

Cedar Bluff District Fisheries

Kansas Department of Wildlife, Parks, and Tourism
Fisheries Section

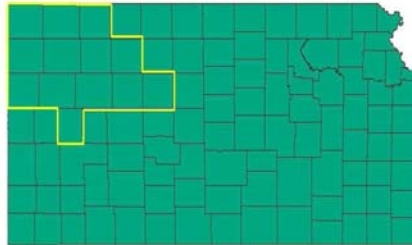


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Notes from the Author

This is the third newsletter detailing angling-related happenings in the Cedar Bluff District. The Cedar Bluff District essentially encompasses the majority of Northwest Kansas.



Cedar Bluff District

The Cedar Bluff District overall has been very dry this year. This has created a drop in water level, leaving Cedar Bluff Reservoir over 19 feet low. Despite these conditions, spring fishing yielded many satisfied anglers, as walleye and other fish were being caught in decent numbers.

So far this year, we have completed the walleye egg take, spring population samples, continuation of Scott Lake saugeye diet analysis, numerous fishing clinics, and sunk over 100 trees for fish habitat at Sheridan State Fishing Lake. Immediate upcoming tasks include continuation of the Early Largemouth Bass Stocking Project, and more Scott Lake saugeye diet analysis.

Largemouth Bass Angling Prospects Across Western Kansas

Largemouth bass present one of the most sought after angling opportunities in the United States and in Kansas. In Kansas, the large federal reservoirs often harbor excellent bass fishing opportunities for a number of years post initial impoundment or after a significant refilling event. However, smaller bodies of water such as state fishing lakes, community lakes, and ponds offer the best opportunities for anglers to catch good numbers and quality sized largemouths year in and year out. Small waters across western Kansas offer some good bass angling opportunities, and this article will act as a guide to some of the more notable bass waters in the Cedar Bluff District.

Several district lakes have bass populations characterized by high levels of annual production and

recruitment of young fish to the point that within-species competition for food reduces bass growth, resulting in a population dominated by small fish. This may seem like a negative, but in these situations, the bass are hungry and easy to catch, so lakes inhabited by overpopulated largemouth populations provide good angling opportunities for young anglers.



Hungry bass provide fun and excitement for young and often impatient anglers.

Largemouth continued...

Overpopulated bass populations often provide adequate predatory pressure on panfish populations such that quality bluegill and other panfish are available. Within the Cedar Bluff District, Sheridan State Fishing Lake and the FISH property Swank Lake south of Hill City are inhabited by overpopulated largemouth populations. During the spring of 2011, we conducted a special investigation aimed at determining average growth rates of Sheridan largemouths and found that individuals grew relatively slowly when compared to average bass growth documented at other Kansas state fishing lakes.

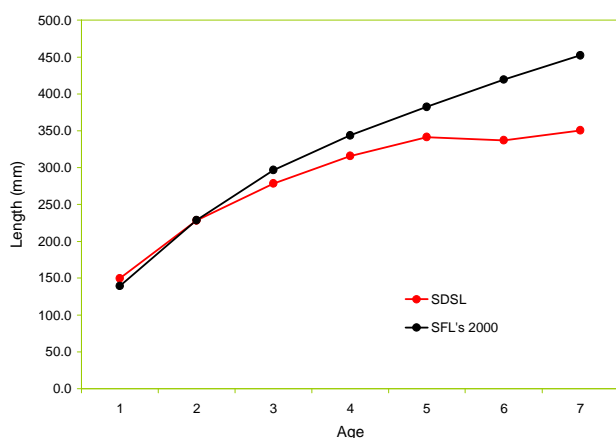


Figure 1. Sheridan State Lake Largemouth Bass Growth (red) vs. Average Largemouth Bass Growth of all State Fishing Lakes (black). Age is plotted on the x-axis and length (mm) is plotted on the y-axis.

In the case of the Sheridan bass population, the current 15-inch minimum length limit only exacerbates the crowding effect that causes poor bass growth. Thus, it would likely be more appropriate to allow angler harvest of small bass at Sheridan to improve bass growing conditions. Therefore, changing bass harvest regulations to a 13- to 18-inch slot length limit would better structure the bass population, provided anglers were willing to harvest enough small fish to reduce crowding.

