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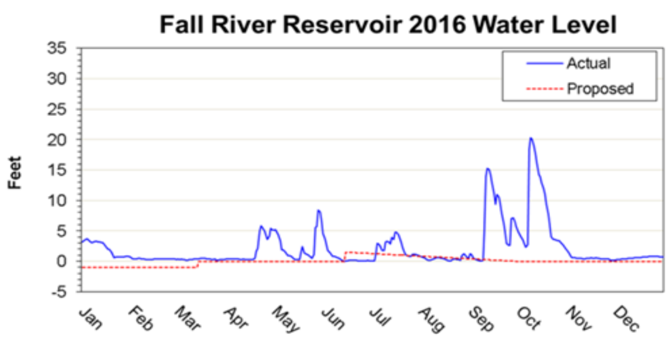
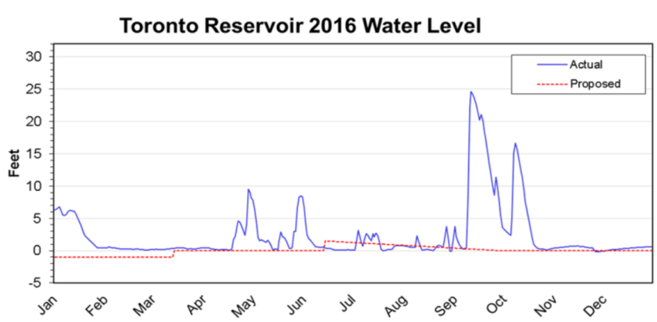
Fall River/Toronto Fisheries District Spring 2017 Newsletter

Fall River and Toronto Reservoir Crappie Fishing Forecast for Spring 2017

It was a difficult year to sample crappie at Fall River and Toronto reservoirs. There were not one, but two unusual fall flood events; one on September 9 and one on October 7 that put the lake elevations too high to effectively sample crappie in trap nets. I set 32 trap nets at the reservoirs each fall to sample the crappie population. Lucky for me, I was able to set the nets in the short window of opportunity when the lake levels were less than 5 feet high. Looking at the water levels, you have to remember that I didn't know the lake was going to flood the second time.





Nevertheless, I feel that the samples were biased due to the high water. When the reservoirs are high and muddy, crappie typically spread out and disperse along the newly-flooded terrestrial vegetation. They aren't attracted to the structure provided by the trap nets and they don't move as much in the turbid water. Also, there's an abundance of new structure to explore and feeding opportunities to exploit. As many of you can attest, angling crappie during high water is equally difficult.

Fall River Reservoir Dam Sluice Gates Open

In normal years, Kansas has an extended period of dry weather in fall. Fall River and Toronto water transparency ranges from 18- to 24-inches. Crappie tend to behave in predictable patterns. They are beginning to school up along channel breaks and rocky points as water temperatures fall. However, they feed heavily on gizzard shad young of the year along the shoreline as they pack on the pounds in preparation for winter and the spring spawn. Crappie are more active as the water cools in fall than they were in the dog days of summer. However, their feeding is interrupted by passing cold fronts. When the barometer drops, it can be two or three days before crappie begin to move and feed again.

Knowing when, where, and why of crappie feeding patterns and movements can greatly affect capture probability, whether it be from trap net or rod and reel. I set nets in October when the water temperature is in the low 60s. I set in various locations throughout the reservoir from the dam to the backs of coves, along rocky shorelines, and points. Some locations are close to standing timber or brush piles, others are not. I set for an entire week. That way, if a cold front pushes through, there will be other days with better catches. The main thing, though, is to set the net to intercept crappie moving along the shoreline in search of gizzard shad.

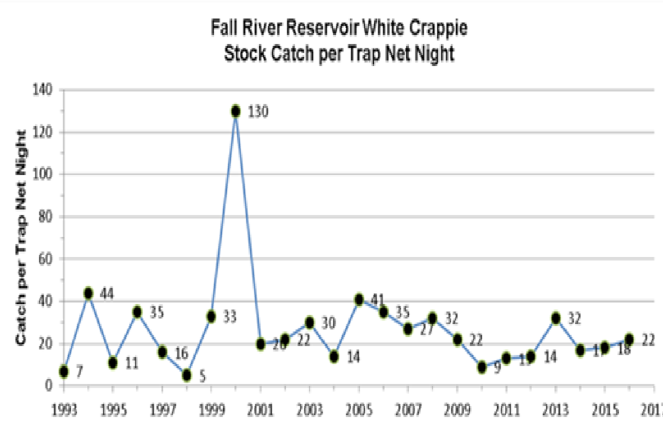
Setting a Trap Net

By the end of the week of sampling throughout the reservoir, I have a pretty good idea of where the crappie are, what size they are, how much food was available for them, and how many there are relative to other years' catches. I also document reproduction, but not how strong the year class will be. It's not uncommon to see what I thought looked like a dominant year class develop from a very successful spawning season resulting from flooding terrestrial vegetation at just the right time, only to disappear and die under the ice. I won't know if a year class develops until the following spring.

