

Elk City District Fisheries

Kansas Department of Wildlife, Parks and Tourism

Summer 2014

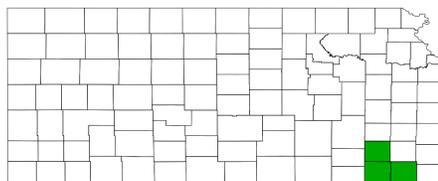
Montgomery State Lake Renovation

In January, 2014 we applied a small amount of rotenone to Montgomery State Fishing Lake (1.24 gallons of active chemical) in an effort to selectively remove gizzard shad. There have been a few common questions and misconceptions that I have heard and I will address those in this newsletter. First, some highlights...

1) We have not observed a single gizzard shad since the kill. I'm not ready to say that we eradicated them, but I'm confident we knocked the population back substantially.

2) We had tremendous reproduction of largemouth bass, bluegill, redear sunfish, and golden shiners in 2014. This was likely in response to increased flooded vegetation following the reservoir filling after we drew it down in 2013 for rotenone application. Although we expected the draw-down to promote reproduction, the level we are seeing is unprecedented and has exceeded expectations.

3) Golden shiners will have a more significant role in the food chain. Golden shiners only get to about 8" and occupy shoreline habitat. This contrasts gizzard shad that can get up to 16" long and occupy open water. The smaller size and habitat preference of golden shiners makes them more susceptible to largemouth bass predation.



Montgomery State Lake Renovation

Now for some common questions and misconceptions...

1) I'm not catching as many bluegill and redear sunfish as I used to. I think you killed them all.

This may well be true, but it's not because we killed off the populations when we applied rotenone. We did lose some bluegill and redears during chemical application. There's no question about that. However, those losses were very minimal and would have no negative effect on the population. In fact, losing some fish would help those that survived grow bigger quicker because of reduced intraspecific competition. The reason anglers have had difficulty likely has more to do with water level that was lower than normal. A relatively dry spring left the lake low into the summer. During the first round of sunfish spawning, many historic spawning grounds were high and dry. This led to fish spawning in new places that were unfamiliar to many anglers, and ultimately, lower catch rates. Fortunately, the lake filled in early summer and created an abundance of nursery habitat that contributed to exceptional reproductive success.

2) All of the bass I've caught out there in 2014 are skinny.

A big concern among anglers was that we were knocking out the primary prey base for largemouth bass. This is a valid concern, but so far has turned out to be unfounded. We collected length and weight data from a lot of largemouth bass in 2013 and 2014 to evaluate their response to reduced gizzard shad. Average weight at a given length was nearly identical for both years. The table in the opposite column shows average weight at length both pre

(2013) and post (2014) gizzard shad removal.

3) How can you be sure that rotenone affects gizzard shad but not the other species?

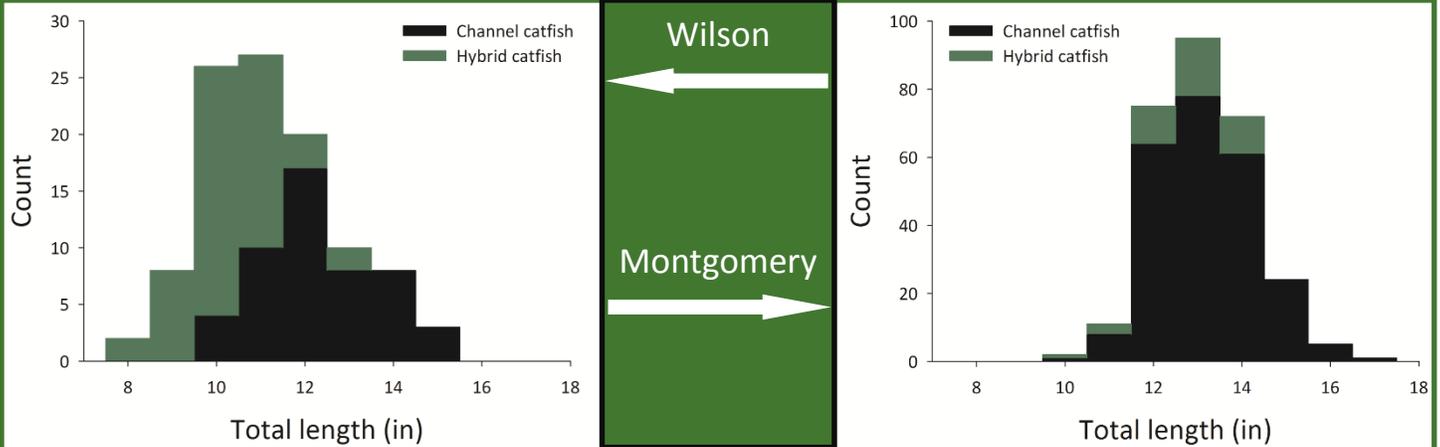
We relied on an abundance of scientific literature to determine an application rate that would reduce or eliminate gizzard shad while minimizing mortality of desirable species. We originally settled on 9 parts per billion (0.38oz per acre foot). In lab trials, this concentration resulted in 100% gizzard shad mortality, about 20% bluegill mortality, and about 2% largemouth bass mortality. We were willing to sacrifice some bluegill, but didn't want to lose 20% of the population. This led us to our actual application rate of 7.5 parts per billion (0.32oz per acre foot). Looking at fish species composition on the shoreline following application, I'm confident we applied the correct dose.

