

Northwest District Sandhill Lakes

2022 Survey Summary

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Introduction

The sandhill region of Nebraska is a unique geographical region comprised of stabilized sand dunes, exposed groundwater lakes in the valleys, and perched mineralized lakes on poorly drained soils. A few lakes are watered by artesian wells and springs while the majority of lakes depend on the water table and fluctuate with its seasonal levels. Most lakes in the sandhill region are either too shallow or too alkaline to support a long-term fishery. Sandhill lakes are typically shallow, vegetated, highly productive systems with fisheries that consist of yellow perch, bluegill, black crappie, largemouth bass, northern pike, black bullhead, and green sunfish. Some lakes may include additional species such as walleye, saugeye, smallmouth bass, catfish, common carp, or muskellunge. The following summary is for sandhill lakes with public access that were surveyed in 2022. Fisheries data from the Valentine NWR is not included in this report but can be found at <http://outdoornebraska.gov/fishsamplingreports/>. An interactive map of lake locations and species composition can be found at <http://maps.outdoornebraska.gov/fishing/>.

Sampling Methods

Sandhill lakes typically get surveyed at least once every 3 years for each priority species. Largemouth bass are surveyed at night by electrofishing while shoreline oriented species (bluegill, crappie, yellow perch, and northern pike) are sampled using frame nets. A couple sandhill lakes have walleye, saugeye and catfish populations that are sampled by gillnets in the fall. Species collected during surveys are counted, measured, weighed, and some scales removed for aging before releasing. Biologists use this



information to monitor the health and size structures of each fish population. The following graphs and commentary are from surveys conducted in 2022 with suggestions on which sandhill lakes should produce quality fishing for each species. Anglers are reminded they should not rely solely on what the surveys indicate as patterns of weather and timing of the surveys could have effects on catch rates for certain species. For example yellow perch and northern pike are sampled in late March or early April when they are moving into the shallows to spawn; this can happen relatively quickly even within a few days making sampling of these species in several waterbodies relatively difficult.

Sandhill Surveys.

Drought conditions continued in 2022 and several lakes are seeing extremely low water levels. Defair, Rat and Beaver, Ballards Marsh, Crane Lake, Avocet, Walgren, and several lakes on the Valentine NWR are all below normal water elevations. Cottonwood Steverson and Island Lake both experienced record high water levels in 2019, but have receded back to approximately normal levels. Island Lake is still a little higher than normal as the fishing access walkway is still under water on the south side. In conjunction with low water levels, heavy snows and thick ice in 2022 / 2023 winter has resulted in a wide range oxygen issues in the sandhill lakes. Most lakes will likely see some winterkill issues that will be assessed when the ice comes off.

Surveys were conducted on eight sandhill lakes in 2022. Spring frame net surveys were conducted on Crescent Lake, Blue Lake, Crane Lake, Island, and Home Valley to evaluate panfish populations. Bass populations were surveyed on Island Lake and Smith WMA. Fall gillnet surveys were conducted on Crescent Lake, Cottonwood Steverson, and Big Alkali to monitor walleye, saugeye, and catfish populations. The following graphs and narrative is a summary of those results, but populations may be different depending on the extent of winterkill on these systems.

Yellow Perch

Crane Lake had the highest perch catch reported in 2022 at 454 fish per frame net. Although some perch over 12 inches were present in the sample, over 85 % of the population was under 8 inches. Island Lake had the second highest catch at 20.5 perch per net. This population had a good size structure with 91 % of the population between 8 and 12 inches. Some larger perch were also sampled. Blue Lake and Crescent Lake both had low abundance of perch and not many at harvestable sizes.

