

LAKE CHEROKEE

Survey Results and Management Recommendations

01-2021

LOCHOW RANCH
POND AND LAKE MANAGEMENT

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Introduction

Thank you for giving Lochow Ranch Pond and Lake Management Services the opportunity to manage your fishery resources this year. We are pleased to report the results of our annual survey and an overview of management recommendations for the coming year. As always, the goals of our recommendations are to manage for a well-balanced fishery that provides fishermen with a variety of fishing opportunities.

General Lake Observations

At the time of the survey, the lake was at full pool. While the shallow waters above Silvey Bridge remain heavily vegetated, overall growth remains well under control. Large areas of open water remain above the bridge throughout the growing season, while open water predominates below the bridge. Excess growth has been treated as needed over the course of the year through spot treatments. Vegetation noted over the course of the year is listed in the table below. Cover continues to consist of aging timber along with docks, vegetation, riprap and growing amounts of artificial and natural cover that have been added to the lake by the fishing club.

Vegetation Chart

SPECIES	TYPE
Chara	Algae
Filamentous Algae	Algae
Southern Naiad	Submerged
Coontail	Submerged
Variable-leaf Watermilfoil	Submerged
American Pondweed	Submerged
Variable-leaf Pondweed	Submerged
Hydrilla	Submerged
Cow-lily	Emergent
White Waterlily	Emergent
Lizard's Tail	Emergent
Cattails	Emergent
Southern Wild Rice	Emergent
Maiden Cane	Emergent
Waterwillow	Emergent
Slender Spikerush	Emergent
Rushes	Emergent
Smartweed	Emergent
American Lotus	Emergent
Arrowhead	Emergent
Pennywort	Emergent
Waterprimrose	Emergent
Pickerelweed	Emergent
Buttonbush	Emergent
Weeping willow	Emergent
Bald Cypress	Emergent
Elephant Ear	Emergent
Parrotfeather	Emergent
Alligatorweed	Emergent

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Survey Results

Electro-fishing surveys are one of the most effective lake-management tools available today. This type of sampling is an accurate way to determine the species and amounts of fish in a lake. With the information gathered during our electro-fishing survey, we calculate the relative abundance and condition of all species. We also determine the overall health of the largemouth bass fishery by taking length and weight measurements on a sample of fish. While this sampling method does not measure and analyze every fish in your pond or lake, it is the best way to get an accurate snapshot of how the fishery as a whole is doing.

Largemouth Bass

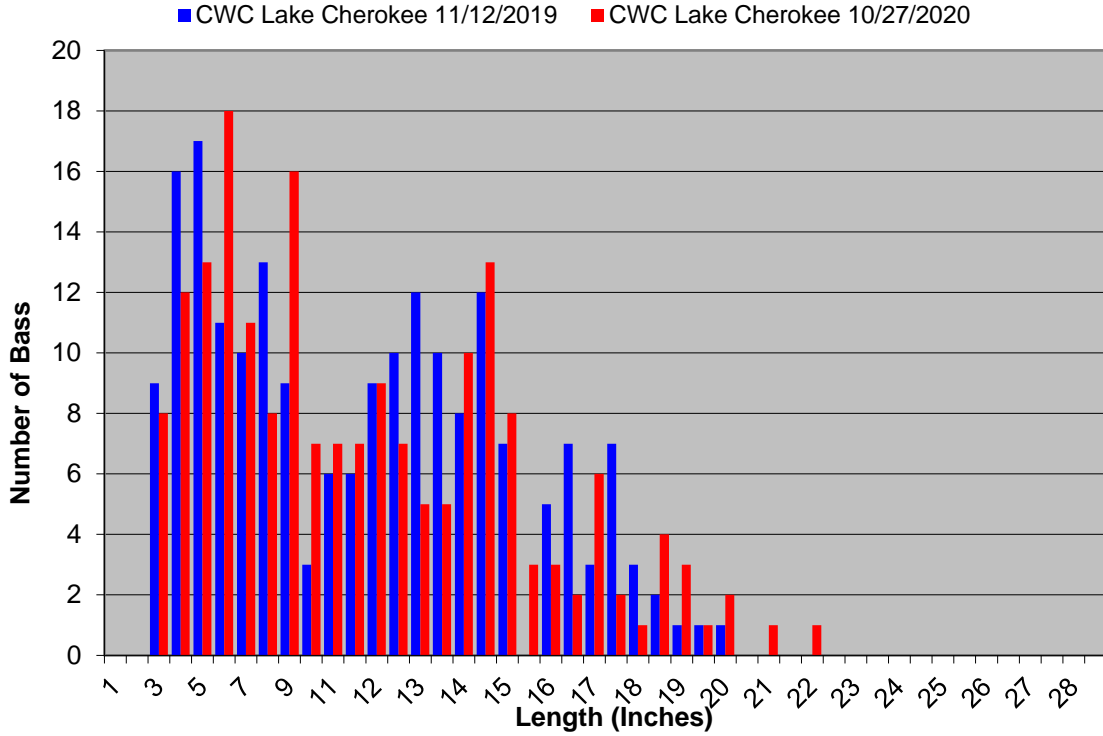
Because largemouth bass are the most popular sport fish in Lake Cherokee, much of our management effort is geared toward quickly growing these bass to their greatest potential. When managed properly, bass in lakes managed by Lochow Ranch Pond and Lake Management grow, on average, 2 pounds per year. We have seen some bass grow up to 4 pounds in a single year. Bass have incredible appetites and require 10 pounds of live forage (fish) to grow 1 pound. For this reason, adequate forage diversity is important to maintain a healthy bass population. Not only are the number of forage species and number of individual fish important, but the size of the available forage is also important. This being said, we are well aware that various fishermen target a variety of sportfish throughout the lake and so management efforts will also take into account those species.