Length (in)	2013 (lbs)	2014 (lbs)
8	0.21	0.21
9	0.31	0.31
10	0.43	0.43
11	0.58	0.59
12	0.76	0.77
13	0.98	1.00
14	1.24	1.26
15	1.59	1.57
16	1.95	1.93
17	2.37	2.35
18	2.84	2.82
19	3.37	3.35
20	4.28	4.28
21	5.01	5.01
22	5.81	5.81

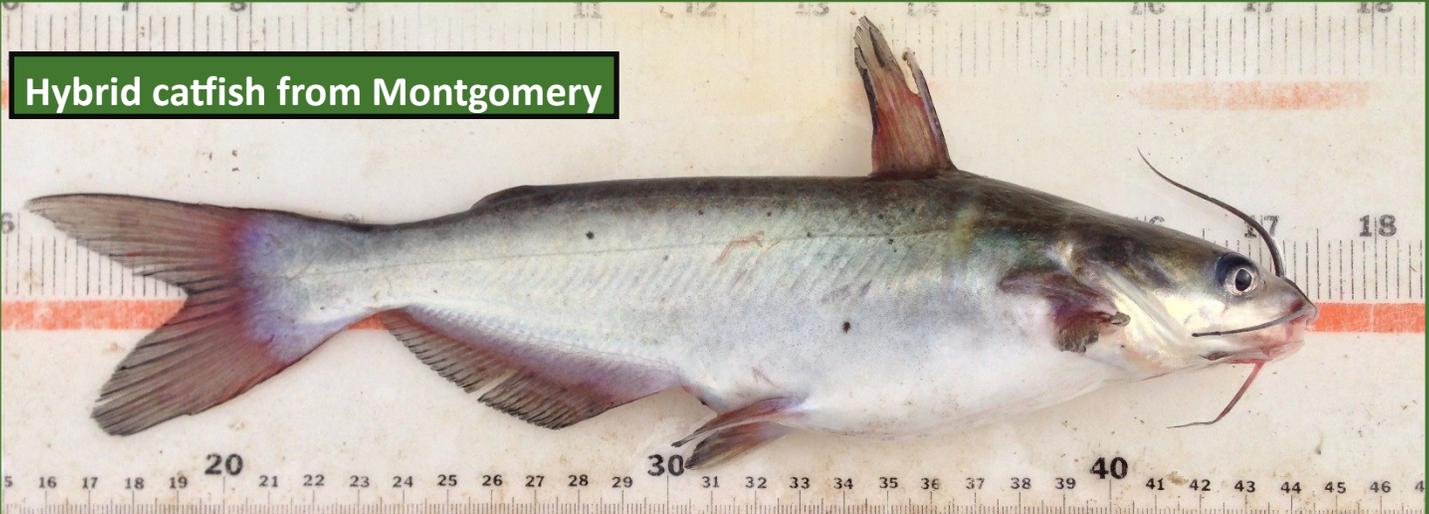
Hybrid Catfish Update

As you have probably heard, we are conducting an experiment with hybrid catfish in Montgomery and Wilson State Fishing Lakes. I'm happy to report that these fish are doing well. Hybrids are a little smaller than channels in Wilson and both species are about the same in Montgomery. As

expected, both species are growing quicker in Montgomery than Wilson. We are planning creel surveys at both lakes for the next few years to determine if either species is easier to catch.



