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Cedar Bluff District Fisheries

Kansas Department of Wildlife, Parks, and Tourism
Fisheries Division

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Notes from the Author

Overall 2016 was a positive year concerning aquatic resources in the Cedar Bluff District, as rainfall was relatively abundant over the course of the growing season. By the end of July 2016, 23.09 inches of precipitation had fallen at the Cedar Bluff dam, which was 167 percent more than the normal annual precipitation by that time of year.

During 2016, general wet conditions were sufficient to saturate soil and generate streamflow in the watershed. Heavier rains did generate flow in the river that increased the reservoir water level modest amounts. But most of the larger volume storms glanced across the watershed moving from southwest to northeast such that flows in the river were never really high volume or sustained. As such Cedar Bluff received a total of 10,451 acre feet of inflow by the end of July 2016, which resulted in a net water level increase of 1.08 feet by the end of July.

The increased precipitation around the district helped spring-fed lakes like Antelope Lake, Trexler Lake, and Lake Scott maintain near full pools for most of the growing season. However, dryer weather during the heat of the summer has pool elevations at these lakes down a few inches. Sheridan State Fishing Lake benefitted most from the wetter year as heavy rainfall in June increased the water level 3 feet to essentially full pool.

Although not all of the district lakes filled during 2016, just catching inflow will have positive impacts on respective fisheries. Inflow brings with it much needed nutrients. The nutrients, primarily nitrogen and phosphorus, increase planktonic algae production, which creates a cascade effect translating to increased energy up numerous channels in the food chain, ultimately ending with predatory sportfish. Increased water levels also flood terrestrial vegetation, creating physical habitat and also leaching additional nutrients into the aquatic system. Existing sportfish should grow faster and young sportfish spawned during the spring of 2016 should realize increased survival and ultimately recruitment to the fishery.

With fall sampling right around the corner, it will be interesting to see the results of this growing season. Given generally wetter conditions around the district, it is expected that the fall nets will show promise for upcoming years. And all this should culminate in improved angling opportunities over the next several years.

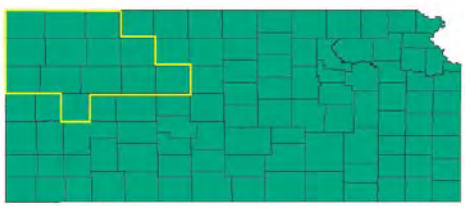


Figure depicting counties included in the Cedar Bluff District

Zebra Mussels Found in Cedar Bluff Reservoir

The Kansas Department of Wildlife, Parks and Tourism (KDWPT) has confirmed the presence of invasive zebra mussels in Cedar Bluff Reservoir in Trego County. The lake is owned and operated by the federal Bureau of Reclamation (BOR). In July, the BOR conducted its annual plankton sampling survey, which revealed zebra mussel veligers (larvae). The results were reported to KDWPT aquatic nuisance species staff on Wednesday, August 24. Department fisheries staff began a search on August 25 and found a population of adult zebra mussels near the Muley Boat Ramp on the south side of the reservoir. Cedar Bluff Reservoir is the western-most reservoir in Kansas confirmed to have zebra mussels. There is no known method to completely rid a lake of this invasive species.

While the reservoir is managed by the BOR, KDWPT manages the fishery. The lake consists of about 6,869 surface acres at conservation level and has a maximum depth of approximately 70 feet. Cedar Bluff State Park and the lake are popular destinations and offer a variety of recreational activities such as boating, skiing, swimming, fishing, camping, and hiking.

Lake enthusiasts play the primary role in stemming the spread of zebra mussels to uninfested lakes. “Zebra mussel larvae, or veligers, are microscopic and undetectable to the naked eye, so everyone who visits a Kansas lake needs to be aware that transferring water between lakes can lead to more infestations,” said Jeff Koch, KDWPT Aquatic Research Biologist.

Prevention is the best way to avoid spreading aquatic nuisance species (ANS). They often travel by “hitchhiking” with unsuspecting lake-goers. “Everyone who recreates on Kansas lakes should clean, drain, and dry their boats and equipment before using another lake. In addition, don’t transfer lake water or live fish into another body of water, as this is a main way that all aquatic nuisance species move between lakes,” Koch said.

