2020 Survey Summary
Sandhill Lakes
Northeast District

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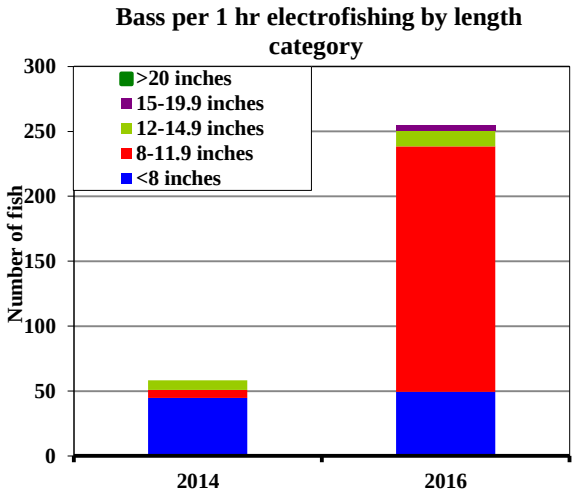
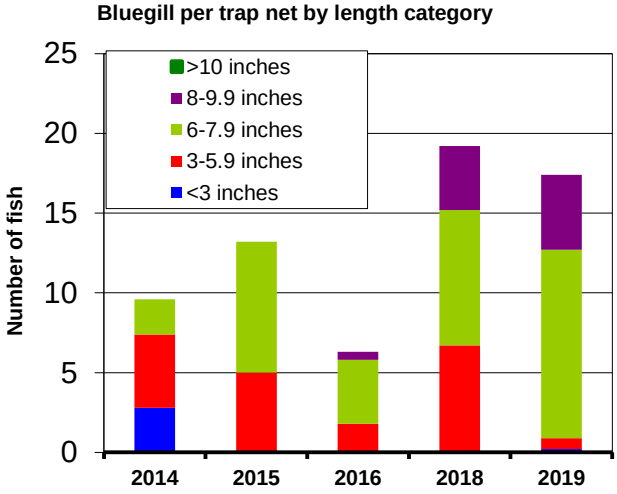
This summary pertains to those Sandhill lakes located in the Northeast District that were surveyed in 2020. Earlier data has been retained for comparisons. Panfish species and northern pike are sampled at various times in the spring with frame nets. Largemouth bass are sampled in the spring with night-time electrofishing gear. Walleye are best sampled with gill nets in the fall. Some lakes are sampled annually but most are surveyed rotationally every other year or every 3 years. Sandhill lakes can be naturally formed and are typically shallow and spring fed. Sometimes these lakes were formed when upstream hay meadows were ditched during the early settlement days or a drainage was blocked. These lakes are very productive and well suited to panfish species such as black crappie, bluegill and yellow perch as well as largemouth bass and northern pike. Additionally, we now have a viable walleye population in Willow Lake. Current regulations include an aggregate 15 fish daily bag limit on panfish with a possession limit of 30. Statewide minimum length limits are 15" for bass and walleye with a daily bag of 5 and 4 respectively, while the possession limit is twice the daily bag. Only one bass in the daily bag limit can be over 21" and only one walleye over 22" is allowed. The statewide daily bag limit for northern pike is 3 with only one 34" or longer with a possession limit of 10. Due to constraints from the COVID-19 epidemic, our survey efforts were reduced in 2020.

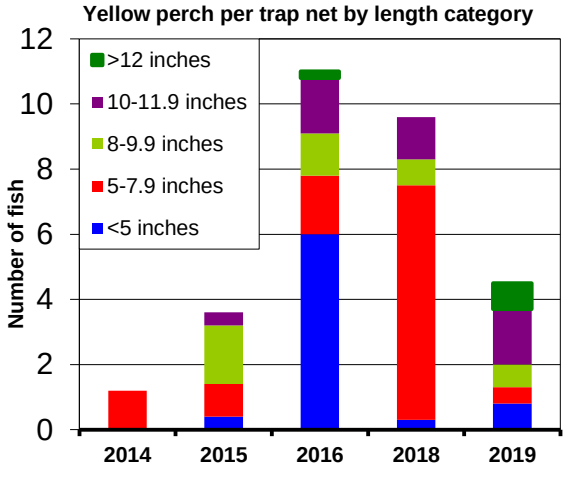
The drought of 2012 had a lasting affect on many lakes in the Sandhill region. The lower water levels reduced overall carrying capacity, increased the chance of summer and/or winter kills, and potentially hampered angling (difficult access or increased vegetation). Drought years can, however, provide an excellent opportunity to conduct renovations to remove common carp from Sandhill lakes. Both 2019 and 2020 were the wettest recorded, resulting in increased water levels which would normally be a benefit to the fisheries. However, the increase in water levels was extreme which provided connections among the lakes and streams in the region. These connections allowed common carp access to lakes that were recently renovated and lakes where carp had not been observed previously. There are 8 lakes discussed in this summary but not all of them were sampled in 2020. Clear, Cozad, Goose, Swan, Tower, Twin and Willow were full at the end of 2019 while Peterson filled this spring. Because renovations are so costly and very difficult for 100% success in large Sandhill lakes, individuals must not move carp or other unwanted species among waterbodies by any means (in other words, be cautious when using live baitfish and never release unused "minnows" into a waterbody).

Clear Lake

Clear Lake is located 19 miles south and 9 miles west of Ainsworth. It is a privately owned natural sandhill lake with no inflow or natural outflow. Carp gained access to the lake prior to 2007 via a man-made ditch and they eventually destroyed the water quality. This drainage ditch has since been filled and the lake was renovated in December of 2012 by NGPC Fisheries Division. The New Clear Lake Club, the US Fish & Wildlife Service, and the Sandhills Task Force split the cost of the chemical (rotenone) that was used to remove the carp population. Those same partners worked together this spring to install a Flatland Fish Stopper outlet. These outlets that have been in use on the Valentine South Refuge for several years. A year-round public fishing access on the east end of the lake has been provided through an agreement with the Club and includes a primitive boat ramp. The lake is currently at "full pool" with a maximum depth of over 12 feet.