Research has shown that young of the year crappie have size-dependent over-winter mortality. That is, the bigger and fatter the fish, the more likely they will survive a harsh winter. Fast crappie growth occurs when there are abundant young of the year gizzard shad, small enough for crappie to eat. Some years, gizzard shad grow too fast and get too big for small crappie to eat. This was not the case this year or last at either reservoir. The nets were full of small shad, 2-3 inches long. Shad stay small in years when there are too many mouths to feed. Over-reproduction of shad results in high numbers of stunted little fish, just right for growing crappie to eat. Gizzard shad is one species where stunting is desirable.

There is a species of shad, threadfin, that are smaller than gizzard shad and don't get too big for crappie to eat. We've tried stocking them in Lyon State Fishing Lake. Unfortunately, they didn't survive this far north. High abundance of shad is not always desirable. They frequently over consume the zooplankton necessary for small sportfish recruitment. When gizzard shad dominate a fishery, there may be abundant forage for adults, but insufficient zooplankton for their young to grow large enough to survive the winter. High densities of zebra mussels also deplete zooplankton.

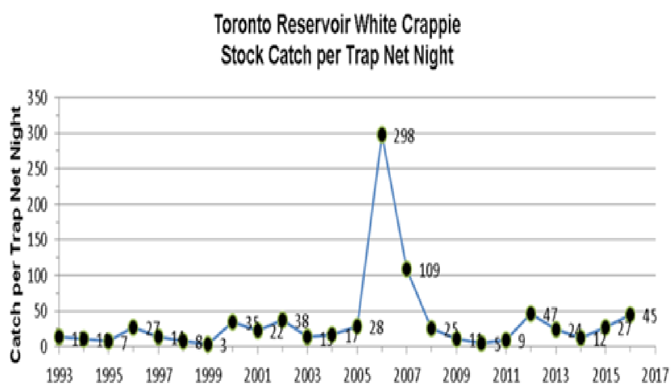
Well enough fishery biology. Let's see how Fall River and Toronto reservoirs' white crappie populations are trending. You can see by the charts below that the white crappie populations exhibit some cyclic tendencies. I've described in detail in a past newsletter how water levels affect crappie populations. You may view them here: http://ksoutdoors.com/KDWPT-Info/News/Past-Newsletters/. The flood in May was ideally timed for the crappie spawn, and the one in June was perfect for gizzard shad. This was a great year for reproduction and the forage base. However, there was also a lot of flushing that occurred in September and October that likely resulted in fish lost downstream.



Fall River Reservoir had an ideal density white crappie population. I caught 590 fish; 351 were stock size (over five inches) and will likely survive the winter. I averaged 22 crappie per trap net, which was within the ideal objective density range of 20-25. Crappie are not overpopulated and should grow rapidly. Additionally, I sampled 15 sub-stock crappie per net, showing abundant reproduction, which may lead to a strong year class. Eighty-one percent of fish were 5-8 inches, but only 7 percent was 8-10 inches, 4 percent was 10-12 inches, 7 percent was 12-15 inches, and 1 percent was greater than 15 inches. Larger fish occurred in lower abundance than in previous years. The sample was likely biased due to high water levels during sampling.

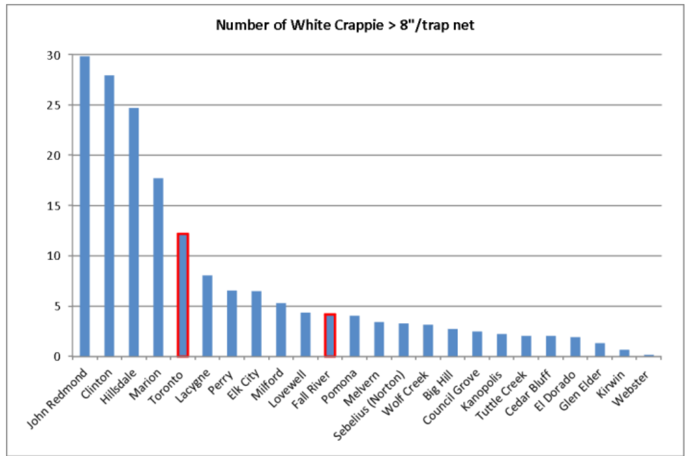
White Crappie Stats	Fall River	Toronto
Total Catch	590	1183
Stock Catch (>5 inches)	351	727
Units of Effort (#nets)	16	16
Stock CPUE	22	45
Sub-Stock CPUE	15	29
Percent of catch (5-8 inches)	81	72
Percent of catch (8-10 inches)	7	17
Percent of catch (10-12 inches)	4	3
Percent of catch (12-15 inches)	7	7
Percent of catch (>15 inches)	1	1