Cedar Bluff Reservoir and the Smoky Hill River downstream from the reservoir east to Kanopolis Reservoir will be added to the list of ANS-designated waters in Kansas, and notices will be posted at various locations around the reservoir. Live fish may not be transported from ANS-designated waters. The sharp-shelled zebra mussels attach to solid objects, so lake-goers should be careful when handling mussel-encrusted objects and when grabbing an underwater object when they can’t see what their hands may be grasping. Visitors should protect their feet when walking on underwater or shoreline rocks.

Zebra mussels are just one of the non-native aquatic species that threaten our waters and native wildlife. After using any body of water, people must remember to follow regulations and precautions that will prevent their spread:

- Clean, drain and dry boats and fishing and water recreation equipment between uses
- Use wild-caught bait only in the lake or pool where it was caught
- Do not move live fish from waters infested with zebra mussels or other aquatic nuisance species
- Drain livewells and bilges and remove drain plugs from all vessels prior to transport from any Kansas water on a public highway
- For more information about aquatic
- nuisance species in Kansas, report a possible ANS, or see a list of ANS-designated waters, visit ProtectKSWaters.org.

ABOUT ZEBRA MUSSELS

Zebra mussels are dime-sized mollusks with striped, sharp-edged, two-part shells. They can produce huge populations in a short time and do not require a host fish to reproduce. A large female zebra mussel can produce 1 million eggs, and then fertilized eggs develop into

Zebra Mussels continued…
microscopic veligers that are invisible to the naked eye. Veligers drift in the water for at least two weeks before they settle out as young mussels which quickly grow to adult size and reproduce within a few months.

After settling, zebra mussels develop byssal threads that attach their shells to submerged hard surfaces such as rocks, piers, and flooded timber. They also attach to pipes, water intake structures, boat hulls, propellers, and submerged parts of outboard motors. As populations increase, they can clog intake pipes and prevent water treatment and electrical generating plants from drawing water. In 2012, two Kansas communities, Council Grove and Osage City experienced temporary water shortages from zebra mussel infestations before water intake structures could be cleaned up. Removing large numbers of zebra mussels to ensure adequate water flow can be labor-intensive and costly.

Zebra mussels are native to the Black and Caspian seas of Western Asia and Eastern Europe and were spread around the world in the ballast water of cargo ships. They were discovered in Lake St. Clair and the Detroit River in 1988 and quickly spread throughout the Great Lakes and other rivers including the Mississippi, Illinois, Ohio, Tennessee, Arkansas and Hudson. They were first discovered in Kansas in 2003 at El Dorado Reservoir. Despite public education efforts to alert boaters about the dangers of zebra mussels and how to prevent spreading them, the species continues to show up in new lakes every year. Moving water in boats and bait buckets has been identified as a likely vector.

For information about Cedar Bluff Reservoir, visit http://ksoutdoors.com/Fishing/Where-to-Fish-in-Kansas/Fishing-Locations-Public-Waters/Northwest-Region/Cedar-Bluff-Reservoir or the BOR site at http://www.usbr.gov/gp-bin/arcweb_cbks.pl

