

Carson Cox, Fisheries Biologist  
Emporia Research & Survey Office  
1830 Merchant St., P.O. Box 1525  
Emporia, KS 66801



Phone: (620) 342-0658  
Fax: (620) 342-6248  
www.kdwpt.state.ks.us  
carson.cox@ksoutdoors.com

Robin Jennison, Secretary

Sam Brownback, Governor

## Fall River/Toronto Fisheries District Newsletter

### Walleye Spawning Time



*Female walleye at Hillsdale Reservoir 2015*

One of the pleasures of being a fisheries biologist with the Kansas Department of Wildlife, Parks and Tourism is getting to handle amazingly large fish with some degree of consistency. Pictured above is just one of the 8-pound-plus female walleye I spawned at Hillsdale Reservoir last year. I usually see several walleye this size every day from the trap nets. She sure wasn't 8 pounds when I released her after stripping the eggs into the pan. I think the best time to catch the biggest walleye is during the spawn because they are full of eggs.

The walleye spawn in Kansas usually occurs from mid-March through mid-April. However, the males come in shallow on the rocks at night several weeks earlier. Late in the season, it's hard to trap males even though we can still get some large females. If we haven't harvested enough eggs and we continue collecting eggs late in the season, we have to make use preserved sperm because there aren't enough males to fertilize the eggs. If you are interested in seeing the entire process, you can watch a video at this link: <http://ksoutdoors.com/KDWPT-Info/KS-Outdoors-Today/Friday-March-08-2013>

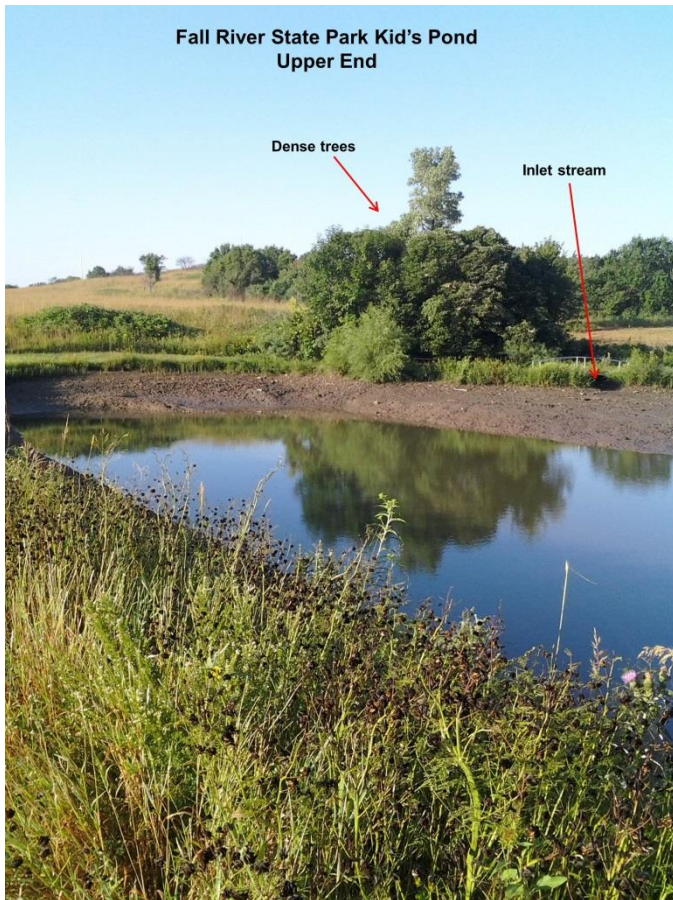
KDWPT is going to attempt to stock more walleye and saugeye this year, so fisheries biologists will be working extra-long. We plan to stock 41 million walleye and 5 million saugeye. Depending on water temperature, among other factors, expected hatching success will be between 50-70 percent. Therefore, we will need to collect about 107 million walleye eggs. An average five-pound fish will produce about 125,000 eggs. If all the fish weighed five pounds, we would need to collect 1,600 females from the trap nets; but of course, the walleye will vary in size. I've stripped eggs from 2-pound first-time spawners all the way up to 10-pounders.

We will be collecting walleye eggs from Cedar Bluff, Milford, and Hillsdale reservoirs this year. Eggs will be hatched in Pratt, Milford, and Farlington fish hatcheries. If you want to see the spawning process in person, you are welcome to watch, ask questions, and take pictures at the Hillsdale Reservoir Marina. We work seven days per week during the spawn. Egg stripping usually occurs between 9:30 and 10:30 a.m. Be sure to bring your kids. The hatcheries also give tours. I hope to see you at the lake.

### Fall River State Park Kid's Pond Water Quality Improvement

The Fall River State Park Kid's Pond was constructed by the Kansas National Guard in 2002. They needed a training site for heavy equipment operators. It is located on the south side of Casner Creek Road in the South Rock Ridge section of the state park. It covers one surface acre and is 13-feet deep.