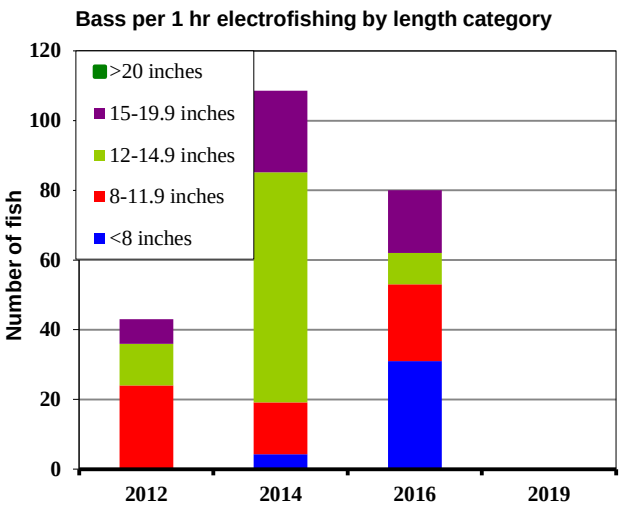


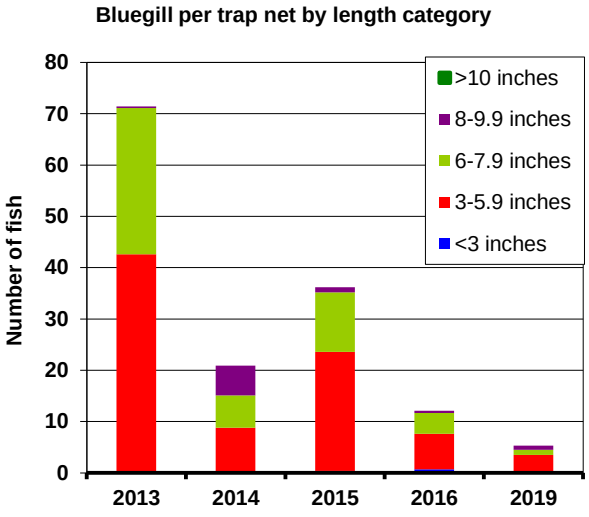


The last survey was in May of 2019 and the fishery appeared excellent. No black bullhead or carp have been sampled since the renovation. The late-May frame netting primarily targets bluegill and revealed a low- to moderate-density population with good size structure. The sampling likely occurred too late in the year to provide a good index of the yellow perch population (small sample size) but it did indicate good size distribution, including perch exceeding 12 inches. The bass population has not been sampled since 2016 but appeared, at that time, to be developing nicely. Anglers success has been improving for summer/fall and through the ice.

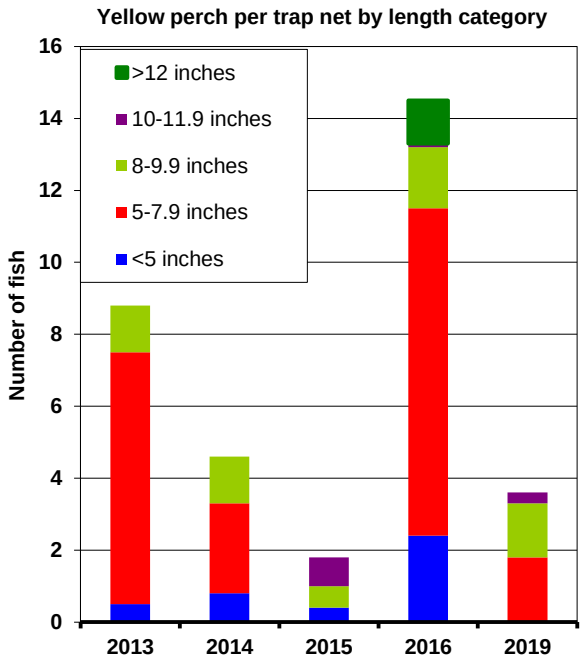
Cozad Lake

Cozad Lake is located on South Pine Wildlife Management Area (WMA) approximately 12 miles south and 1 mile west of Long Pine. It is a natural sandhill lake which usually has no inflow or outflow. Very high water levels that occurred in 2020 created a connection which allowed carp access to the lake for the first time as we know it. Carp were sampled for the first time in Cozad by daytime electrofishing in July of 2020. The water quality is still excellent but will likely degrade as the carp population expands. A handicap accessible parking area and boat ramp were installed in 2001. The biggest challenge with this lake is related to water levels, which can be quite variable. In June of 2010 there was water over the road for almost a mile of the county road leading to the parking area. From 2013-17 it was over 3 feet below the high water mark. Currently the lake is at full pool with water over the road again and running out. In expecting a need to renovate the lake at some point in the future, we have begun to search for a location to place some type of fish barrier.



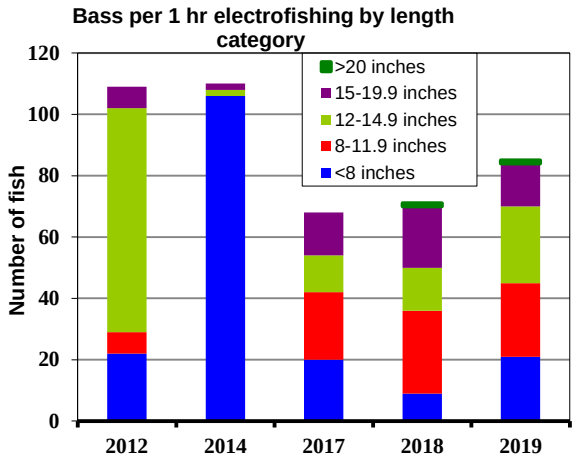


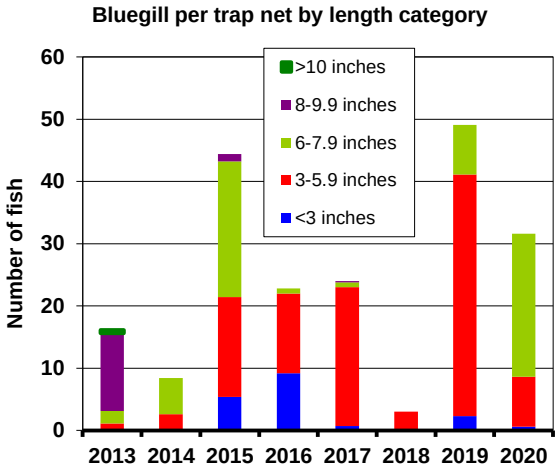
The lake was not sampled in the spring of 2020 due to flooded roads. The most recent sampling efforts indicated a moderate-density bass population with good size structure and low-density panfish (bluegill and yellow perch) populations made up primarily of smaller fish. Since the latter part of 2019 this lake has been full and running out. All of the species in this lake should initially respond favorably to this high-water condition. However, over time the sportfish populations will likely degrade due to the presence and expansion of the carp population in the lake.