Adult zebra mussels from Cedar Bluff

2016 Cedar Bluff District Stocking Report

One year old saugeye resulting from fry stocking at a Cedar Bluff District water

Water	Species	Size	# Stocked	Date Stocked
Atwood Lake	Saugeye	Fry	27,600	4/19/2016
Atwood Lake	Channel Catfish	6-10"	421	9/1/2016
Colby-Villa High Lake	Channel Catfish	0.75 lb. avg.	100	5/5/2016
Colby-Villa High Lake	Channel Catfish	0.75 lb. avg.	150	9/12/2016
Ellis City Lake	Flathead Catfish	2 lb. avg.	30	5/26/2016
Ellis City Lake	Bluegill	Adult	94	6/2/2016
Ellis City Lake	Largemouth Bass	Adult	30	6/11/2016
Ellis City Lake	Green Sunfish	Adult	165	6/11/2016
Ellis City Lake	Channel Catfish	5 lb. avg.	201	7/18/2016
Ellis City Lake	Channel Catfish	5 lb. avg.	85	7/26/2016
Ellis City Lake	Channel Catfish	6-10"	753	9/1/2016
GH Co.-Antelope Lake	Saugeye	Fry	80,000	4/19/2016
GH Co.-Antelope Lake	Wiper	Fry	8,000	5/11/2016
GH Co.-Antelope Lake	Channel Catfish	6-10"	2002	8/23/2016
GH Co. FISH-Trexler Lake	Walleye	Fry	129,000	4/19/2016
Hays-Vineyard Park Pond	Channel Catfish	0.75 lb. avg.	75	5/5/2016
Hays-Vineyard Park Pond	Channel Catfish	0.75 lb. avg.	106	9/12/2016
Scott State Fishing Lake	Saugeye	Fry	172,500	4/19/2016
Scott State Fishing Lake	Channel Catfish	6-10"	4,025	10/5/2016
Sheridan State Fishing Lake	Saugeye	Fry	67,000	4/19/2016
Sheridan State Fishing Lake	Wiper	Fry	6,700	5/11/2016
Sheridan State Fishing Lake	Channel Catfish	6-10"	1,007	8/23/2016
St. Francis-Keller Lake	Channel Catfish	6-10"	78	9/1/2016
St Francis Wildlife Area N Pit	Channel Catfish	6-10"	26	9/1/2016
St Francis Wildlife Area S Pit	Channel Catfish	6-10"	52	9/1/2016

Sheridan SFL Fishing Pier Renovation

Sheridan fishing pier prior to renovation

Sheridan fishing pier after renovation showing addition of new concrete

Sheridan State Fishing Lake located approximately 11 miles east of Hoxie on state highway 24 is managed primarily for public fishing and is a popular destination for northwest Kansas anglers. As part of making Sheridan an angler-friendly facility, shoreline access was enhanced via construction of a fishing pier on the east side of the lake. After being subject to years of angler use and environmental elements the pier had become eroded.

Through collaborative efforts between the Sheridan County landfill, Kansas Department of Transportation, and KDWPT, chunk and crushed concrete was added to the eroded fishing pier during the spring of 2016 at minimal cost to renovate the structure. The resulting pier post-renovation is now a much wider, erosion-proof, and angler-friendly structure.

The desired outcome

Fish Habitat Enhancement at Scott SFL

Fisheries managers have traditionally conducted various habitat manipulations aimed at improving fishing success. Habitat manipulations generally improve angling success by increasing availability of spawning and/or nursery habitat available to a particular species, and concentrating fish in known areas where they are more accessible to anglers.

From July 18 to August 9, 2016 habitat structures in the form of whole cedar trees were installed in pre-determined locations at Lake Scott. Eastern red cedar trees were cut via chainsaw from the state park property surrounding the lake, drug by pickup or ATV to staging areas at Flatland and Lakeview campgrounds, and subsequently loaded onto a 30-foot-long pontoon habitat barge to be sunk in the lake. The cedar trees used were cut from targeted areas where the trees were encroaching on facilities such as roads and the horse trail. Native prairie restoration was also a side benefit as trees were also cut from areas where fire suppression over the years has resulted in succession of the areas from grassland to near cedar tree forest. From a fisheries perspective, the intent of the project was to diversify fish habitat on the main lake and create/maintain areas that concentrate fish to improve angler success.

Using the pickup to drag and stage trees

Prior to 2016, fish habitat enhancement was conducted during 2010 and resulted in fish attractors that were primarily constructed in deeper water adjacent to shoreline access points in hopes of providing both shoreline and boat angling opportunities. Each of the structures constructed during 2010 consisted of multiple cedar trees piled together in discrete areas. During 2016, additional trees were added to each of the older structures as a maintenance step and emphasis was placed on adding trees on the nearshore side of the existing piles so that shoreline anglers could more easily cast to the brush.

Typical open-water fish attractor composed of multiple trees

Diversifying shoreline habitat complexity was a priority during the 2016 habitat project, but a primary goal was to benefit shore anglers since 85 percent of fishing pressure exerted at Lake Scott is from shore. Shoreline habitat structures differed from deeper, open-water type structures in that the shoreline structures consisted of single large trees placed individually along predetermined areas. The approach in 2016 differed from that in 2010 because we had capability to load larger trees on the habitat barge made possible by the high-capacity winch installed on the barge.