A solar-powered automatic fish feeder was installed in 2006. It's operated 180 days per year from April 15 through October 15. There is a mowed nature trail leading to and encircling the pond, which includes a small bridge over the intermittent inlet stream. The pond also has picnic tables and a trash can. A vault toilet is located across the parking lot (approximately 100 yards away). Only kids 15 and younger may fish. I hold the annual OK Kid's Day fishing clinic there each spring.



The pond's entire 25-acre drainage basin is made up of native tallgrass prairie, so you would think this would contribute to good water clarity. However, water clarity was only six inches in the spring of 2009 due to a colloidal clay suspension. Pond bottom sediment gets stirred up when rain runoff enters the pond and from shoreline wave erosion. A lot of water enters the pond. The entire volume of the pond is refilled every 131 days, on average.

The first attempt to clear the water was, in June 2010, when 150 pounds of calcium hydroxide (lime) was spread over the surface of the pond. Within 24 hours, the pond transparency increased to 24 inches and remained there for the remainder of the summer. However, after runoff entered the pond the following spring, water clarity was reduced once again. Fish sampling results showed fish growth was limited. This was not the ideal kid's fishing pond.

Improved water quality is needed to maintain a balanced sport fish population, which consists of largemouth bass, bluegill sunfish, redear sunfish, hybrid sunfish, and channel catfish. All these species are sight feeders (channel catfish surface feed on artificial pellets) and need a minimum water transparency of 18 inches to thrive and grow. A water quality and fish habitat improvement project was implemented in winter and early spring, 2015. I cut down the dense stand of trees at the upper end of the pond. I used a chainsaw and treated the stumps so they wouldn't grow back. The tree canopy shaded out understory vegetation resulting in increased erosion.

A special project is planned for this area when funding becomes available. In the meantime, grasses should stabilize the soil now that sunlight penetrates to the ground. A 0.10-acre sediment trap wetland above the stream inlet is needed. Soil would be removed with a bulldozer within the 0.10-acre area to a depth of 2 feet below pond conservation elevation as measured from the top of the principal outlet pipe. Water willow (*Justicia americana*) would be planted in the wetland to trap sediment and nutrients. Soil removed from the wetland would be pushed up to elevate the footpath on the south side of the pond, which currently goes under water when the pond is slightly above full.

To reduce erosion from wave action and enhance fish habitat, the entire shoreline was rip-rapped. To facilitate construction, the pond's water level was lowered 5 feet by opening the drain valve and the bottom sediment was allowed to dry. The Kansas Department of Transportation's Eureka Area Office donated and hauled eight-inch thick slabs of broken concrete from Road X and US 400. The slabs contained no rebar.



A lot of people donated materials, labor, and performed duties outside their normal occupation. These individuals recognized the need to provide kids visiting Fall River State Park with a unique fishing opportunity; one without competition from more experienced anglers. They were also ecologically conscientious for the necessity that clean clear water provides to a fishery. KDWPT has very limited funding from the sale of the 296,294 fishing licenses (2014) and federal Sport Fish Restoration Act tax on fishing tackle. Thanks to the generosity of project partners, KDWPT spent \$1,999 for limestone rip-rap and \$500 for trail gravel. Please bring your kids to fish at this pond. It's fully stocked and ready to enjoy.

---



---

## Eureka City Lake Habitat Cubes

State Park ranger, Adam Murry, used a skid steer to place the top edge of the slabs two feet below the shoreline, effectively making a curb to hold limestone rip-rap in place. Eight-inch limestone rip-rap was placed along the shoreline above the concrete slabs to an elevation one foot above the shoreline. Local Boy Scout Troop 53 used wheelbarrows and shovels to place unwashed limestone gravel along the top edge of the rip-rap to construct a foot path for anglers. Eagle Scout, Chase Bunyard, constructed a fishing dock.

Recent Research has shown that the addition of artificial habitats can have a positive impact on both growth and condition of some fish species such as largemouth bass. They also attract and concentrate fish in an area making them more vulnerable to catch. I was part of a team that evaluated different types of structures for effectiveness. We compared tire reefs, single Christmas trees standing upright, stake beds, and brush piles. The best type of attractor was large cedar tree brush piles. They lasted a long time and held the most fish (crappie). Anglers preferred the stake beds because they get hung up and lose jigs; however, they didn't hold as many crappie as the large brush piles. Christmas trees worked well, but only lasted one year. Tire reefs didn't hold very many fish, floated at the surface, and looked like trash instead of habitat.



*Georgia Cube fish habitat structure*

A new type of structure, called Georgia Cubes, was installed at Eureka City Lake last summer. They were assembled by inmates at the El Dorado Correctional Facility. The white 1 ½-inch PVC cube frame measured four feet square. However, the black corrugated four-inch pipe sticks out a foot beyond that at the corners. Eight cubes were installed in five locations. You can download a google earth map .KMZ file of the locations on the ksoutdoors.com website located here: <http://ksoutdoors.com/KDWPT-Info/Locations/Hunting-Fishing-Atlas/Fishing-Atlas/GPS-KML-Information-Files/Google-KMZ-file-of-Artificial-Habitat-Fish-Attractor-GPS>. Volunteers from the Kansas Bassmasters Club installed four of the cubes. I installed the other four cubes under the center of the heated fishing dock. There are no Christmas trees under the dock, just cubes. Anglers should enjoy not getting hung up on the new Georgia Cubes.



