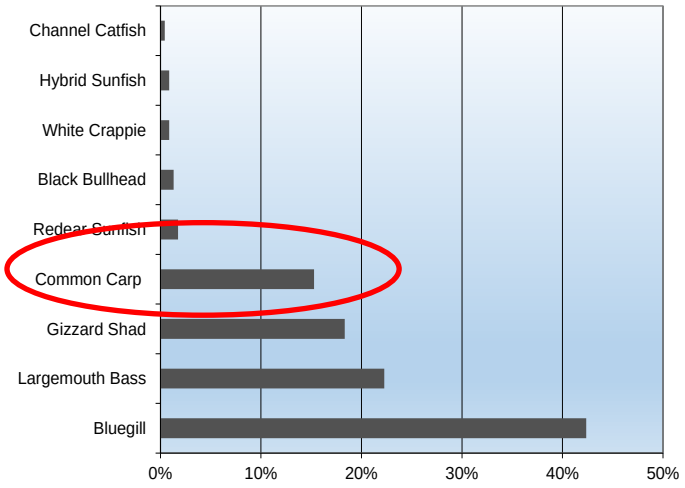

Figure 8. Species Frequency in Survey

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.

Currently, Indian Lake has a slightly over abundant adult Bluegill population. Anglers can be encouraged to harvest Bluegill around the 6.0 inch size class.

Indian Lake also contains multiple undesirable species such as Gizzard Shad, Common Carp, and Black Bullhead. Black Bullhead do not appear to be in great abundance, but anglers should remove all that are caught. Gizzard Shad are extremely numerous and will always be in the lake. Common Carp appear to be numerous as well. The creek may continue to supply some Common Carp to the lake, but an impact could potentially be made through electrofishing removals during the spawning season. The changes in the fishery following a significant reduction of Common Carp are unpredictable.

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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.

Indian Lake contains a small diversity of habitat around the shoreline of the lake. Docks and Water Willow consist of the majority of the habitat. Some fallen trees are also present in the lake. Water Willow provides great sanctuary areas for young fish, while docks and fallen trees provide ambush points for predators.

Indian Lake is extremely shallow across the entire lake, with the exception of one small area near the dam. If established, certain species of vegetation could grow across the majority of the lake.

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Summary/Recommendations

Indian Lake contains a diverse fish assemblage containing quality Largemouth Bass, Redear, and Channel Catfish. Other game fish present include Bluegill and White Crappie. Several undesirable species are present in Indian Lake. Gizzard Shad, Common Carp, and Black Bullhead are all species that can have a negative impact on a fishery and are all present in Indian Lake.

The habitat in Indian Lake consists of Water Willow, docks, and laydowns. Water Willow is the most important habitat type in the lake. This shallow water vegetation is providing sanctuary areas for small fish. Reproduction is likely a struggle in Indian lake due to the amount of sediment filled in throughout the lake. Sanctuary areas provided by the Water Willow is likely maximizing the reproduction and recruitment for several game species. Water Willow is also utilizing a large amount of nutrients each year. Without those plants pulling nutrients from the sediment the lake would likely have more planktonic algae or filamentous algae than it currently does throughout the warmer months of the year.

Harvest is permissible for multiple species in Indian Lake. The Bluegill population is overabundant and experiencing significant competition. Anglers can be encouraged to harvest Bluegill. White Crappie were collected in low number, but crappie species are typically under represented during electrofishing. White Crappie do not successfully spawn every year, but when conditions are conducive they can produce extremely large year classes. This creates undulating and cyclical populations that can often withstand significant harvest.

Both Largemouth Bass and Redear should be considered catch and release species. The Largemouth Bass population is approaching the need for supplemental stockings. Largemouth Bass are in good body condition across all size classes. This is in part due to the population level. Largemouth Bass harvest is only required when Largemouth Bass recruitment greatly exceeds harvest of anglers. That is not the case at this time in Indian Lake. The Redear population appears to be very low in number. Almost all species collected during the survey contained the fish parasite known as black grub. Redear can help with this issue by eliminating part of the life cycle of these parasites, snails. The presence of black grub in several fish collected is an indicator of the amount of food Redear have available. This is a food source not being utilized by other fish species. Redear can be expected to grow well and this will add to the current forage base for Largemouth Bass and White Crappie.

Additional stocking consideration can be put towards Hybrid Striped Bass. Gizzard Shad are extremely numerous in Indian Lake. Gizzard Shad are a pelagic fish that do not relate to any certain habitat. Hybrid Striped Bass are a pelagic predator that also swim in open water looking for prey. Water quality analysis and the forage base indicate the lake can support a small population of Hybrid Striped Bass, but due to the extremely shallow and turbid water a stocking should be looked at as experimental as growth rates are hard to predict. Hybrid Striped Bass will never eliminate or significantly reduce the Gizzard Shad population in the lake. A stocking should only occur to provide anglers an additional species to target and to attempt to utilize a largely wasted source of biomass in the Gizzard Shad population.