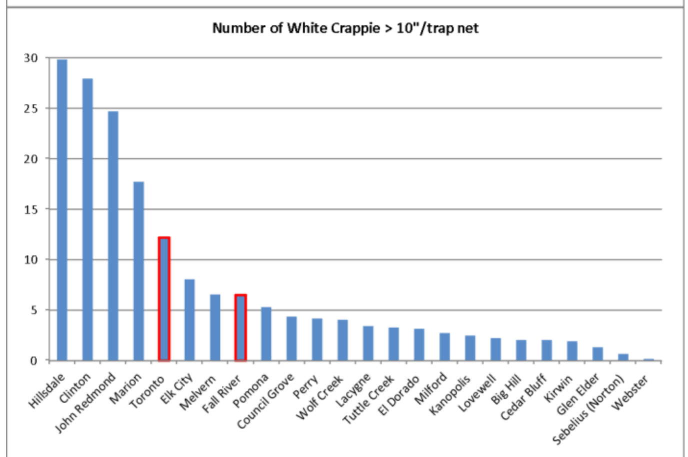
Nevertheless, compared to the 24 Kansas reservoirs, Fall River ranked No. 11 for crappie over 8 inches. It ranked eighth in the state for fish over 10 inches, and fourth for crappie over 12 inches. The second largest crappie sampled by biologists came from Fall River. Despite these unexpected low numbers, I think there are large numbers of big crappie available for anglers. They should be schooled on deep channel breaks near the outlet and in deep holes in the river, like the one at Ladd Bridge.

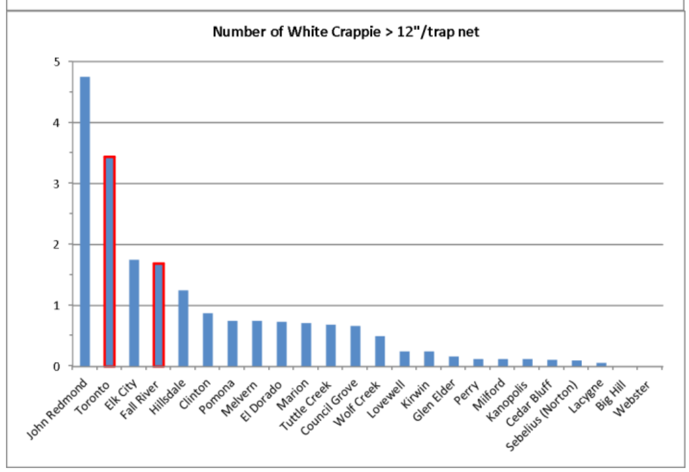


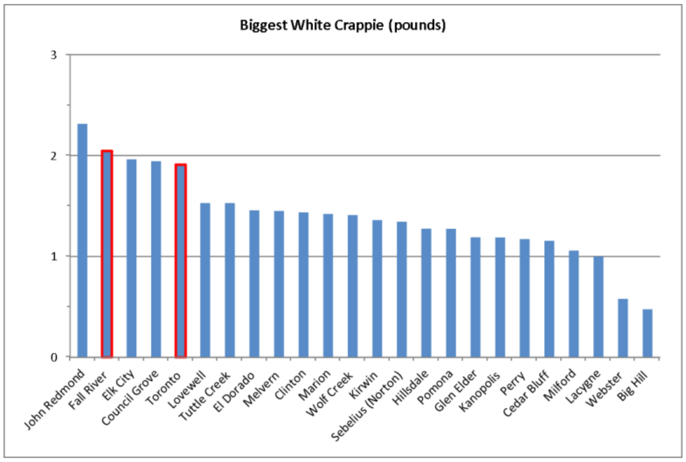
Toronto Reservoir had a high-density white crappie population. I caught 1,183 fish, of which 727 were over 5 inches, which is the minimum reproductive size. I averaged 45 adult crappie per trap net, and 29 juveniles. It will require a large year class of gizzard shad young to feed this high density crappie population. It happened the past two years. It all depends on getting just the right flood in June. Seventy-two percent of fish were 5-8 inches. Seventeen percent were 8-10 inches. The number of crappie over 10 inches was unexpectedly low this year and also biased due to high, turbid water. Only 3 percent was 10-12 inches, 7 percent was 12-15 inches and 1 percent as longer than 15 inches.