Hybrid catfish from Montgomery



Channel catfish from Montgomery

Largemouth Bass Electrofishing

Big Hill

Big Hill remains a staple largemouth bass lake in this region. Even though it's only 1,240 acres, it fishes like a much bigger reservoir. Largemouth bass density and size structure have remained similar since 2010. In 2014, about 16% of sampled largemouth bass were 15" or greater. For comparison, nearly 31% of tournament-reported bass in 2013 were 15" or greater. We still aren't seeing many fish above the minimum length limit (21"). Smallmouth bass are maintaining a low-density population. However, we stocked about 10,000 smallmouth bass total in 2013 and 2014. We have another stocking of about 6,000 smallmouth requested for 2015. These stockings will simulate three consecutive strong year classes and should serve to bolster the population.

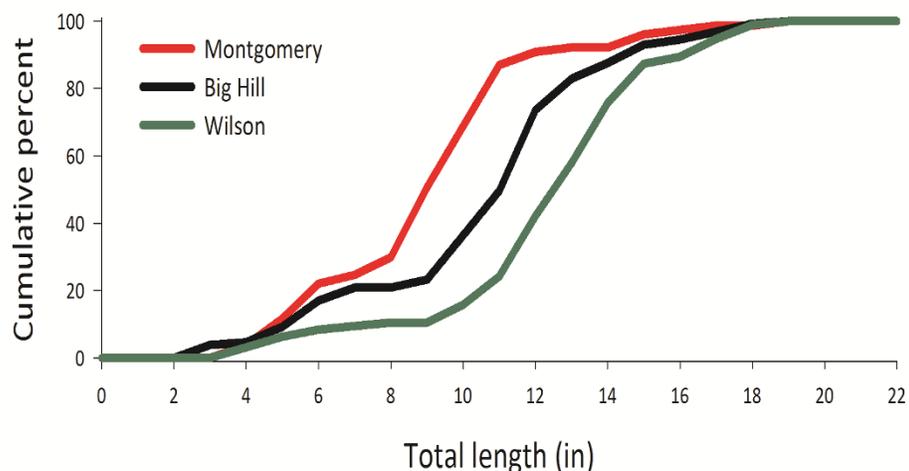
Relative abundance of largemouth bass over 8" has been pretty consistent from 2012 to 2014. However, the number of fish produced in 2014 has increased total abundance considerably. For reference, we sampled 252 fish per hour of electrofishing in 2014 and 194 per hour in 2013. That equates to a 30% increase in population density. Only 8% of sampled fish were within the 13 to 18" protected slot length range and only 1% were above the slot. This means that there are a lot of little fish in the lake right now. I strongly encourage you to harvest largemouth bass under 13" when you're out fishing at Montgomery State Fishing Lake. This will result in more bigger bass that everyone loves to catch.