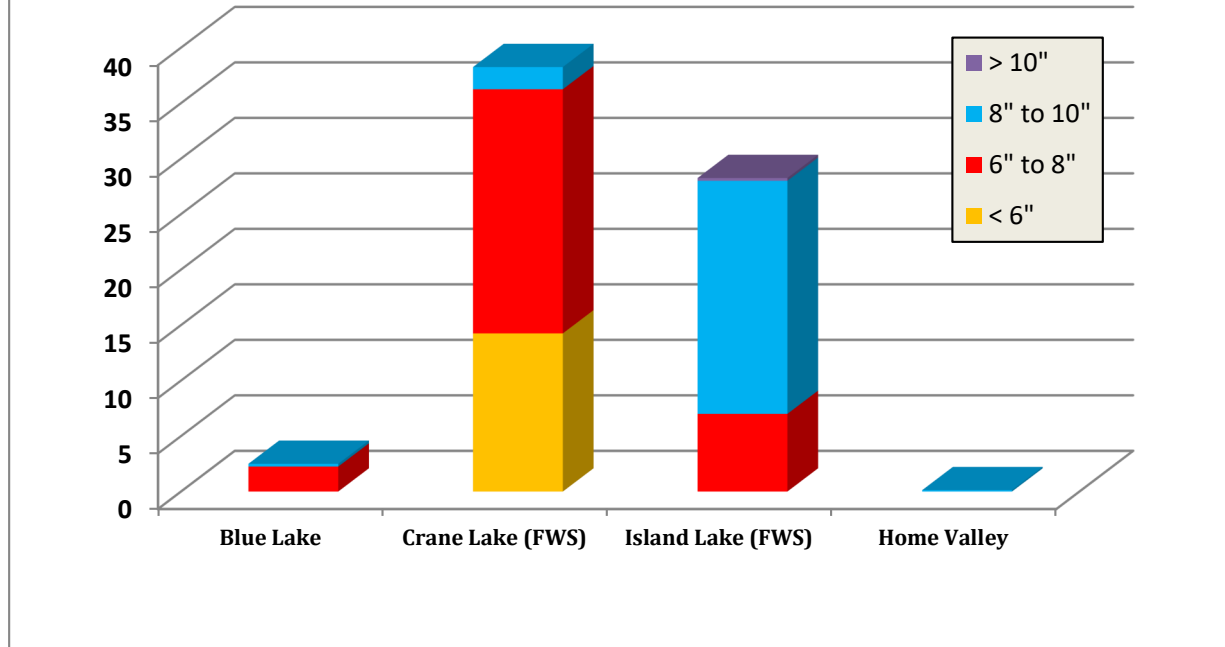
Although Home Valley was not surveyed for perch in 2022, angler reports indicated a good population of perch over 11 inches. Ice fishing pressure was relatively high on this body of water but anglers looking for trophy perch may find some if they survive winterkill.