Toronto Reservoir white crappie population is usually one of the best in Kansas. However, it was ranked fifth for both fish over 8 and 10 inches. It had the second highest density of crappie over 12 inches. It had the fifth largest crappie sampled by biologists in 2016. John Redmond Reservoir, with its 2-foot increase in conservation elevation, will likely provide the best crappie population for some time to come. But, considering that Toronto is the seventh oldest reservoir in Kansas and still consistently produces crappie in the top five, shows the quality of habitat still available.









Common Carp Removal Special Project Update

Howard City Lake contained a moderate density of large common carp. Carp are undesirable because they consume resources (food) that more desirable sport fish species could use. Their feeding activity also reduces water quality by stirring up bottom sediments. Furthermore, they eat fish food from the feeder meant for channel catfish and their large size and aggressive feeding behavior intimidates smaller channel catfish and discourages them from utilizing the feeder. As a special experimental project, common carp were selectively electrofished in May after the largemouth bass were sampled. A special rubber dip net was used to capture carp to eliminate entanglement with their serrated anal spine. Carp were electrofished after the bass sample was taken to eliminate bias to the bass sample because if the netter was dipping a large carp, he could potentially miss a bass. Also, the heavy rubber dip net was less effective at dipping bass than the normal fabric net one due to its increased weight and resistance when pulling it through the water.

Female Common Carp Full of Eggs

In 2016, a total of 122 common carp were removed from the lake. Only one small carp was sampled, indicating low recruitment. This was likely due to abundant bass predation and good water quality for the sight feeding bass. The objective of this project was to make one lap of the entire lake shoreline and remove all spawning carp to enhance the sport fish populations. Sport fish condition has improved significantly since project implementation. Stock size bluegill condition improved 22 percent. Stock size crappie condition improved eight percent. Stock size largemouth bass condition improved 22 percent. Quality size saugeye condition improved seven percent. Initially, it appeared that even the limited scope of this carp removal was beneficial to the sport fish population, and the project should be continued for further evaluation.

HOWARD CITY LAKE COMMON CARP

Stats	2012	2013	2015	2016
Total Catch	47	22	31	122
Stock Catch	47	22	31	121
Units of Effort	1.17	1.02	1.02	1.02
Stock CPUE	40	22	31	121
SUB-STOCK CPUE	0	0	0	1
RSD S-Q (8-15”)	0	14	0	3
RSD Q-P (15-19”)	4	0	26	14
RSD P-M (19-25”)	87	77	45	61
RSD M-T (25-33”)	9	9	29	22
RSD T+ (≥31”)	0	0	0	0
PSD	100	86	100	97
Mean Wr S-Q (8-15”)	.	110	.	93
Mean Wr Q-P (15-19”)	.	.	.	99
Mean Wr P-M (19-25”)	78	94	.	105
Mean Wr M-T (25-33”)	82	95	.	0

An identical carp removal special project was also conducted in 2015 and 2016 at Olpe City Lake. A total of 318 carp were removed. The initial effect on the crappie population was impressive. Stock through memorable size crappie condition improved 6, 16, 18, and 8 percent, respectively. This project demonstrates the potential benefits of removing even some of the spawning carp population. However, it is labor intensive and it would be impossible to completely remove all carp with this method, so it has to be conducted every spawning season.

There is an emerging technology that could be used to completely eliminate carp from lakes. It's called Trojan Y Chromosome (TYC) strategy. The revolutionary new technique involves genetically modifying male carp so they only produce male offspring. Once released into the lake, they would breed with females and produce all TYC males, no females. The TYC males would out-number the fertile males 2:1 every spawn, building up their numbers. In theory, according to computer models, eventually there would not be enough fertile males to sustain the population.

We could make the TYC male carp in our hatchery system. We would have to first get approval for this genetically modified organism. In addition to the usual EPA Environmental Impact Assessment required for all our fish stockings, they would likely require FDA approval since the TYC carp could be eaten by people. To make TYC carp, the immature fish have to be individually tagged then genetically tested to know if they are male or female. Once males are separate, they are treated with a synthetic estrogen called ethynylestradiol. They would then be retested to verify that their sex gene is truly a YY chromosome and not XY as in fertile males.

Think about the applications of this emerging technology. Not only could we genetically modify common carp so they would only produce all male offspring, but we could likely do this for bighead and silver carp, too. All three species are not native to the U.S. and cause harm to the North American aquatic ecosystem. This technique could also be used to eradicate zebra and quagga mussels, too. How great would it be to completely restore native fish populations?

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