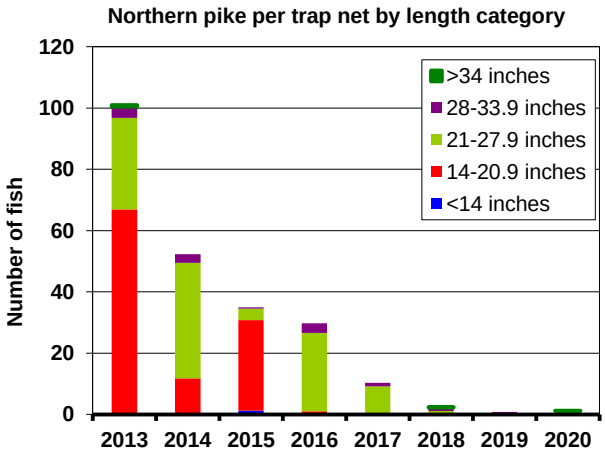


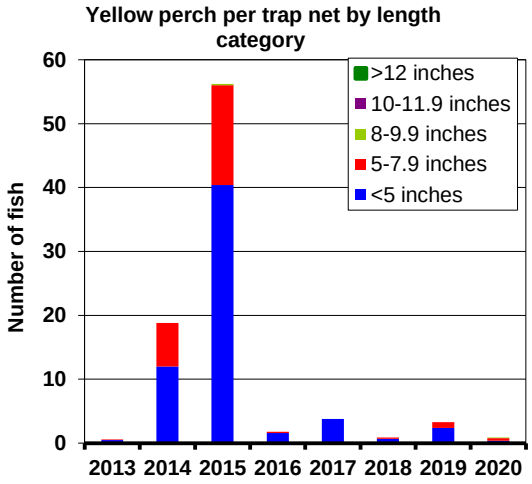
Goose Lake

Goose Lake is located approximately 23 miles south and 4 miles east of O'Neill. It is state owned and managed as a WMA. It is a natural sandhill lake which has seasonal inflow and outflow. The inflow and outflow channels are diked with screened flow-through structures. The lake was last renovated in 2003 but carp re-entered in the fall of 2009 and spring of 2010 when the barriers were inundated and overwhelmed by extremely high water levels. In 2015 an infestation of Eurasian Water Milfoil completely covered the lake but was successfully treated with an aquatic herbicide. The water level in the lake rose to "full pool" shortly after that treatment and remained so until mid-summer of 2020, after which precipitation levels declined substantially. Currently, the lake level is down over 3 feet. A concrete boat ramp is available and there is an irrigation well that can be used to maintain water levels during dry years.





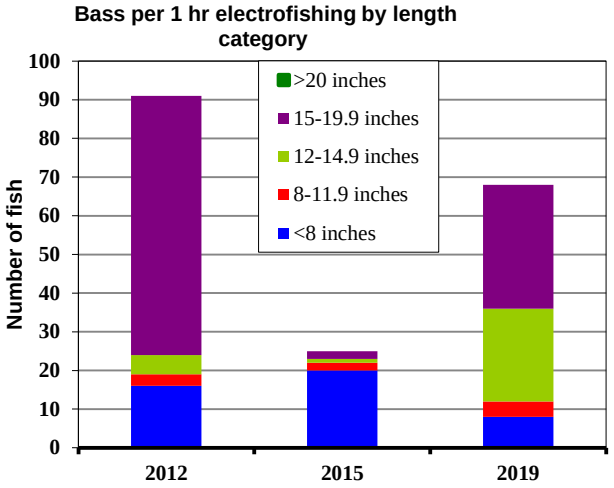


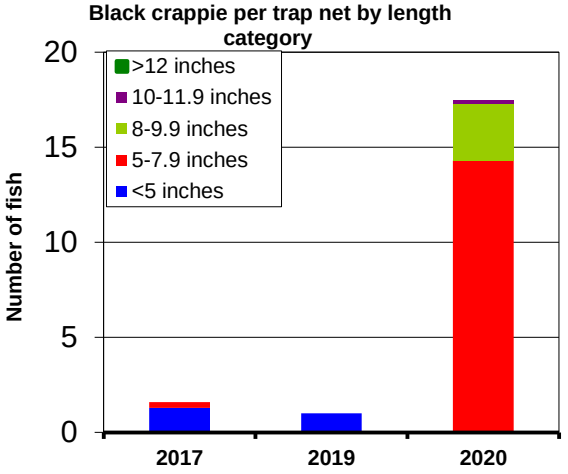


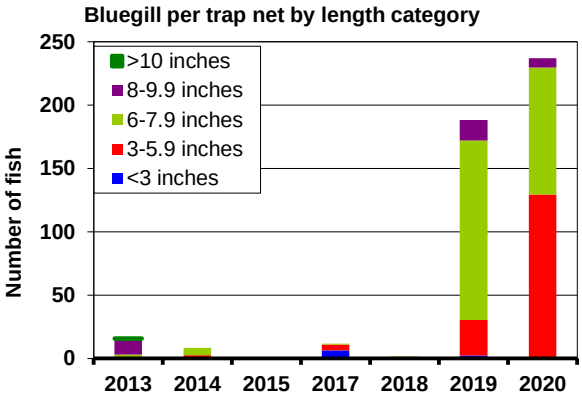
Frame netting is conducted in early March to target pike and perch while later frame net sampling occurs in May or June to assess the bluegill population. Bass are also sampled in the May to June time period. Over the last several years the bright spot for the lake has been the largemouth bass. We have sampled and anglers have been catching good numbers of bass, many of them really nice fish. Bluegill numbers and size structure improved somewhat in the last couple of years but not many exceed 7 inches while a harvestable-size perch (or a perch of any size) has been difficult to find for a number of years. Additionally, pike numbers have declined substantially in the lake as the carp population increased. High carp densities in the lake cause most other fish species to decline, whether it be in abundance or size structure or both. Without carp the lake is capable of growing thick stands of native aquatic vegetation and supporting a fast growing bass and panfish fishery along with an exceptional pike fishery. However, given the lake's current state, it seems that fishermen are struggling to catch much outside of early spring bass opportunity.