Trophy Perch from Home Valley



Bluegill

2022 Bluegill Catch per Frame Net

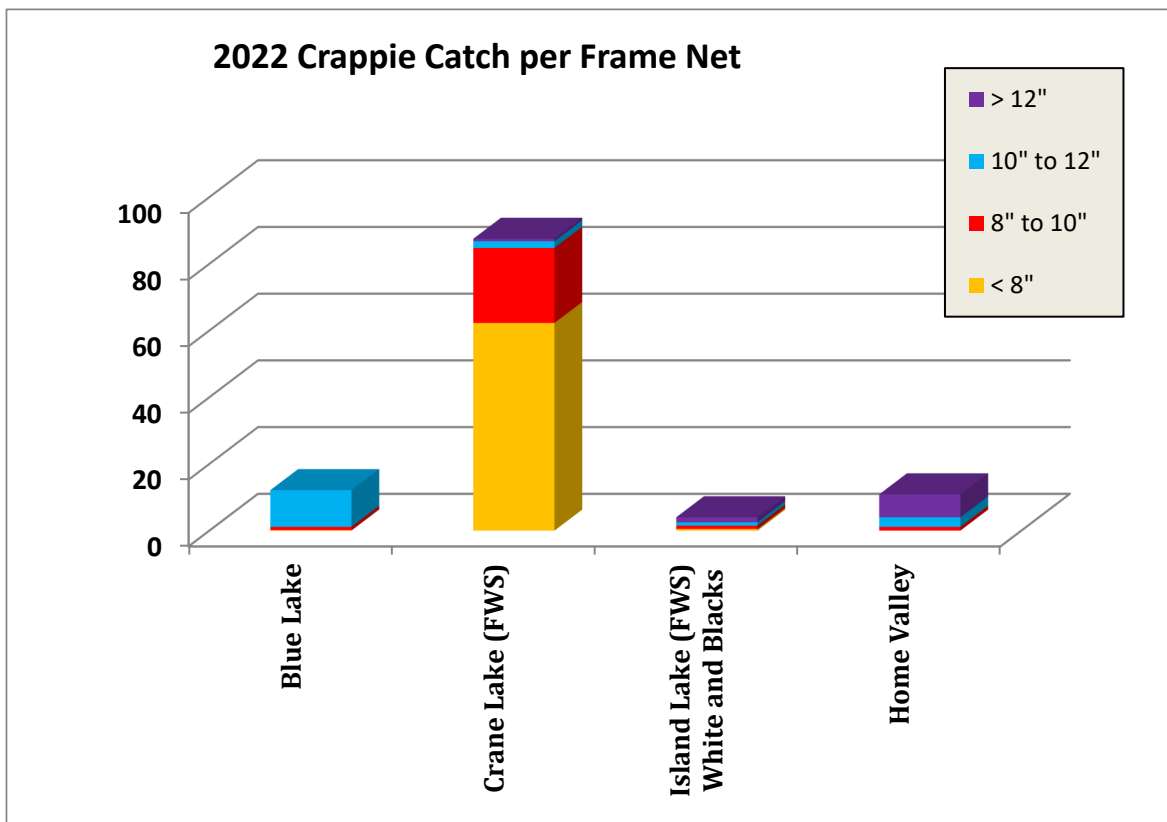


Master Angler bluegill from Smith WMA

Crane Lake had the highest bluegill catch in 2022 but Island had the best size structure with over 75% of the catch longer than 8 inches. Bluegill are rare in Blue Lake and Home Valley, but all sandhill lakes have the potential for bluegill over 8 inches.

Smith Lake and Frye Lake both consistently produce Master Anglers quality bluegill.

Crappie



Crappie do very well in sandhill lakes. Crane Lake had a high abundance of small crappie with the potential for a fish over 13 inches. The largest crappie surveyed came from Home Valley and measured 14.9 inches. Blue lake and Crescent Lake are both rebuilding their crappie populations and anglers can find good numbers of 10 to 11 inch fish in these systems.



Largemouth Bass

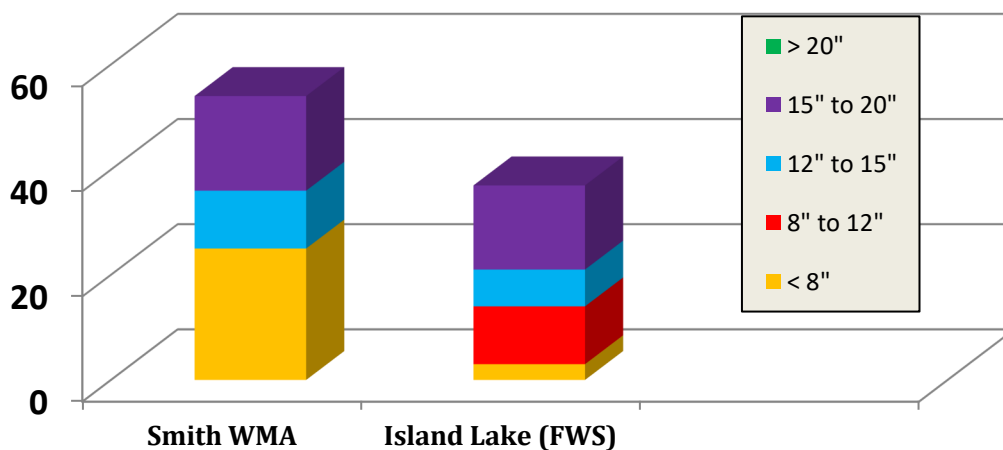
Island Lake and Smith Lake were the only two sandhill lakes outside of the Valentine Refuge Lakes that were surveyed for largemouth bass in 2022 in the NW district. Smith Lake had the highest catch at 54 bass per hour electrofishing. This is an average population compared to most sandhill lakes. Approximately 33% of the catch was over 15 inches with the largest bass sampled at 18.1 inches. Historically, Smith Lake would produce several Master Angler quality bass during a survey, however none were collected this year.