All told, the 2016 fish habitat enhancement project required the use of approximately 400 concrete anchors that weighed about 50 pounds each to sink approximately 125 trees in the lake. All of the fish attractors constructed in 2010 received addition of new trees in 2016. An additional deeper, open-water fish attractor was constructed toward the east end of the dam.

Scott Habitat continued…
And groups of single shoreline oriented structures were placed along shores of the Apache, Lakeview, and Bull Canyon campgrounds as well as the north shore of Timber Canyon Cove.

Shoreline oriented habitat structure comprised of a single tree

The increased fish habitat diversity will benefit Lake Scott sportfish in many ways such as providing hiding places from which bass and crappie can ambush prey, provide predator escape habitat for young sportfish, and nesting habitat for spawning catfish to name a few benefits. Since different species and sizes of fish will use the habitat for different reasons, there is no doubt that the added structures will attract and hold fish in direct proximity of the brush. With this in mind anglers should realize increased fishing success resulting from the habitat manipulation.

District Lake Mapping

Successfully catching fish requires a synergism of multiple variables such as bait/lure type, fish feeding behavior, and fish location, to name a few. Locating fish has become easier with technological advances in sonar and global positioning systems (GPS) that have become available to the average angler.

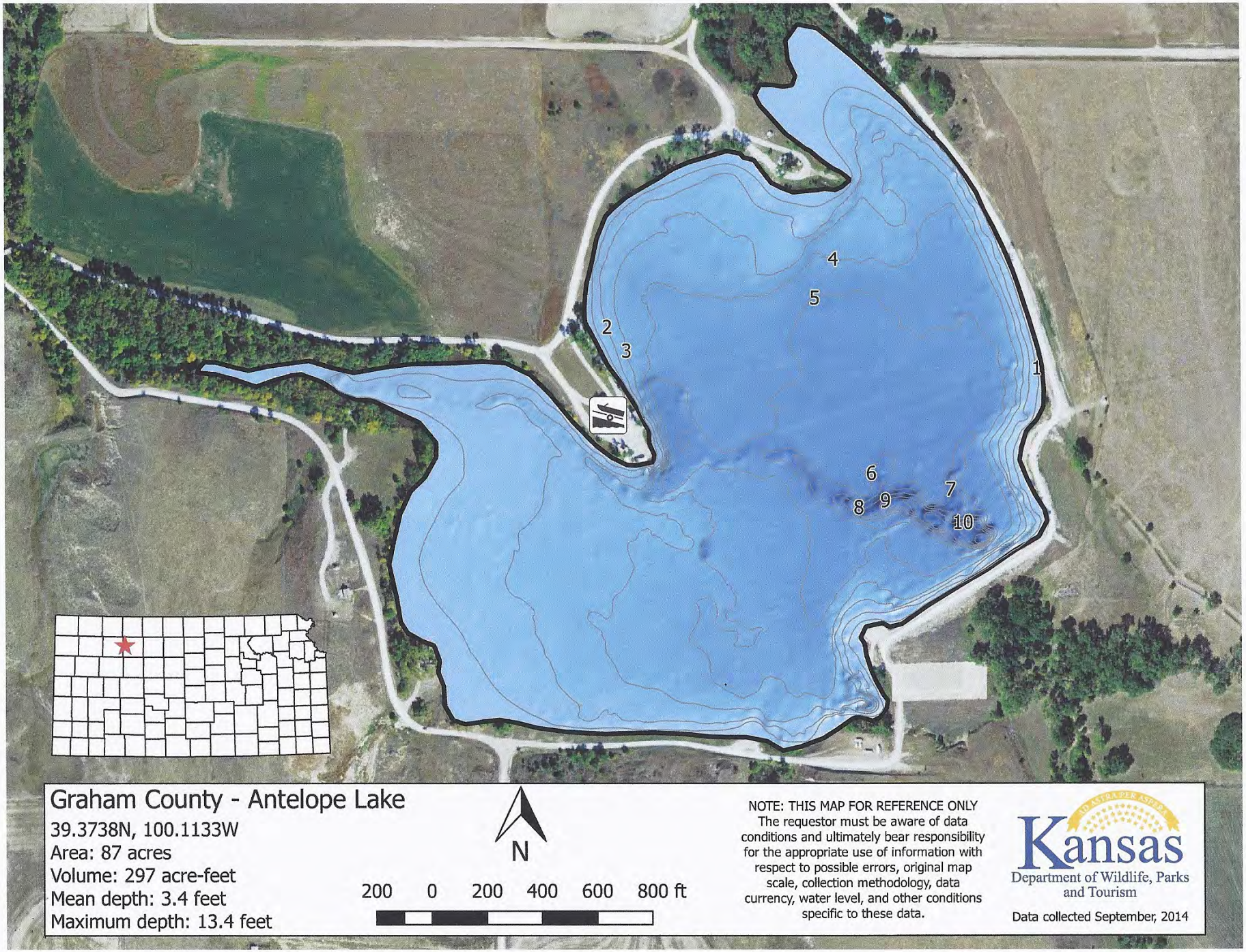
A good starting point to locating fish is becoming familiar with the bottom topography of a given lake as most species of fish relate to bottom structure such as underwater points, shelves, and creek channel edges. A bathymetric map is an indispensable tool when it comes to increasing one's understanding of a lakes underwater structure. A bathymetric map could be thought of as a reverse topographical map, in that instead of depicting changes in the elevation on the landscape, a bathymetric map depicts changes in depth between the surface and the bottom within a lake basin.