The 13- to 18-inch slot length limit was instituted at Antelope Lake six years ago to better balance the bass population. Antelope bass have shown improvement in terms of the availability of larger fish over the past 10 years, but more recently the improvement in quality has stabilized. Reasons for the lack of continued improvement are

unknown but are likely linked to forage quality, reduced water clarity, and competition with other sportfish such as saugeye. In this case, management options to further improve bass quality are limited in that eliminating or reducing saugeye numbers would be negative given the popularity of the hybrid with area anglers, and improving water clarity would not be possible without a costly lake renovation project that would likely mean draining the lake for several years and removing sediment to deepen the lake. Regardless, the Antelope bass population offers significantly better opportunities to catch quality bass compared to a decade ago.

Antelope Lake is not the only lake where competition for forage between sportfish species has resulted in potentially reduced bass quality. The current Atwood Township Lake fishery was newly established on the heels of the sudden refilling of the lake in 2010. With the sudden inflow of water into Atwood, undesirable fish species such as common carp emigrated from the creek into the lake, making it necessary to rapidly establish predator sportfish populations in the lake to stop the inevitable expansion of undesirable fish populations. Consequently, adult largemouth bass were stocked into Atwood, and during the spring of 2011 saugeye fingerlings were stocked. The initial saugeye stocked established a strong year class and created a high degree of competition for forage with the largemouth bass population. The heightened competition was fully realized during the 2012 spring largemouth sample as Atwood largemouth exhibited a decrease in body condition. Prior to this past spring, Atwood largemouths grew well and exhibited excellent body condition sufficient to develop a high quality population.



Atwood City Lake Largemouth Bass, Spring 2011

Largemouth continued...

But the 2011 saugeye cohort grew exceptionally well to the point that they rapidly attained an average length and mouth gape that increased competition for forage between the two species. No additional saugeye have been requested for stocking at Atwood to allow angler harvest to thin the saugeye population and consequently reduce competition for forage.

Several lakes in the Cedar Bluff District exhibit much different scenarios relative to largemouth bass welfare than has been previously treated. Recruitment of young fish at both Ellis City Lake and Cedar Bluff Reservoir has been less than desired, especially at Cedar Bluff. Although production and recruitment of bass has been low at Ellis, it has been at a sufficient rate to slowly increase the numbers of largemouths. Because largemouth exist in moderate abundance and Ellis is inhabited by extremely high numbers of gizzard shad and small white crappie, bass body condition and growth is good at Ellis. The resulting situation is a population that may not provide high angling catch rates, but the opportunity to catch a real nice sized fish definitely exists if an angler is willing to expend the effort. Additionally, the fish have so much food that it is unlikely that they are hungry much of the time, so they might be a bit tough to catch.

Alternatively, recruitment of young fish at Cedar Bluff has been poor enough that maintenance of a remnant population has only been possible. Not much has changed with this population over the past several years as sampling catch rates have indicated a stable yet low abundance of fish. Body condition of Cedar Bluff largemouth also has indicated that growth rates

probably aren't as good as they were when the population was at its zenith in the late 1990s. The population is comprised of fish of all lengths with individuals ranging up to 20 inches, but poor recruitment remains the biggest problem facing this population. Continued declining water level and habitat degradation have led to this problem.

The best balanced bass population in terms of both numbers and quality in the Cedar Bluff District inhabits Scott State Fishing Lake. Scott bass abundance is good but individuals are not so numerous as to create a forage deficit. Therefore, individuals exhibit excellent body condition on average and grow to sizes up to 7 pounds or better, eating small white crappie and other sunfish. Similar to bass at Ellis, Scott bass may be tougher to catch given they have plenty of food, but their higher numbers at Scott should increase an angler's chances of catching fish and some big fish to boot.

The Cedar Bluff District is home to a diverse array of largemouth bass fisheries that should satisfy the ranging needs of all bass anglers. As is typical in Kansas, the best bass fishing is found in the smaller state fishing and community lakes with the large reservoirs providing the most challenging bass fishing. Young anglers looking for high catch rates but unconcerned with the size of fish should seek out populations like that at Sheridan or Swank Lake, characterized by high recruitment of young fish. But anglers seeking trophy opportunities would be well advised to consider fishing Scott. This summary of largemouth bass populations in the district will hopefully provide you with up-to-date information to guide your bass fishing endeavors.