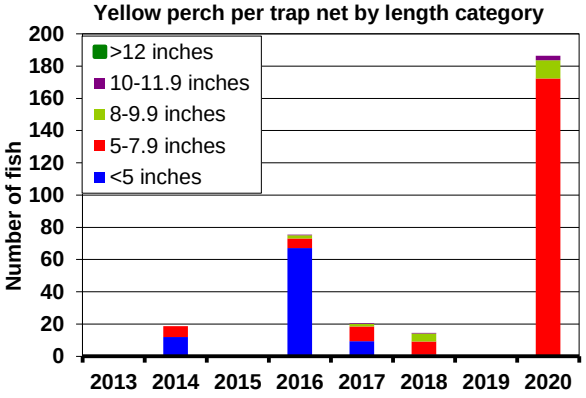
Swan Lake

Swan Lake is located 25 miles south of Atkinson and is a privately owned lake that is leased for public fishing access (no hunting access). It was renovated to remove carp in 2006 and they have not been sampled since. One was observed on the east side of the outlet structure in 2010 but it does not appear any were able to swim into the lake even after high water the following year. In 2012 improvements were made to the berms and outlet to keep carp from re-entering the lake. Following above-average precipitation in 2017-18 the lake attained its max depth of 9 feet and water was running out the overflow, something that hadn't happened since the spring of 2012. The lake stayed full through all of 2019 and for half of 2020, but dried out enough to put in an articulating cement boat ramp in the fall. A boat dock will be installed next spring. A blacktop road runs along the north side of the lake to access the parking area, ramp, and dock. Bank anglers can access a parking area directly across the lake on the south shore via a two track trail.





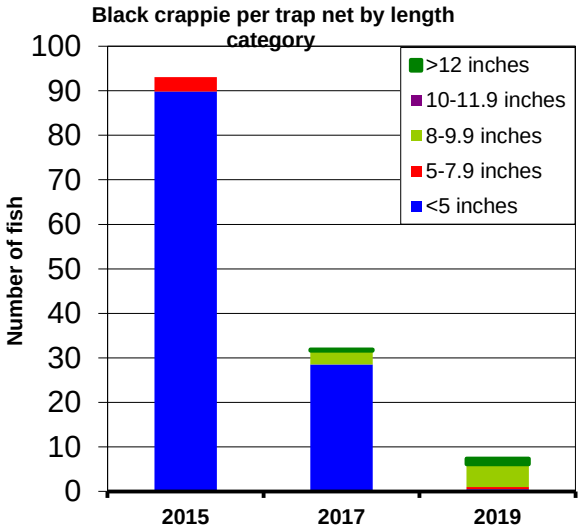


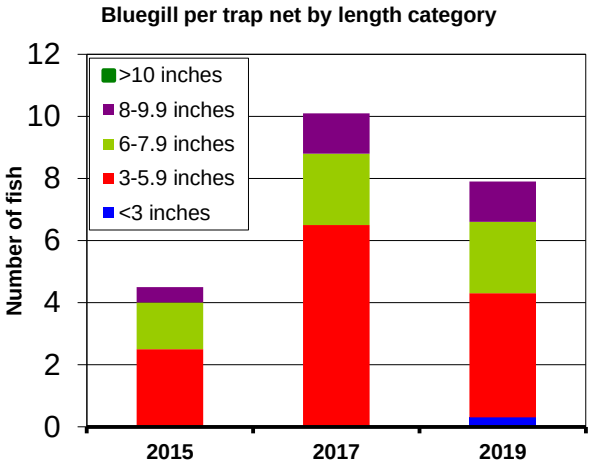


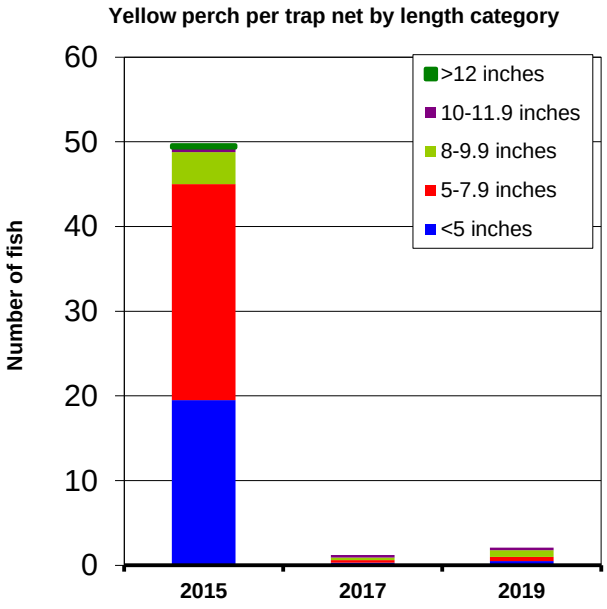
Sport fish populations in Swan have struggled through the years due to water quality issues. A partial summer kill in 2009 along with substantial winterkill in 2014-15 impacted all game species. During subsequent sampling in the spring of 2015 electrofishing efforts collected mostly small bass with very few over 8 inches. Additionally, frame net sampling in 2015 failed to catch any bluegill or perch, just numerous bullheads and a few green sunfish. However, after intense stocking efforts, game fish populations continue to improve in both abundance and size structure. Due to rebounding bass population, bullhead catch declined substantially from over 450 per net in 2017 to less than 5 per net in 2019 and 2020. Recent sampling efforts have indicated a moderate-density bass population with a fairly high proportion of fish over 15 inches and panfish populations consisting primarily of small fish but providing some of harvestable size. A lake full of water coincided perfectly with stockings to help this lake rebound. Open water fishermen were picking up some perch along with abundant bluegill in the last two summers while it sounds as though ice fisherman, despite the numbers of fish in the lake, have found the action in this fickle lake to be fairly slow.