The first graph shows the number of bass sampled in each inch class. This information is important because it allows us to determine whether the bass population is well balanced or stunted at certain sizes.

The second graph shows the relative weight of the sampled bass. These data are found by comparing the weight of the sampled bass to the weight of a healthy, well-fed bass of the same length. These data are significant because they show the relative health of the sampled fish as a percentage. With this information, we can determine which sizes of bass lack forage or are overpopulated. These two graphs are shown for all lakes that were surveyed and in which bass were weighed and measured.

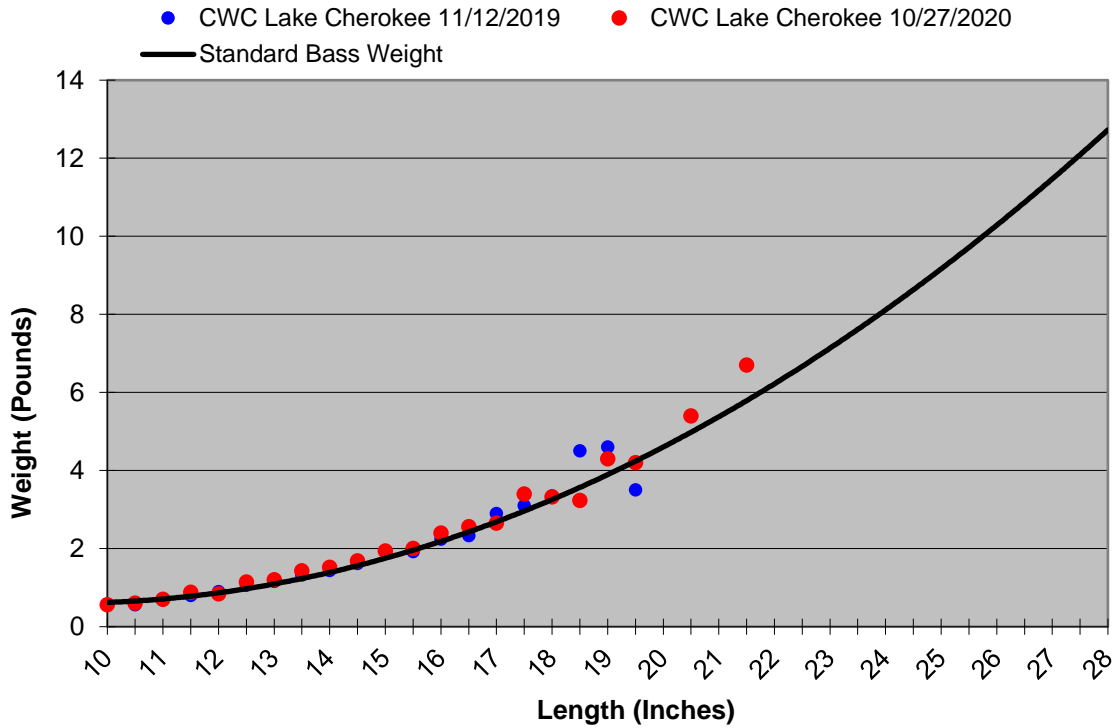
Length Distribution

Bass Distribution by Length



Relative Weight

Bass Relative Weight



Forage

Keep in mind that when managing a pond or lake for largemouth bass and other sportfish, we are actually managing for the forage those sportfish will eat, to provide the greatest amount of forage possible with the greatest range of sizes. Sportfish should eat the largest meal they can and will expend less energy when chasing one large forage fish than when chasing many small forage fish. The energy saved is converted directly into growth. The following charts show the types of forage fish found along with comparative sizes and relative abundance.