Scott State Fishing Lake Saugeye Food Habits

Saugeye are a popular sportfish amongst anglers because they can establish good populations in many of the state's smaller waters, can be readily caught during certain times of the year, and because they are excellent table fare. However, saugeye are also a very popular hybrid species amongst many fisheries biologists because anglers prefer them, and more importantly, saugeye are an effective tool to manage panfish populations.

Given the positive attributes accredited to saugeye, this hybrid sportfish has been stocked at Scott State Fishing Lake during 2010 and 2011.

Scott State Fishing Lake is inhabited by an overabundant crappie population that is made up of slow growing individuals. Thus, saugeye were stocked to increase predation on white crappie in hopes of reducing the abundance of young crappies coming into the fishery each year.

Scott Lake continued...

Evaluating the effect of the newly established saugeye population on the crappie population is necessary to promote effective management of the Scott fishery. Part of the evaluation has been accomplished by analysis of saugeye and crappie catch data collected during fall sampling surveys. But to establish a stronger causative link between saugeye predation and crappie growth, it was necessary to show that saugeye were indeed eating crappie; thus, a study to characterize the diet of Scott saugeye was initiated.

The primary emphasis of the study was simple and consisted of two main questions: 1) Do saugeye eat white crappie? and 2) How important a food item are crappie to saugeye relative to other available forage types? The underlying thinking is that if crappie are an important component in saugeye diet then manipulating the number of saugeye will effectively enable better control of crappie numbers. The approach used to measure the relative importance of crappie in the diet of Scott saugeye was referred to as frequency of occurrence but was really just a count of how many of a given prey item was eaten by saugeye.

To collect the above-mentioned frequency of occurrence data, it was necessary to capture saugeye and completely remove all stomach contents to allow identification and enumeration of prey items. Furthermore, it was of interest to document changes in saugeye diets over the course of the growing season to help determine what effect differences in various prey abundances at different times of year had upon saugeye diet.

To collect saugeye, nighttime electrofishing was conducted on an approximately monthly rotation from June through August 2011, resulting in the completion of three distinct sampling periods. Stomach contents were removed from all saugeye captured using a non-lethal device referred to as a gastroscope.

The gastroscope consists of a set vinyl tubes of varying diameter to account for different-sized fish to be "scoped." The way the gastroscope works is that the appropriately sized tube is inserted through a given saugeye's esophagus down into the stomach, the fish is positioned tail-up-head-down, the open end of the gastroscope is plugged by a

thumb or other finger to create suction, and the gastroscope is withdrawn from the fish's stomach. In most instances, all prey items contained within a given saugeye's stomach were contained within the gastroscope, and the prey items from each fish sampled were preserved for later analysis.



Insertion of gastroscope to remove stomach contents. The gastroscope method is a relatively efficient way to retrieve stomach contents that is not fatal to the fish.

A requisite part of the diet study was to evaluate the efficiency of the gastroscope method to make sure this was a viable means of accurately characterizing saugeye diet, and this study found that the gastroscope was very efficient in that 84.6 percent of stomach contents were removed by the gastroscope. Given the efficiency of the gastroscope, it was determined that frequency of occurrence of prey items in saugeye stomachs would estimate the importance of crappie in the diet of saugeye well.

Vulnerability of saugeye to electrofishing capture varied depending on months when sampling was conducted. Saugeye were much easier to capture during the June sample and became harder to come by during the July and August samples, as the number of saugeye sampled per month were 40, 13, and 12, respectively. Out of a total of 65 saugeye sampled during the 2011 season, white crappie (WHC), largemouth bass (LMB), bluegill (BGL), other sunfish species (OSF), invertebrates, and unidentifiable fish remains were noted in the diet of Scott Lake saugeye. Most of the time, saugeye had food in their stomachs, as the number of

Scott Lake continued...

saugeye that had empty stomachs was zero in June, but the incidence of empty saugeye stomachs increased in the July and August samples. Given this observation, it was apparent that saugeye were most actively feeding in June.