Tower Lake

Tower Lake is located 12 miles south and 2 miles east of Ainsworth and is owned by the US Fish and Wildlife Service. This is a natural sandhill lake with no inflow or outflow. There is a berm that separates this lake from a marsh to the west with a drop-board structure to control flow into Tower. Tower Lake is carp free and can grow tremendous amounts of aquatic vegetation. With the record rainfall in 2019 and 2020, Tower is at "full pool" with a max depth around 8 feet. At last check, the lake level was actually well above its normal high water mark and even the parking area was under water. This lake full of water with all the flooded cattails, willows, and other terrestrial plants should provide great growth opportunity for the fish in Tower resulting in some excellent angling opportunities over the next several years. However, the flooded terrestrial vegetation and abundant aquatic vegetation may make getting a fish on the end of a line more challenging. Additionally, considering limited pressure this summer due to access and a late/short ice season, fishing should be fantastic once anglers can get on or to the water this spring.



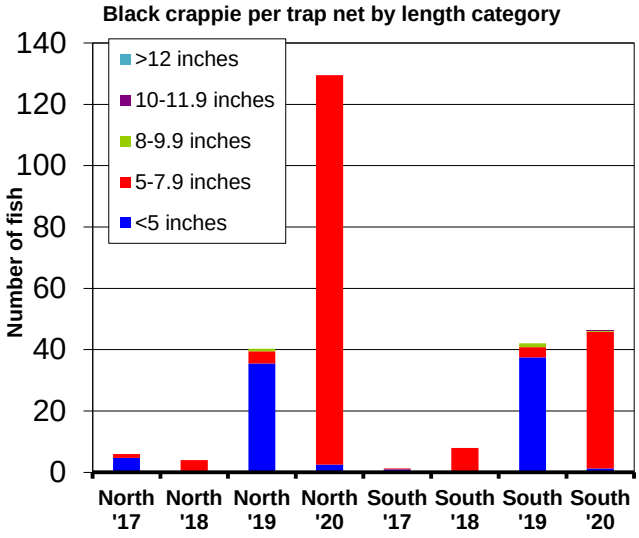


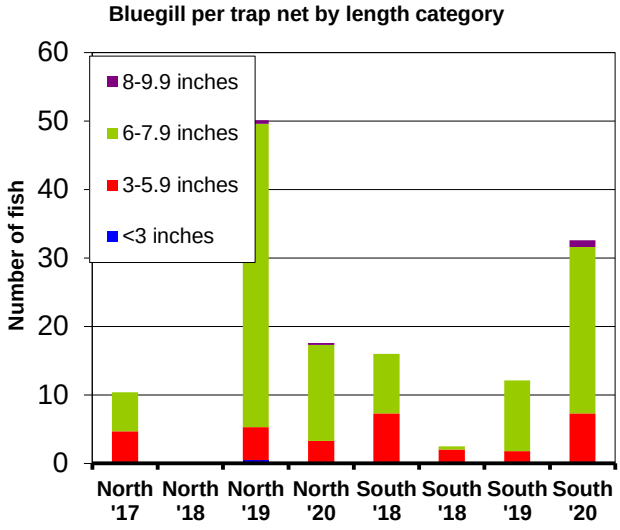


The last bass survey was in 2014 which showed a high catch of fish from 15 to 20 inches. The most recent frame net survey, conducted in mid-April 2019, indicated low numbers of panfish but there were some nice representatives of each species observed. This lake is typically sampled on an alternate year schedule so it is planned to do so in 2021, provided that access issues don't continue. Despite the low numbers observed in our sampling, both open water and ice anglers have had some luck catching some nice fish over the last few years. With the improved water level and associated flooded habitat, reproduction, recruitment, and growth should be fantastic and equate to some excellent angling opportunities in the upcoming years.

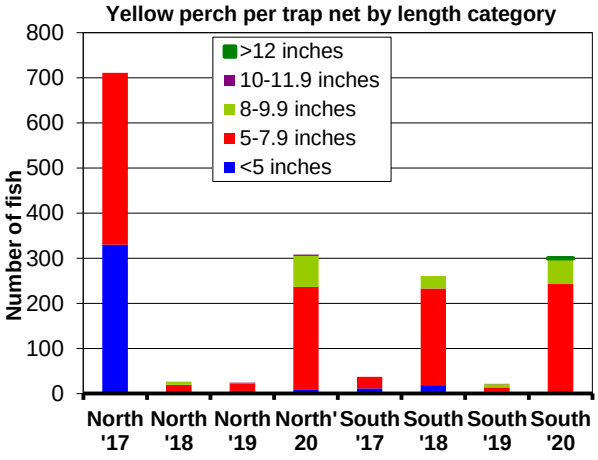
Twin Lakes

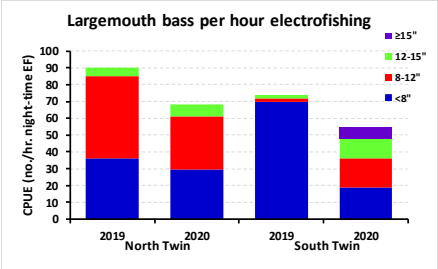
Twin Lakes North and South are located 18 miles south and 2 miles east of Bassett and are part of a state owned WMA. They are natural sandhill lakes and water levels fluctuate widely depending on wet or dry seasons. Water flows into the north lake from the west almost annually with average precipitation, but has only left the lake twice in the last 30 years. On those occasions water floods the county road that runs along the west side of each lake and flows out to the northeast, the last time was 2010-11. Water can also enter at the south end of the south lake. In April of 2015 salvage efforts moved adult bass, black crappie, yellow perch, and northern pike to other nearby public fishing lakes. In March 2016 both lakes and large portion of the watershed were renovated. The last couple of marshes were renovated under the ice in February of 2017. Fish stocking began at Twin Lakes in April 2016 and continued through July with largemouth bass, bluegill, black crappie, and yellow perch. Following record rainfall in 2019 the two lakes were connected to each other and remained so through 2020. Unfortunately, the excessive water also created connections to carp-infested waters and allowed carp to re-enter the lakes. The maximum depth of both lakes is around 8.5 feet. A handicap accessible concrete boat ramp and a vault toilet were installed at Twin South and a concrete ramp at Twin North. Both are accompanied by larger designated parking areas. These ramps are designed to be user friendly for vessels large & small. Funding was provided in part from the boat launch facility deferred maintenance & matching U.S. Coast Guard boating safety dollars.