Montgomery

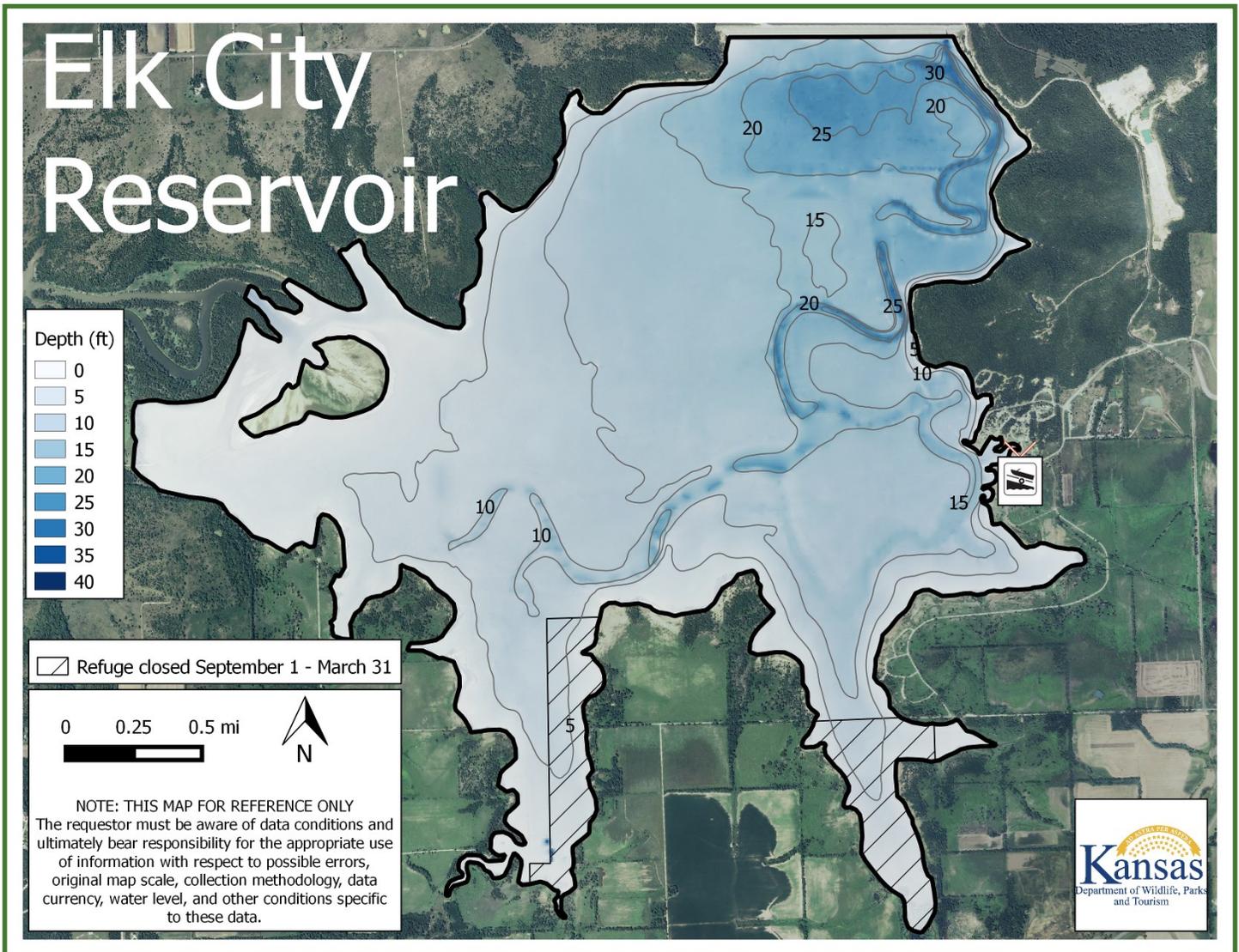
Wilson

Wilson State Fishing Lake continues its reign as the best spotted bass fishery in this part of the state. Spotted bass don't get as big as their largemouth bass congeners, but they make up for it with aggressiveness and the ability to put up a great fight. Similar to most years, spotted bass constituted about 1/3 of the black bass sample in 2014. Sampled fish ranged from 3 to 16" and 6% were 15" or greater. Largemouth bass varied from 3 to 19" and 24% were 15" or greater. Typically, spotted bass hang out closer to the dam while largemouth bass are further upstream or in coves. However, these populations overlap considerably and either species can be found anywhere in the reservoir. Expect both of these populations to stay strong in the coming years.

This figure demonstrates size structure of these three largemouth bass populations. For example, we can see that about 15% of sampled fish were 10" or less and 75% were 14" or less at Wilson. The same can be done for any length at each reser-



Reservoir bathymetry



Bathymetric mapping is important for managers to understand aquatic systems they manage and for anglers who want to catch more fish. We currently have several maps of local reservoirs available to download in .pdf format. Clicking the link or navigating to the web address will begin the download.

Elk City Reservoir: <http://goo.gl/JsnHCH>
Montgomery State Lake: <http://goo.gl/OgSLIW>
Wilson State Lake: <http://goo.gl/LBhne5>
Altamont City Lakes: <http://goo.gl/rulm1A>
Edna City Lake: <http://goo.gl/xbD5Jn>
Lake Tanko (Cherryvale): <http://goo.gl/aY84zq>

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