Saugeye stomach diet analysis showed that Scott saugeye fed most heavily in June and ate a wide variety of prey items. However, regardless of the month, saugeye primarily ate fish, with white crappie being the most numerous followed closely by largemouth bass, but the importance of bluegill as a prey item increased toward the end of the season. See Figure 2.

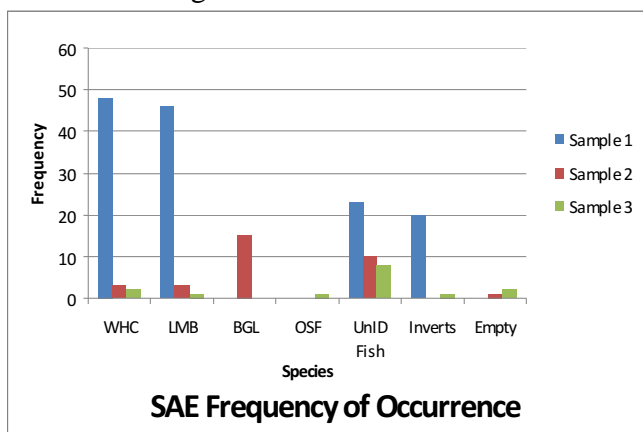


Figure 2. Frequency of prey items found in SCSL saugeye stomachs during the 2011 field season.

The prominence of largemouth bass in saugeye diets corresponded well with the peak abundance of young-of-the-year largemouth subsequent to the 2011 bass spawn. As mentioned earlier, the importance of bluegill as saugeye prey tended to reach a maximum at a time when young-of-the-year bluegill would be most abundant during and subsequent to the bulk of the bluegill spawning activity. The apparent pattern of Scott saugeye positively selecting for the most abundant prey item mirrors prey preference that has been documented by other researchers that studied other fish species. Therefore, it is suspected that saugeye prey heaviest on white crappie subsequent to the crappie spawn when young-of-the-year crappie are highly abundant and for the most part are the only young of the year fish available for saugeye to eat at Scott.



Young-of-the-year crappie removed via the gastroscope method.

This study did not detect that peak in the predominance of white crappie in saugeye's diet well, as we began our sampling in June. Had sampling commenced during early to mid-May, we should have detected a greater frequency of occurrence of small white crappies in the diet of Scott saugeye. Additional and earlier sampling will be necessary to better characterize the role of white crappie in the diet of the Scott saugeye population.

Although this study did not yield a clear picture relative to the role white crappie play in the diet of Scott saugeye, it was apparent that white crappie was an important food item. Furthermore, if Scott saugeye tend to select for the most common food item in the environment like studies of other fish have shown, then white crappie should be the primary forage item for saugeye early in the spring when the saugeye are feeding most heavily. If the above assumptions are met, then saugeye should be able to meet our objective of reducing the overall number of crappie, thus increasing crappie growth rates. For the foreseeable future, this evaluation will continue to monitor the contribution of saugeye to the Scott State Fishing Lake fishery, and if objectives set forth for this population of percid hybrids are met, Scott anglers should realize improved saugeye fishing and better quality crappie fishing.

A Guide to Black Bass at Cedar Bluff Reservoir

As was mentioned in the district largemouth bass summary, the largemouth bass population at Cedar Bluff has experienced declining abundance over the past decade. But for anglers seeking a diverse black bass angling experience, Cedar Bluff is the destination in the Cedar Bluff District as the reservoir is inhabited by all three black bass species available in Kansas: largemouth, smallmouth, and spotted bass.

As was mentioned in the district summary, the Cedar Bluff largemouth bass population does offer angling opportunities with some decent quality fish being available, but the overall fishing is typically slow due to low abundance. The Cedar Bluff smallmouth bass population has been almost nonexistent in annual samples in recent years, thus currently providing limited angling opportunities at best. However, 75 adult smallmouth bass were stocked into Cedar Bluff from Glen Elder this past spring.



Cedar Bluff Smallmouth Bass with distinct vertical bands and facial striping.