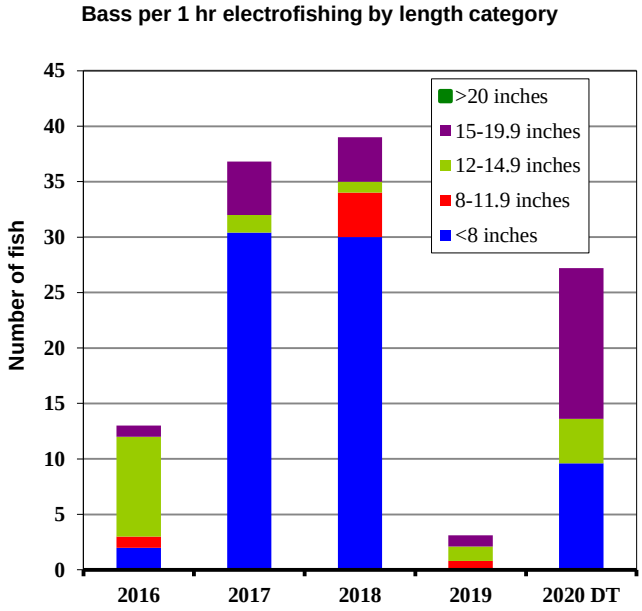
Frame net sampling was conducted in mid April for perch and again in June for crappie and bluegill. The lakes were also electrofished in June targeting largemouth bass and carp. Perch catch was quite high and similar in both lakes and consisted primarily of fish between 6 and 8 inches with very few over 10 inches. The 2018 crappie year class comprised the vast majority of the population in each lake as they recruited into the next length group after first showing up in the 2019 survey. They should start to provide anglers some good action in 2021 but, if they can persist in the presence of increasing carp numbers, 2022 could be fantastic for crappie anglers. Bluegill populations in these lakes exhibited relatively low density with less than desirable size structure. Sampling captured a few bluegill over 8 inches in both lakes but most were in the 6-7 inch range with slightly larger fish evident in the south lake. The bass populations in both lakes seem slow to develop and were exhibited by moderate-density populations. Catch rates were just under 40 bass≥8 inches per hour of electrofishing in both lakes in 2020. There was a relatively wide length range of fish collected (4-17 inches) but few exceeded 15 inches, all of which were collected in the south lake. However, bass can be tough to sample in these shallow sandhill lakes considering the abundant vegetated shallow water habitat these unique waterbodies provide.



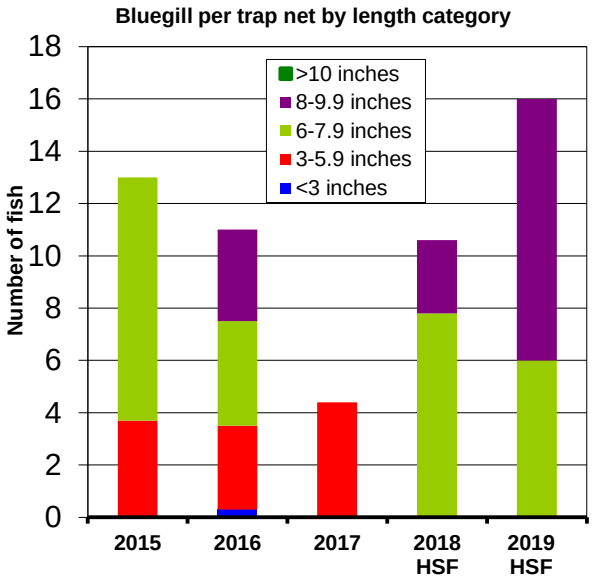


Willow Lake

Willow Lake is located approximately 21 miles south and 11 miles west of Ainsworth. This is a state owned WMA. It is a natural sandhill lake with seasonal inflow from the west. When the lake is full water passes through a drop-board structure in a berm on the east end of the lake. Improvements to the berm and grated emergency overflow were completed in 2016. The lake was renovated in September of 2013 but due to an unexpected rise in the lake level we were not successful in eliminating the carp population. Besides stockings of black crappie, yellow perch, bluegill and largemouth bass, walleye were added to provide an additional "toothed" predator to help limit carp recruitment and as an additional angler opportunity. The lake encompasses approximately 400 acres and at "full pool" the maximum depth of the lake is around 12 feet. Water levels in the area have been quite high the last couple of years resulting in access issues at times due to flooded roadways. Through most of 2019 and 2020 water flowed through both the main agri-drain outlet and the emergency overflow outlet.

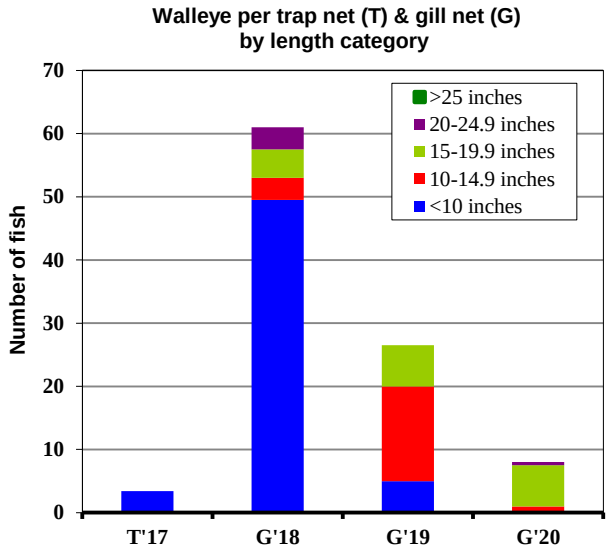


Daytime (DT) electrofishing for bass occurred simultaneously with carp sampling efforts and the sample showed quite an improvement compared to 2019. It certainly appears as though the fish were there in 2019, considering the catches of 2018 and 2020, but just weren't effectively sampled that year. The bass catch has been well below the numbers that are usually found following a renovation. In 2015-16 a substantial portion of our bass population was lost to a bacterial infection. The infection also impacted the other fish species in the lake, including carp. Recruitment appeared to have dropped off somewhat in 2020 as indicated by the blue portion of the bars (fish<8 inches) in the graph. Fingerling bass were stocked in 2020 to try to augment their numbers. A healthy bass population is crucial for limiting panfish recruitment to maintain good growth rates and thus, size structure, on those panfish. They can also control bullheads and limit carp recruitment to some degree.