Creating bathymetric maps requires collection of individual depth readings at georeferenced points (i.e. a data point having three corresponding known dimensions of latitude, longitude, and depth), and superimposing depth data on an outline of a lake's shoreline. Prior to the advent of GPS, collection of georeferenced depth data was costly and laborious, as it entailed developing a grid system of known spacing on the surface of the lake and collecting depth readings at know points on the grid. The grid and depth information was later superimposed onto an aerial photo or other shoreline outline of the lake with known scale. After the raw depth data was transferred to the shoreline outline map, the mapper would simply draw depth contours usually at whole number depth intervals by interpolating (i.e. best guessing) the particular contour's location on the map based upon the raw depth information. Cost and labor co-increased with the number of depth data points collected as more data points are necessary to map larger lakes and improve map resolution.

With the relatively recent combination of GPS, depth determination, and data logging capabilities of commercially available depth finders it has become easier to collect a large amount of georeferenced depth information on larger lakes.

A low-cost methodology for assimilating and processing the georeferenced data collected via depth finder was developed by KDWPT Fisheries Research Biologist Ben Neely using primarily free-ware statistical and geographic information systems software. This methodology created a very low-cost way for KDWPT to create bathymetric maps, and efforts are underway to develop maps for most lakes of small to moderate size across Kansas.

In the Cedar Bluff District; Graham Co.-Antelope Lake, Scott State Fishing Lake, Sheridan State Fishing Lake, and Graham Co. FISH-Trexler Lake have been mapped. Each map is included on it's own full page following in this newsletter so the subscriber can print out their own fishing map. Each bathymetric map conveys a good overall look at the bottom contours of each lake, revealing fish attracting structures so anglers can locate and catch more fish.