Rationale for the stocking was to impart new genetic material into the Cedar Bluff smallmouth population. Smallmouth bass as a species are made up of several distinct “races” of fish, and the race that has shown the most promise in reservoirs originally comes from the Tennessee River system. The original introductory stocking of smallmouth into Cedar Bluff is of unknown genetic background, but the fish inhabiting Glen Elder are of Tennessee River background and have performed well at Glen. Hence, the recent stocking at Cedar to hopefully improve future recruitment. Spotted bass have maintained higher

numbers at Cedar Bluff in recent years despite declining water level, and are currently the most abundant species of black bass. Despite their abundance, spotted bass do not have the growth potential characteristic of the other two black bass species, so “large” spotted bass are nowhere near the size of larger individuals of the two other species, and large spots are up to 16 inches.



Cedar Bluff Spotted Bass with emerald green color and very distinct rows of spots down the belly of the fish.

Habitat preferences of all three species are a little different at Cedar Bluff. All three species can be found frequenting submerged parking lots and road beds. But the naturally available habitat is where differences in preference frequently occur between species. Smallmouth and spotted bass tend to be found on the dam and boulder--strewn shale banks and points. Largemouth and spotted bass tend to be found around flooded trees and tamarisk on shale points and banks. Largemouth tend to predominate on sand or mud points and drop-offs that are covered by flooded timber or tamarisk. And largemouth are the principal species found around submerged aquatic vegetation.

I receive quite a few reports of anglers catching good numbers of small largemouth bass and smallmouth bass, which tends to run contrary to what the sampling data indicates. I suspect some of such reports are misidentified spotted bass since spotted bass appear to be the most abundant black bass in the reservoir at this time. Although not all of the reports are erroneous, spotted bass can be confused with largemouth bass or smallmouth bass

Black Bass continued...

depending on their coloration, which can change based upon their mood or water turbidity from which the fish was caught. Although the typical coloration of spotted bass can superficially resemble that of the largemouth with the green coloration on the back and the black horizontal stripe, largemouth tend to be more olive-green in color and spotted bass tend to be more blue-green in color, and spotted bass will sometimes have a darker blue-green diamond pattern on their back that the largemouth won't have. Also, spotted bass will have several rows of narrow horizontal stripes of spots low on their sides that will be either dark or light green depending on their mood. Largemouth lack these distinct spots on the sides of their belly.



Cedar Bluff Largemouth Bass with a slightly washed out green color and only random spots on the belly.

In addition to color characteristics there are some hard physical characteristics that differentiate the spotted and largemouth bass. One obvious physical characteristic is the size of the mouth, with the maxillary bone on the largemouth extending past the back of the eye in the largemouth and not extending past the back of the eye in the spotted bass when the mouth is closed. Also, the scales on the opercle of the largemouth will be large and similar in size to the body scales, but the scales on spotted bass opercles will be quite a bit smaller than the body scales. As stated before, depending on fish mood or water color, the color pattern on the spotted bass can be faint, creating confusion between the smallmouth and spotted bass. When spotted bass and smallmouth bass are fully colored, the difference is obvious in

that the spotted bass is blue-green on the back and smallmouth is brown in color. Also, the spotted bass possess the dark heavy lateral stripe with the stripes of spots on the belly, but the smallmouth has dark vertical stripes on its side. Besides differences in color spots, smallmouth can be very difficult to differentiate if their color is faded and indistinct. Smallmouth and spots share the smaller mouth than the largemouth, and the only real hard physical characteristic that differentiates them is the size of scales on the preopercle and opercle areas on the gill cover, which can be a tough characteristic to use unless one has had the opportunity to look at a bunch of spots and smallies. Nevertheless, spotted bass have small but similar-sized scales on both the preopercle and opercles. But smallmouth bass possess extremely small scales on the preopercle that are smaller than the scales covering the opercle.

In summary, Cedar Bluff is home to all three black bass species available in Kansas. Although, the current largemouth and smallmouth populations are scant in number, individuals are present, but spotted bass abundance provides the highest probability of capture. Knowing relative habitat preferences typical of each species can aid bass anglers in finding a given black bass species. Once caught, species identification can be somewhat difficult depending upon the coloration of the fish; thus, utilizing hard physical characteristics may be helpful. Although Cedar Bluff black bass may not be characterized by optimum population dynamics, all three species inhabit the reservoir and present bass anglers the opportunity to achieve the Kansas black bass "grand slam."