Island Lake had a slightly lower abundance of largemouth at 37 fish per hour electrofishing. The largest bass surveyed in 2022 came from Island Lake during the panfish survey and measured just over 20 inches.

Sandhill lakes that are either carp free, or have a low density carp population typically have quality bass fishing opportunities. Although several good bass populations will be impacted by winterkill, they should bounce back with fishable populations in the next 3 to 5 years.



2022 Largemouth Bass Catch per Hour Electrofishing



Walleye / Saugeye

Walleye and/or saugeye occur in 8 sandhill lakes of which 5 of those lakes were surveyed in 2022. Walleye were not targeted in Island Lake but some were collected during the panfish survey.

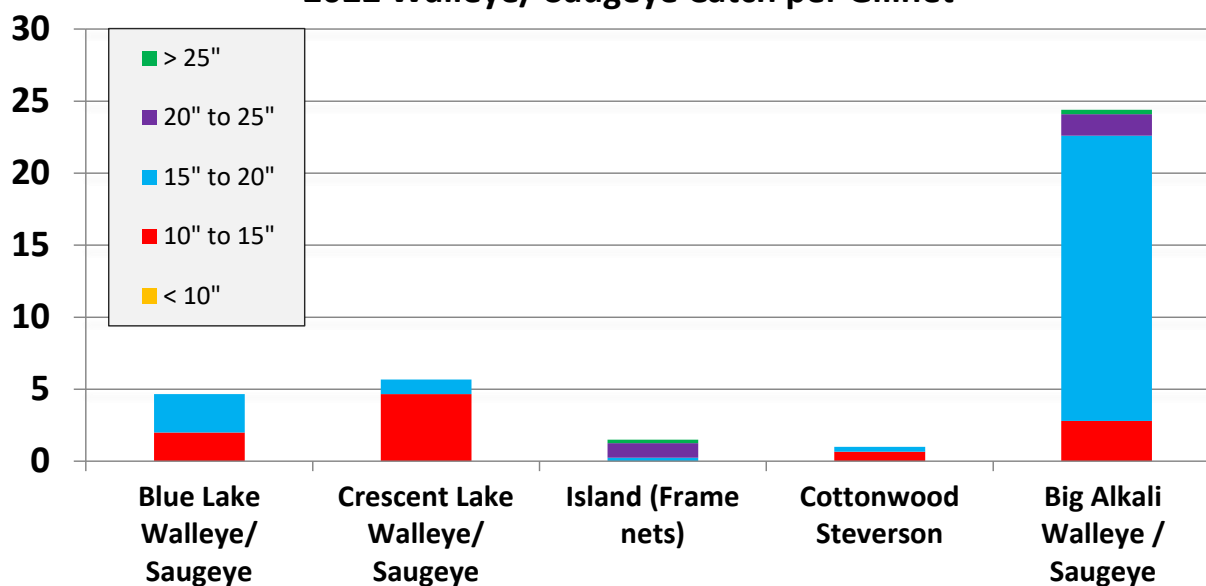
Big Alkali has both saugeye and walleye present in the system and had the highest combined catch in 2022 at 24.4 fish per gillnet.

Crescent Lake had the second highest density of walleye/ saugeye at 5.7 fish per gillnet. Contrary to Big Alkali, saugeye did not do well in Crescent Lake. Growth rates were very slow, and due to consistent high water and the possibility of saugeye escaping the lake and reaching Lake McConaughy (a walleye brood fish source for walleye production), saugeye stockings were switched over to walleye. Walleye are doing well with some fish exceeding the 15 inch statewide minimum size limit.

Cottonwood Steverson continues to struggle to establish a strong walleye population and remained low in 2022 at 1 fish per gillnet. Some big walleye still persist in the lakes and show up occasionally during spring frame net surveys and occasional angler reports.



2022 Walleye/ Saugeye Catch per Gillnet



Other Species

Black bullheads and green sunfish are two native species to sandhill lakes. Black bullheads are easily preyed upon by predator species such as largemouth bass. The best locations to target bullheads are lakes with low predator populations or out of balance fisheries which occurs commonly in the presence of common carp. Cottonwood Steverson, Crescent Lake, and Blue Lake all have good numbers of black bullheads.