1
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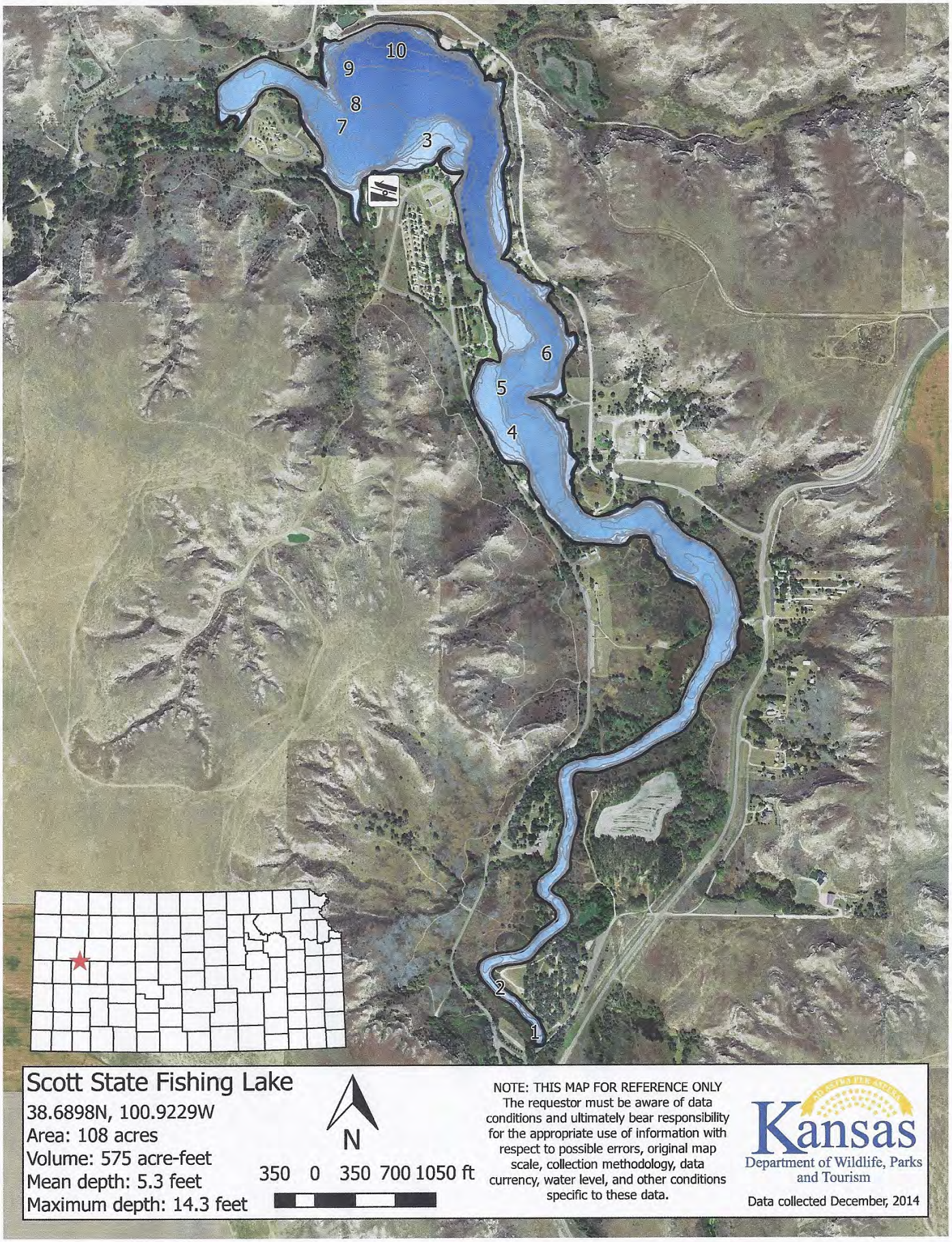
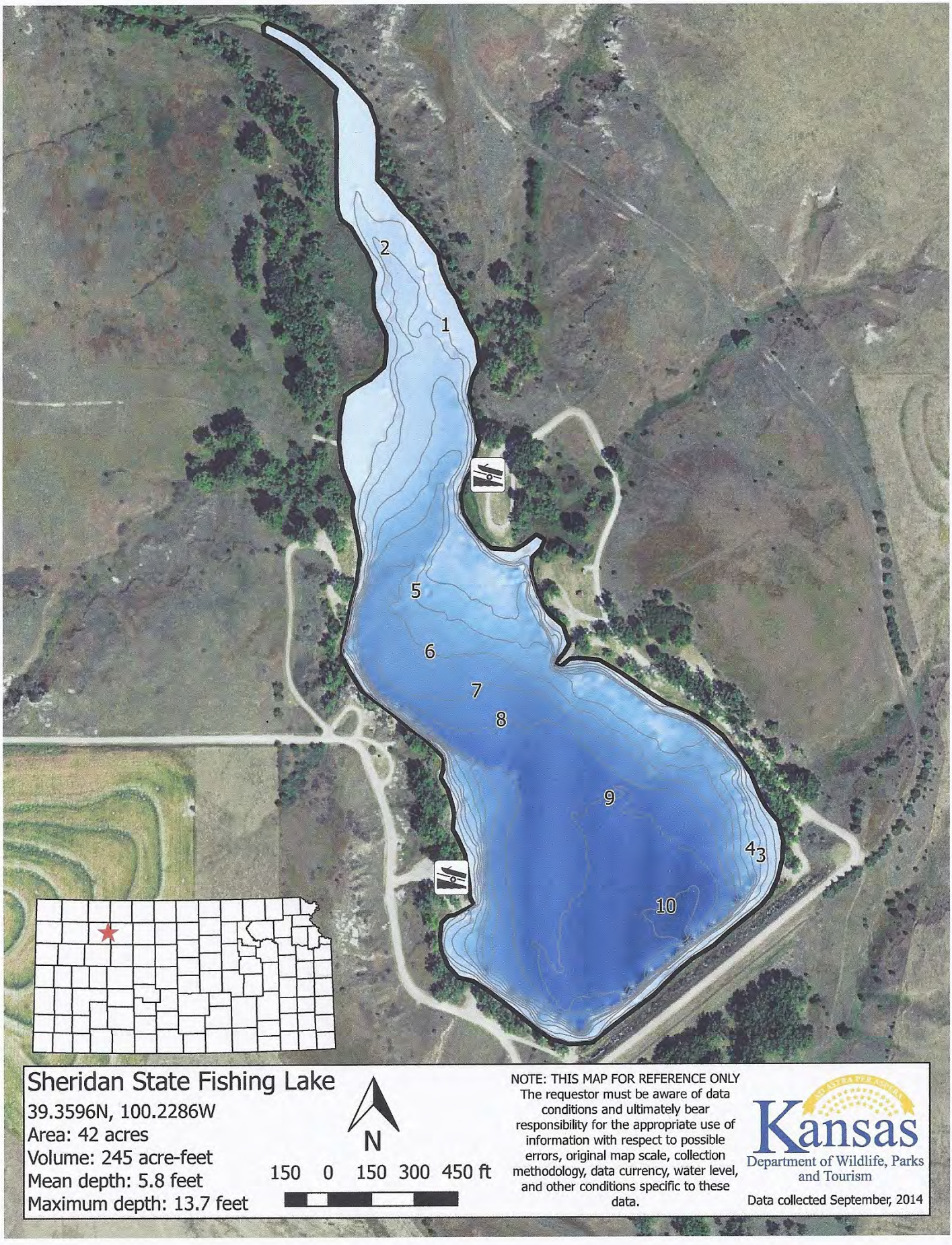
10
Graham County - Antelope Lake
39.3738N, 100.1133W
Area: 87 acres
Volume: 297 acre-feet
Mean depth: 3.4 feet
Maximum depth: 13.4 feet
N
200 0 200 400 600 800 ft
NOTE: THIS MAP FOR REFERENCE ONLY
The requestor must be aware of data conditions and ultimately bear responsibility for the appropriate use of information with respect to possible errors, original map scale, collection methodology, data currency, water level, and other conditions specific to these data.
Kansas
Department of Wildlife, Parks and Tourism
Data collected September, 2014