Forage Chart

Forage Species Relative Abundance					
<i>Species</i>	<i>Fry</i>	<i>Small</i>	<i>Medium</i>	<i>Large</i>	<i>Jumbo</i>
Bluegill		Common	Occasional	Common	Occasional
Redear Sunfish		Occasional	Common	Common	Common
Redbreast Sunfish			Occasional	Occasional	
Warmouth			Occasional	Occasional	Occasional
Longear Sunfish		Occasional	Occasional		
Red-Spotted Sunfish			Occasional	Occasional	
Bantam Sunfish				Occasional	
Gizzard Shad			Occasional	Occasional	
Threadfin Shad		Common	Common		
Silversides	Common	Common	Common		
Golden Topminnow			Occasional	Occasional	

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Other Species

When managing sportfish, the bass and forage fish are not the only important items. Other species can have a positive or negative impact on one another. In most cases, occasional occurrences of certain species do not greatly affect target species though large populations of any one fish will impact the lake community as a whole. The chart below indicates species presence and relative size abundance of each.

Other Species Chart

Other Species Relative Abundance					
<i>Species</i>	<i>Fry</i>	<i>Small</i>	<i>Medium</i>	<i>Large</i>	<i>Jumbo</i>
Crappie		Common	Occasional	Occasional	
Bowfin			Common	Common	Occasional
Chain Pickerel			Occasional	Occasional	
Spotted Gar			Occasional	Common	Occasional
Lake Chubsucker		Occasional	Occasional	Occasional	Occasional
Spotted Sucker				Occasional	Occasional
Channel Catfish				Occasional	

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Fisheries Discussion

Overall the lake is in fair condition. Fish densities were good, being in line with historic data. Populations of large fish in particular remain low, though the RSD 18 (proportion of the stock density measuring 18" or more in length) has risen by 6% over the past year. Generally, predator control, modified bag limits, crappie/Channel Catfish/Florida bass stockings, and boosting forage through supplemental fish food and habitat should continue to serve to boost forage and sportfish production to improve fishermen experience. Supplemental forage stockings may also be employed to further boost the forage base by maintaining alternative forage populations like threadfin shad.

During the electrofishing survey 193 Largemouth Bass were collected, on average the bass were five percent above target weights when compared to standard weights. The largest bass measured 21.5 inches and weighed 6.7 pounds. Most bass measured less than 12 inches in length though the proportional number of small fish did drop slightly. Electrofishing results indicate that the bass population has gained a larger proportion of large bass though numbers remain lower than is desired. Fish predators are the most likely cause of the current trend and control measures may already be having a positive impact on the bass. Continued predator control along with selective angler harvest will seek to continue to build the population of those larger fish over the next few years.

In addition to modifying harvest recommendations and controlling predators, non-gamefish will continue to be harvested on a regular basis to limit competition with largemouth bass. Towards this end we harvest as many spotted gar and bowfin as we can during electrofishing surveys.

The forage fish population was at or above average consisting of a wide variety of species with good numbers of forage in the 2-6-inch range. The predominate forage species were bluegill, redear sunfish, and threadfin shad. It was noted that redbreast sunfish populations had noticeably fallen. Because of the sheer size of Lake Cherokee it is extraordinarily difficult to micromanage. As mentioned last year, the simplest way to increase the productivity of Lake Cherokee is for individual shareholders to install fish feeders and to feed fish with a high-quality fish feed to boost the production of bluegill and redbreast sunfish. As a reminder Warmouth and Green Sunfish persist in the lake and should be harvested when caught as they compete with sportfish for available forage.

Fish feeding is a very cost effective and safe way to boost bluegill production in particular. Feeding quality high-protein pelleted feed to the current population of bluegills will not only help them grow faster, but also encourage much higher reproductive success. Research has shown that feeding a high-protein pelleted fish food can increase production in a small lake by 800 percent or more. When using pelleted feed, it is important to be consistent with amounts and timing of applied feed for fish to maximize growth rates. Because of this, automatic fish feeders are generally preferred. Supplemental feeding should always be done with quality feed. While this feed does cost more per pound than bargain products managers can expect to get more growth per dollar from that quality feed. Lochow Ranch Pond and lake management manufactures a 46-percent protein feed specially formulated for accelerated fish growth in intensively managed lakes. This is a proprietary pellet offering a custom-blended high-protein feed specifically engineered for maximum growth rates in private waters. While maximal feeding rates for a lake of this size are not reasonable to attain, the more feeders there are the more forage you will be able to sustain. Feed purchased by the pallet and stored in a dry location will keep for 7 to 8 months. It cost roughly 1/20 as much to grow bluegill on feed as opposed to purchasing those fish from a hatchery.

A water sample was taken during our survey and indicates that water quality is as good as it has ever been on a consistent basis. The reason for this better water quality is likely related to better liming practices in ag production in the Lake Cherokee watershed.