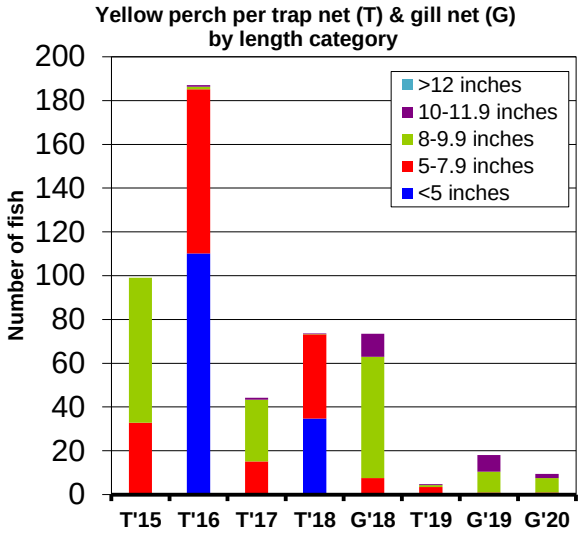


Frame nets were last set in mid April of 2019 to target the perch population while an effort later in the season (i.e., warmer water) was made in 2018 to sample bluegill and black crappie. An extremely high catch of carp and bullheads discouraged future later-season sampling. As can be seen, our bluegill catch had been declining since 2015 to the point that only 2 total were collected in 2018 and 5 in 2019. However, there was a showing of hybrid sunfish (HSF-bluegill X green sunfish) in trap netting in May of 2018, including some nice fish over 8 inches. The 2019 fish were collected while electrofishing. These hybrid fish can grow fairly fast and get over a pound. Many anglers reported catching those large hybrids during the open water fishing season in 2019 and 2020.

Willow Lake - continued



Walleye stocking began in 2015 with a planting of 20,000 fingerlings and has occurred annually since. Following observations of walleye in spring-time frame net samples in 2017 and 2018, fall gill net surveys were added since they are the best gear for sampling walleye. In 2018, with the exception of fish over 25 inches, the gill net sampling captured fish that represented all length groups and from all four year-classes that had been stocked to that point. Several factors potentially contributed to the reduced catch in 2020 including: a lack in recruitment, reduced growth of the 2020 year class (too small to be captured in the nets), cold water temperature at the time of the survey, and high harvest through the open water months. The 2018 year class (stocking) was remarkably successful, more so than any of the others thus far. That stocking represented 83%, 57%, and 81% of the walleye samples in 2018, 2019, and 2020, respectively. Growth rates have been very good with fish reaching 14-15 inches in two growing seasons and 18-20 inches in 3. These walleye are providing an angling opportunity that isn't found too close by.



Perch catch has fluctuated since initiating our sampling following the renovation. Things were looking really good after the 2015 trap net sample with a fair number of 8-10 inchers. However, it seems we lost a large number of fish from those original stockings to the bacterial infection mentioned earlier. The perch catch has dropped off notably over the last two years. Some of the decline can be attributed to the lack of the smaller fish in the trap net samples. It looks as though the lake was producing a good year class every other year with those fish indexed as age-1's in spring-time trap nets in even years. Trap net sampling did not occur in 2020 and they haven't been showing up in the gill nets until their second fall in the lake. Perch are maintaining good growth rates though so if a good year class was produced in 2019 there should be harvestable perch in fairly short order as they are approaching 10 inches in about 3 growing seasons. The gill net survey did occur later than normal in 2020 and the colder water temperature could have reduced fish movement, thereby possibly limiting net catch. Increased harvest may have played a role also considering the increased pressure the lake received as word of the walleye fishing success spread.

Peterson Lake

Peterson Lake WMA is located 20 miles south and 4 miles east of Bassett. Public fishing access to the lake was available through our Open Fields and Waters program for a number of years but was purchased by the NGPC in 2020 and is now open to hunting & fishing. It's a natural sandhill lake with no inflow, but due to extremely wet years in 2019 & 2020 water ran out to the north and carp found their way into the lake. The lake is shallow with clear water and thus, typically grows tremendous amounts of aquatic vegetation. That will likely change with the influx of carp. The lake encompasses about 85 acres with a maximum depth around 8 feet. When the water goes down following a dry weather pattern, we will explore installing a fish barrier in the outlet drainage followed by a renovation. The most recent sampling, other than electrofishing effort in 2020 to check for carp presence, occurred in 2012 and 2013. Those surveys indicated good populations of bass and bluegill, in both numbers and size structure, and also collected some nice perch. Pike up to 36 inches have also been observed in the lake but they have been targeted heavily due to this lake being one of the closest pike fisheries to our heavier population centers. Access to Peterson Lake was not possible for most of 2019 & 2020 due to the conditions of the county road.

Attention motorboat owners operating in Nebraska:

Starting in 2016, boaters whose motorized watercraft are registered in any state other than Nebraska must purchase and display a $15 Aquatic Invasive Species (AIS) Stamp each year they launch their boat in Nebraska. The stamp will help fund AIS education and inspection programs.

- Boat inspections for AIS prior to launch in Nebraska are NOT mandatory at this time.
- Personal watercraft registered outside of Nebraska must have this stamp.
- Non-motorized craft registered in any state are exempt from the stamp.
- Stamps are not required for boats registered in Nebraska. A $5 AIS fee is included on the residents' three-year boat registrations.
- Residents who register their boats in other states must have this stamp before launching in Nebraska.

This stamp is available online at OutdoorNebraska.org or at Nebraska Game and Parks permitting offices.

Learn more about invasive species at neinvasives.com.

NEBRASKA GAME & PARKS

Check the Boating Guide for details:
http://digital.outdoornebraska.gov/i/1314256-2021-boating-guide-web

Nebraska Invasive Aquatics:
http://neinvasives.com/documents/Aquatics-Field-Guide.pdf

Fishing regulation & public waters information consult the 2019 fishing guide at:
http://digital.outdoornebraska.gov/i/1328062-fishing-guide-2021-web

Common carp find their way into many Sandhill lakes. Sometimes they are unknowingly brought in via minnow bucket but often they swim in during high water. They degrade water quality by disrupting the lake bottom, thus destroying water clarity. This limits aquatic vegetation growth and prevents other desirable fish from maintaining healthy populations. A large amount of fishery biologist's time and fishermen's money is spent trying to control common carp. In the Northeast District, carp are found in many sandhill lakes, both public and private. New carp infestations occurred in several of our public lakes due to the high water levels in the sandhills in 2019 and 2020 including Twin, Peterson, and Cozad lakes. We do hope to renovate when funding is available, water levels decline, and all the landowners agree to chemically removing carp from infested waterbodies. The MOU for public fishing at Overton Lake, which had been a popular ice fishing destination, expired and it and all of the lakes in the watershed should be renovated before it is renewed. An Aquatic Habitat Project on Valentine National Wildlife Refuge has installed water control structures that are also carp barriers. Future barriers and renovations on other sandhill lakes may be possible with joint funding and other assistance from Ducks Unlimited, Sandhills Task Force, US Fish and Wildlife Service, NE Environmental Trust, NE Dept. of Environment and Energy, NE Game and Parks, and possibly others. A study is being conducted to document the benefits to all wildlife populations by eliminating common carp from sandhill lakes.