10
9
8
7
3
6
5
4
2
1
Scott State Fishing Lake
38.6898N, 100.9229W
Area: 108 acres
Volume: 575 acre-feet
Mean depth: 5.3 feet
Maximum depth: 14.3 feet
N
350 0 350 700 1050 ft
NOTE: THIS MAP FOR REFERENCE ONLY
The requestor must be aware of data conditions and ultimately bear responsibility for the appropriate use of information with respect to possible errors, original map scale, collection methodology, data currency, water level, and other conditions specific to these data.
Kansas
Department of Wildlife, Parks and Tourism
Data collected December, 2014


2
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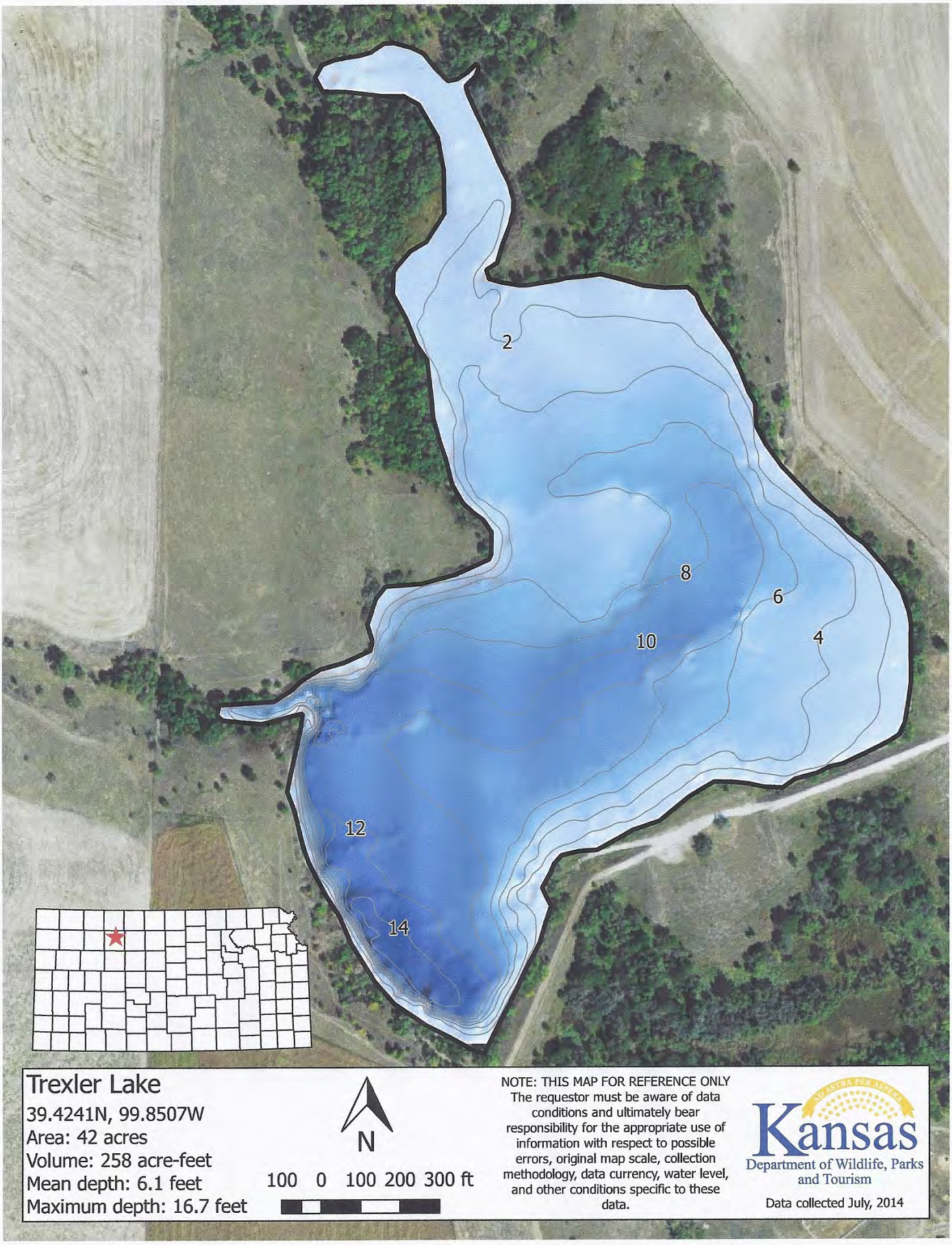
10
Sheridan State Fishing Lake
39.3596N, 100.2286W
Area: 42 acres
Volume: 245 acre-feet
Mean depth: 5.8 feet
Maximum depth: 13.7 feet
N
150 0 150 300 450 ft
NOTE: THIS MAP FOR REFERENCE ONLY
The requestor must be aware of data conditions and ultimately bear responsibility for the appropriate use of information with respect to possible errors, original map scale, collection methodology, data currency, water level, and other conditions specific to these data.
Kansas
Department of Wildlife, Parks and Tourism
Data collected September, 2014


2
8
6
10
4
12
14
Trexler Lake
39.4241N, 99.8507W
Area: 42 acres
Volume: 258 acre-feet
Mean depth: 6.1 feet
Maximum depth: 16.7 feet
N
100 0 100 200 300 ft
NOTE: THIS MAP FOR REFERENCE ONLY
The requestor must be aware of data conditions and ultimately bear responsibility for the appropriate use of information with respect to possible errors, original map scale, collection methodology, data currency, water level, and other conditions specific to these data.
Kansas
Department of Wildlife, Parks and Tourism
Data collected July, 2014