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Indian Lake is an aging reservoir that has likely filled in over the years. The filled in sediment also brings in more and more nutrients. As this lake ages planktonic algae, filamentous algae, or submergent vegetation all have potential to become problematic.

Concern was raised on the presence of Double Crested Cormorants at Indian Lake. Gizzard Shad were not collected in the highest abundance, but are likely the most abundant species in the lake. Cormorants, and other fish eating birds, are likely eating Gizzard Shad more than any other species. It should be noted, this is all speculation based on one survey that did not include any data from the Cormorants at Indian Lake. Indian Lake is essentially a perfect lake for Cormorants to feed at due to the shallow water. They can dive to great depths if needed, but fish are likely easier to catch in the shallow water. Based on the parameters of this survey there is no clear evidence of these birds having a major impact on the lake.

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

1. Largemouth Bass Bag Limit: Catch and Release
2. Bluegill Bag Limit: 25 per day
3. Redear Bag Limit: Catch and Release
4. White Crappie Bag Limit: Unlimited
5. Remove all Common Carp when caught.
6. Remove all Hybrid Sunfish when caught.
7. Remove all Black Bullhead when caught.
8. Consult with Aquatic Control Biologist before stocking.
    - Stock up to 8,500 3-4” Redear split over 2-3 years
    - Hybrid Striped Bass could be experimented with if there is angler interest

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Other Species Present

Common Carp (*Cyprinus carpio*)

Common Carp is in the Cyprinidae (Minnow) Family and had a relative abundance of 15.28% and made up 65.95% of the catch weight. Common Carp are a non-native, invasive species that can cause several problems. They consume a lot of food resources and tend to uproot aquatic vegetation, reducing water quality. Common Carp are also known to have detrimental effects on reproduction of many fish species by damaging spawning grounds. Common Carp should be removed when caught in order to reduce their impact on the fishery.

Common Carp

Redear Sunfish

Redear Sunfish (*Lepomis microlophus*)

Redear Sunfish are a member of the Centrarchidae(Sunfish) family and have a relative abundance of 1.75% and made up 0.71% 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.

Black Bullhead (*Ameiurus melas*)

Black Bullhead is in the Ictaluridae (Catfish) Family and had a relative abundance of 1.31% and made up 1.10% of the catch weight. Brown Bullhead will eat a variety of food items such as macroinvertebrates, small fish, detritus, etc. Brown 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.

Black Bullhead

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Other Species Present

White Crappie (Pomoxis annularis)

White Crappie are members of the Centrarchidae(Sunfish) family and were found to have a relative abundance of 0.87% and made up 0.15% 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 White Crappie 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. White Crappie tend to sit deeper in the water column and often do not show up will in electrofishing

White Crappie

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 0.87% and made up 0.11% 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.

Channel Catfish *Ictalurus punctatus*

Channel Catfish are members of the Ictaluridae family and were found to have a relative abundance of 0.44% and made up 2.27% of the catch rate. Channel Catfish can be problematic to a fishery if overabundant, but in small or moderate abundances, rarely cause problems. They are often desirable sportfish and can be good table fare. Channel Catfish are typically not represented very well in electrofishing surveys, and can often be more abundant than the data shows. Channel Catfish often do not have a high level of natural reproduction in small ponds and some lakes, and in many cases need to be stocked if desired.

Channel Catfish

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Fish Collection Tables

SIZE GROUP (IN)	NUMBER	PERCENTAGE	AVERAGE WEIGHT (lbs.)	TOTAL WEIGHT (lbs.)	WS	RELATIVE WEIGHT
BLUEGILL						
<3.0	7	7.22%	0.01	0.07	-	-
3.0	5	5.15%	0.02	0.10	0.02	-
3.5	1	1.03%	0.03	0.03	0.03	111
4.0	2	2.06%	0.05	0.10	0.04	118
4.5	5	5.15%	0.06	0.30	0.06	96
5.0	11	11.34%	0.10	1.10	0.09	113
5.5	15	15.46%	0.12	1.80	0.12	99
6.0	31	31.96%	0.16	4.96	0.16	99
6.5	13	13.40%	0.19	2.47	0.21	90
7.0	6	6.19%	0.25	1.50	0.27	93
7.5	1	1.03%	0.27	0.27	0.34	80
TOTAL	97			12.70		
LARGEMOUTH BASS						
<3.0	8	15.69%	0.01	0.08	-	-
4.0	1	1.96%	0.02	0.02	0.03	-
5.0	1	1.96%	0.04	0.04	0.06	-
6.0	1	1.96%	0.10	0.10	0.10	-
7.0	1	1.96%	0.15	0.15	0.16	-
7.5	2	3.92%	0.21	0.41	0.20	-
8.0	2	3.92%	0.25	0.49	0.25	99
8.5	1	1.96%	0.30	0.30	0.30	100
9.5	2	3.92%	0.41	0.82	0.43	96
10.5	1	1.96%	0.53	0.53	0.59	90
11.0	2	3.92%	0.73	1.45	0.68	106
12.0	4	7.84%	0.98	3.92	0.90	109
12.5	3	5.88%	0.98	2.95	1.02	96
13.0	2	3.92%	1.22	2.43	1.16	105
13.5	3	5.88%	1.24	3.72	1.31	95
14.0	5	9.80%	1.40	7.00	1.47	95
14.5	4	7.84%	1.65	6.59	1.64	100
15.0	1	1.96%	1.85	1.85	1.83	101
15.5	2	3.92%	1.99	3.97	2.03	98
16.0	1	1.96%	2.00	2.00	2.25	89
16.5	1	1.96%	2.41	2.41	2.48	97
17.0	2	3.92%	2.45	4.89	2.73	90
17.5	1	1.96%	3.11	3.11	3.00	104
TOTAL	51			49.23		