Over the last few years damage that river otters do to managed fisheries is on the rise or at least becoming increasingly apparent across the state. Otters consume an average of up to 14 pounds of fish daily. Otters target large fish as these fish offer otters a better return on their fishing efforts than do small fish. In lake after lake, we are seeing decreasing bass populations but especially observing decreasing populations of bass over 18". The lack of large bass in this year's electrofishing survey indicates that otter predation is still quite

substantial on Lake Cherokee. Continue to work to mitigate otter predation and we'll continue to report back on progress.

Habitat management consists in manipulating cover to promote the proper balance between forage and predatory fish. Cover in the form of vegetation remained well under control at the time of the survey, though increased levels of submersed growth indicate that it is once again time to stock grass carp. Stockings will continue to be accompanied with targeted spot treatments to ensure that growth remains in check. Based on past experiences, a stocking of 100 grass carp is in order at this time. Non-living cover remains substantial, though we do recommend that fishermen continue to add to the lake over time. Artificial cover provides a more snag-resistant target for young fishermen and would remain a great option around individual docks. Large scale installations will likely be best achieved with natural cover.

Management Recommendations

Our recommendations are summarized and listed in priority of importance in the following table. Management activities marked with an asterisk are of utmost importance and should be addressed before any other management occurs. We repeated our forage pond recommendations for last year at the end of this year's report. Please let us know if the fishing club would like us to be more involved with the management of that rearing facility.

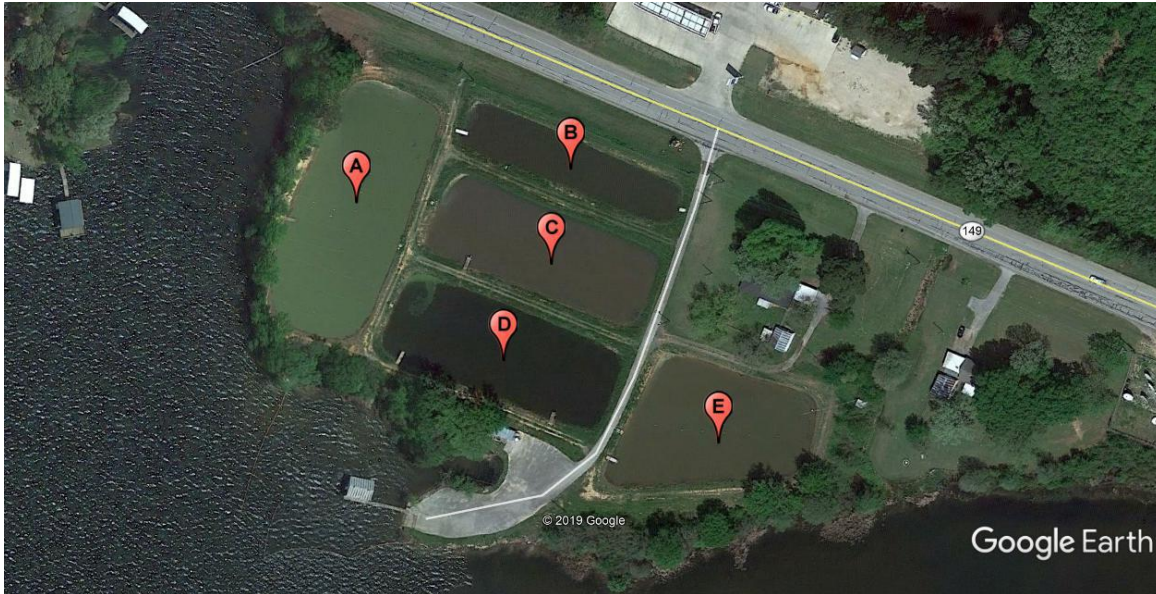
Bag Limit/Day	Stock	Other Recommendations
5 Largemouth up to 13"	100 Triploid Grass Carp	Install fish feeders
1 Largemouth over 16"	Florida Fingerlings (optional)	Apply quality feed
15 Channel Catfish over 12"	Crappie (optional)	Trap otters
No limit sunfish over 8"	Channel Catfish (optional)	Vegetation spot treatments as needed
20 Crappie over 10"		Add cover

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Conclusion

Thank you for choosing Lochow Ranch Pond and Lake Management. We strive to provide the best service and advice to manage your fishery to its full potential. We hope that you will follow our plan and run the course with our long-term trophy-growing strategies. If so, you will have a quality, well-balanced fishery that continues to add value to your shareholders' investment.

Forage Pond Recommendations



Continue to employ established aquaculture practices to maximize yields in the forage ponds. We could certainly take these efforts a step further with surface aeration but this would not be a minor investment. Please let us know if you are experiencing difficulties in managing these ponds and we will be happy to help you solve any problems you encounter. Pond specific rearing recommendations appear below.

Pond	Rear
A,E	Florida Fingerlings
C	Black Crappie
B	Channel Catfish
D	Threadfin Shad

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