Four cubes ready to install at Eureka Lake

You can imagine that the picture above is what the four cubes look like under the heated dock.

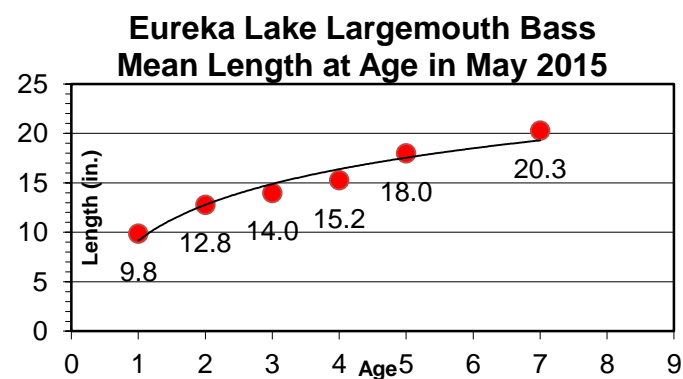


Cubes transported to Eureka Lake

Initial reports indicated that anglers caught some nice crappie on the Georgia Cubes under the heated dock this winter. Eureka City Lake ranked as one of the best crappie fisheries in the state. It had the fourth, third, and second highest density of crappie over 8, 10, and 12 inches, respectively, among Kansas lakes. Eureka City Lake has a high-density white crappie population. Stock catch per trap net night was 61 fish, which exceeded the objective density range of 20-25 fish. Recruitment was too high. With so many mouths to feed, growth is slowed. That's why there is no need for a length limit. More crappie harvest would actually increase growth by reducing density.

Despite high density, the population size structure was still balanced. If density becomes too high, crappie growth will stunt. Twenty-three percent of crappie were over 10 inches, and five percent were over 12 inches. Fish were in good condition. Mean relative weights were within the objective range of 80 to 100. So even 8-inch fish are worthy of fillet. Since 2007, increased predation from bass, saugeye, and wipers improved the crappie population in Eureka Lake, especially for preferred-size fish over 10 inches.

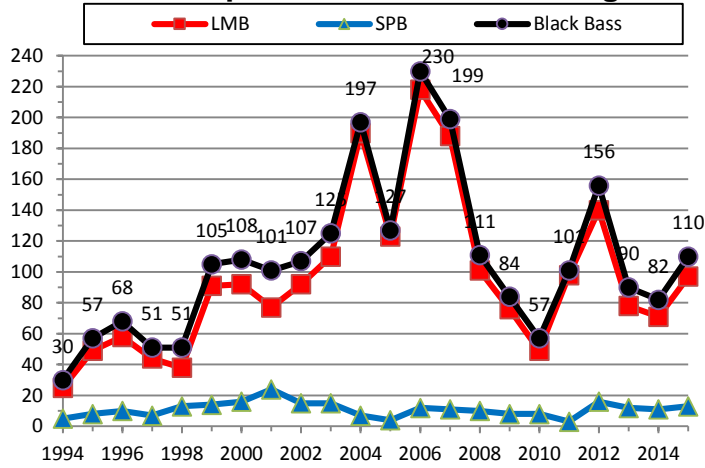
Crappie aren't the only species that are attracted to the cubes. Bass also orient to structure. That's why members of Kansas B.A.S.S. Nation Clubs helped deploy the cubes as a service project. Eureka City Lake contains a high-density largemouth bass population. Stock catch per hour of electrofishing was 97 fish, which was within the management objective density range of 80-100. Recruitment was adequate. The population size structure was balanced. Twenty-one percent of bass sampled were over 15 inches, and one percent were memorable size – over 20 inches.



Age analysis from scale samples showed that mean lengths at ages one through five and seven were 9.8, 12.8, 14.0, 15.2, 18.0, and 20.3 inches, respectively. Most bass died by age seven and reached a maximum length of 21 inches and 5.04 pounds. Fish were in good condition. Mean relative weights were within the objective range of 80 to 100. Fish condition generally increased with size indicating that larger bass gape size resulted in more prey availability. Increased growth could be attained through increased aquatic vegetation and

subsequent improvement of the prey supply. Compliance with the 18-inch length limit was important to maintenance of the population.

### Eureka Lake Black Bass Catch per Hour of Electrofishing



If you know someone who might like to subscribe to the newsletter, they can do so at this address: <http://ksoutdoors.com/KDWPT-Info/News>. If you would like to unsubscribe, please send your info to Contact Us with "unsubscribe Fall River/Toronto District Fisheries Newsletter" and we will get you taken off the list. If you have any questions, comments, or story ideas, feel free to send them.

Carson Cox, District Fisheries Biologist  
Kansas Department of Wildlife, Parks and Tourism

All articles are copyright of Kansas Department of Wildlife, Parks & Tourism and cannot be copied or distributed without permission from KDWPT.