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418 W. State Rd, 258
Seymour, IN 47274
www.aquaticcontrol.com

SIZE GROUP (IN)	NUMBER	PERCENTAGE	AVERAGE WEIGHT (lbs.)	TOTAL WEIGHT (lbs.)
GIZZARD SHAD				
6.0	1	2.38%	0.09	0.09
6.5	29	69.05%	0.11	3.19
7.0	11	26.19%	0.13	1.43
12.0	1	2.38%	0.58	0.58
TOTAL	42			5.29
COMMON CARP				
14.0	1	2.44%	1.23	1.23
15.5	1	2.44%	1.96	1.96
16.0	1	2.44%	1.50	1.50
17.5	1	2.44%	2.00	2.00
18.0	1	2.44%	2.00	2.00
19.0	1	2.44%	2.25	2.25
19.5	2	4.88%	2.75	5.50
20.0	3	7.32%	3.00	9.00
20.5	4	9.76%	3.17	12.68
21.0	2	4.88%	3.63	7.26
21.5	4	9.76%	3.75	15.00
22.0	2	4.88%	4.13	8.26
22.5	1	2.44%	4.50	4.50
23.0	1	2.44%	4.25	4.25
23.5	1	2.44%	4.75	4.75
24.0	4	9.76%	5.25	21.00
24.5	1	2.44%	6.00	6.00
25.0	2	4.88%	6.13	12.26
26.5	1	2.44%	7.50	7.50
27.5	1	2.44%	9.25	9.25
TOTAL	41			138.15
REDEAR SUNFISH				
4.5	1	25.00%	0.07	0.07
7.5	1	25.00%	0.28	0.28
8.5	1	25.00%	0.40	0.40
10.5	1	25.00%	0.74	0.74
TOTAL	4			1.49
BLACK BULLHEADS				
8.5	1	33.33%	0.32	0.32
12.0	1	33.33%	0.98	0.98
12.5	1	33.33%	1.03	1.03
TOTAL	3			2.33

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SIZE GROUP (IN)	NUMBER	PERCENTAGE	AVERAGE WEIGHT (lbs.)	TOTAL WEIGHT (lbs.)
WHITE CRAPPIE				
7.0	1	50.00%	0.15	0.15
7.5	1	50.00%	0.16	0.16
TOTAL	2			0.31
HYBRID SUNFISH				
5.0	1	50.00%	0.09	0.09
5.5	1	50.00%	0.13	0.13
TOTAL	2			0.22
CHANNEL CATFISH				
22.5	1	100.00%	4.76	4.76
TOTAL	1			4.76

Species	Scientific Name	N	%N	Size Range (in.)	Total weight (lbs.)	%Wt.	N/hr.
Bluegill	*Lepomis macrochirus*	97	42.36%	<3.0-7.5	12.70	6.06%	105
Largemouth Bass	*Micropterus salmoides*	51	22.27%	<3.0-17.5	49.23	23.50%	55
Gizzard Shad	*Dorosoma cepedianum*	42	18.34%	6.0-12.0	5.29	2.53%	46
Common Carp	*Cyprinus carpio*	35	15.28%	14.0-27.5	138.15	65.95%	38
Redear Sunfish	*Lepomis microlophus*	4	1.75%	4.5-10.5	1.49	0.71%	4
Black Bullhead	*Ameiurus melas*	3	1.31%	8.5-12.5	2.30	1.10%	3
White Crappie	*Pomoxis annularis*	2	0.87%	7.0-7.5	0.31	0.15%	2
Hybrid Sunfish	*Lepomis ssp x Lepomis ssp*	2	0.87%	5.0-5.5	0.24	0.11%	2
Channel Catfish	*Ictalurus punctatus*	1	0.44%	22.5	4.76	2.27%	1
Total		237			214.47		

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)