Green sunfish are present in many sandhill lakes but seldom show up in fish surveys in very high abundance. When green sunfish and bluegill occur in the same lake they frequently hybridize. These hybrids are sampled more commonly than green sunfish. Island Lake is a good example of a location with a fair abundance of hybrid sunfish.



Channel Catfish are not typically stocked in sandhill lakes but Big Alkali and Walgren Lake are exceptions. Both of these lakes get an annual stocking and maintain quality catfish populations. In 2022, Walgren Lake was not surveyed, but Big Alkali had 9.3 catfish per gillnet. Frye Lake also received a couple catfish stockings following its renovation in 2002. The last stocking occurred in 2005 and a few individuals still show up in angler reports and occasional surveys.

Muskellunge can be found in Cottonwood Steverson, Crescent Lake, and Blue Lake with Cottonwood Steverson the best opportunity to catch one.



Creighton Nemnich with a trophy catfish from Frye Lake. Photo Credit: Geoff Nemnich



46" Muskie Collected in Cottonwood Steverson

Northern Pike

Northern pike were not targeted in 2022 during surveys but are found in Big Alkali, Smith Lake WMA, Walgren Lake, Blue Lake, and Crescent Lake. Northern Pike are an aggressive predator that remain shoreline oriented year-round. They can be caught on everything from live bait, to artificial lures such as crank baits, topwater lures, spinnerbaits, spoons, and jigs. Although many anglers target pike at ice out looking for pre-spawn fish, the best month to fish for pike is May and June when they are feeding in the post spawn period.

Winterkill

Winterkill is a natural occurrence on shallow, heavily vegetated lakes. Prolonged snow cover and thick ice can reduce light penetration that kills off submergent vegetation. The dying vegetation not only stops producing photosynthesis, but the decaying process utilizes oxygen and releases hydrogen sulfide gas. Fish species can detect declining oxygen levels and typically seek out oxygen rich refuges such as natural springs. When no refuges are present, fish will push high in the water column, usually directly below the ice to try and survive. Winterkills can be significant , however it is rare that all of the fish die.

The 2022 / 2023 winter has proven to be a harsh one producing ice thickness from 15 to 30 inches across much of the sandhills. Heavy snows covered the ice starting in December and extended into February 2023. Angler reports of poor fishing and seeing fish swimming funny up their ice holes indicated the inevitable. Fisheries staff went around and checked oxygen levels across the area to get an estimate of the lakes that may be impacted by winterkill. All impacted lakes will get planned stockings to reestablish the lost fisheries. As the ice goes out this spring, surveys will be conducted to see what was lost and what survived. Resources will be re-allocated as those results are identified. Restocked lakes may take 3 to 5 years before harvestable fish are present in the systems.



Common carp removed from a spring flow at Pelican Lake on the Valentine NWR

Aquatic Invasive Speceies

Over the past several years invasive species have become a rising concern in Nebraska. It is illegal to either arrive or leave any waterbody in Nebraska with water other than from a domestic source (water supply system, well or bottled) except for firefighting purposes.

Although Zebra mussels are a high concern across the state and nation, invasive plants such as Eurasian Watermilfoil and Curly-leaf Pondweed are both serious threat to sandhill lakes. These shallow lakes can become 100 percent covered and make fishing difficult to nearly impossible. Eurasian Watermilfoil was documented in Cottonwood Lake SRA, and Walgren Lake. Curly-leaf pondweed has been documented in Smith Lake WMA. A single segment of plant material can be transferred to another water body and form a new colony therefore removing any visible plant material from boats and trailers is a must and remember to **CLEAN, DRAIN, and DRY!**

CLEAN- Remove plants, animals, mud and thoroughly wash equipment that came into contact with the water.

DRAIN- Drain all water before leaving, including wells, bilge, ballast, and any parts or equipment that can hold water. Remember to remove all boat plugs before leaving the boat launch area and don't put them back in until ready to launch again.

DRY- Allow all equipment to dry completely before launching into another body of water. Don't fish more than one body of water in a day without drying all equipment first.

For more information on invasive species in Nebraska visit neinvasives.com.

For additional information about fisheries management in the sandhills please contact the following personnel by phone or email address listed below.

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