Eurasian Water Milfoil is an invasive species of aquatic vegetation that completely chokes out native plants. This plant can spread rapidly from a single fragment of stem or leaf which takes root and forms a new colony growing up to 2 inches per day. Once established, the plant can form dense surface mats that interfere with boating, fishing, swimming, and other forms of recreation. It has been observed in the Northeast District in Lake Ericson, Goose Lake, and Lewis & Clark Lake. Plant fragments can be transported on boats, trailers, and other aquatic sporting equipment.

Zebra Mussels have been found as close as Lewis and Clark Reservoir and the Missouri River reservoirs in South Dakota and are within 100 miles of Goose Lake. Anglers must be careful to follow the Clean-Drain-Dry protocol to keep our lakes free of unwanted hitchhikers. **Fishermen and all other boaters must be diligent not to move unwanted or destructive species from one system to another by equipment such as boats, buckets, decoys, blind material, etc.**

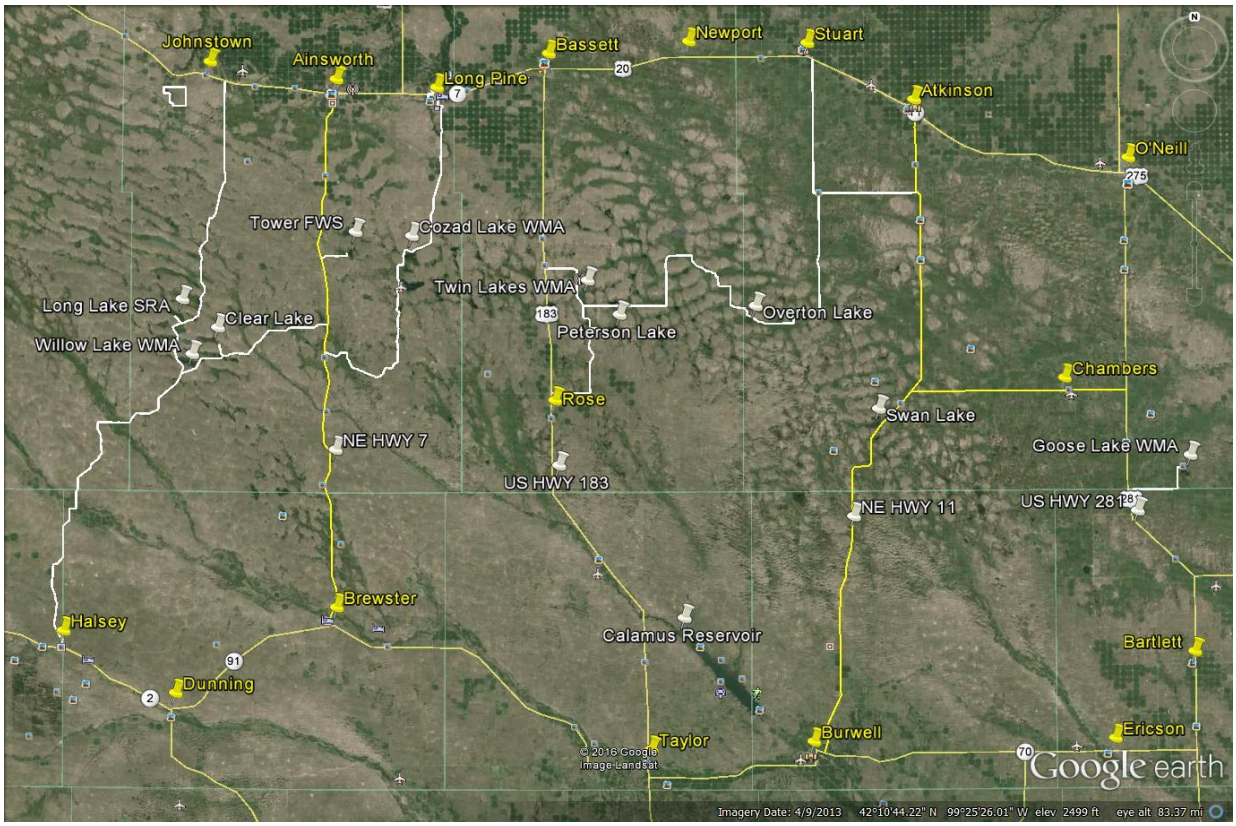
Headwater lake for Twin renovation 2015

Eurasian Water Milfoil at Goose Lake 2015

Zebra Mussels at Lewis & Clark 2016

Access for these sandhill lakes vary due to ownership. Cozad, Goose, Peterson, Twin & Willow are owned by the State of Nebraska and are managed under Wildlife Management Area regulations. Tower Lake is part of Yellowthroat WMA and is owned by the Fish and Wildlife Service. Clear and Swan are privately owned lakes with public fishing agreements.

Access	Clear	Cozad	Goose	Peterson	Swan	Tower	Twin	Willow
Bank/Wading	NO	YES	YES	YES	YES	YES	YES	YES
Boat	YES	YES	YES	YES	YES	YES	YES	YES
Daytime Only	NO	NO	NO	NO	NO	YES	NO	NO
Ice Fishing Only	NO	NO	NO	NO	NO	NO	NO	NO
Modern Boat Ramp		YES	YES		YES		YES	
Primitive Boat Ramp	YES			YES		YES		YES



For more information contact the Game and Parks Fisheries staff:
Jeff Schuckman, Phil Chvala – Norfolk Regional Office – 402-370-3374
Andrew Glidden – Bassett Field Office – 402-684-2921

Please remember that these fishing areas have limited services and no trash pick up. If you pack it in, pack it out, and keep our wild places looking wild!