

2023 NE District Flood Control Reservoir Fish Sampling Summary

Nebraska Game and Parks Commission

Rebecca Munter, Fisheries Biologist

Phil Chvala, Fisheries Biologist

Jeff Schuckman, Northeast Region Fisheries Manager

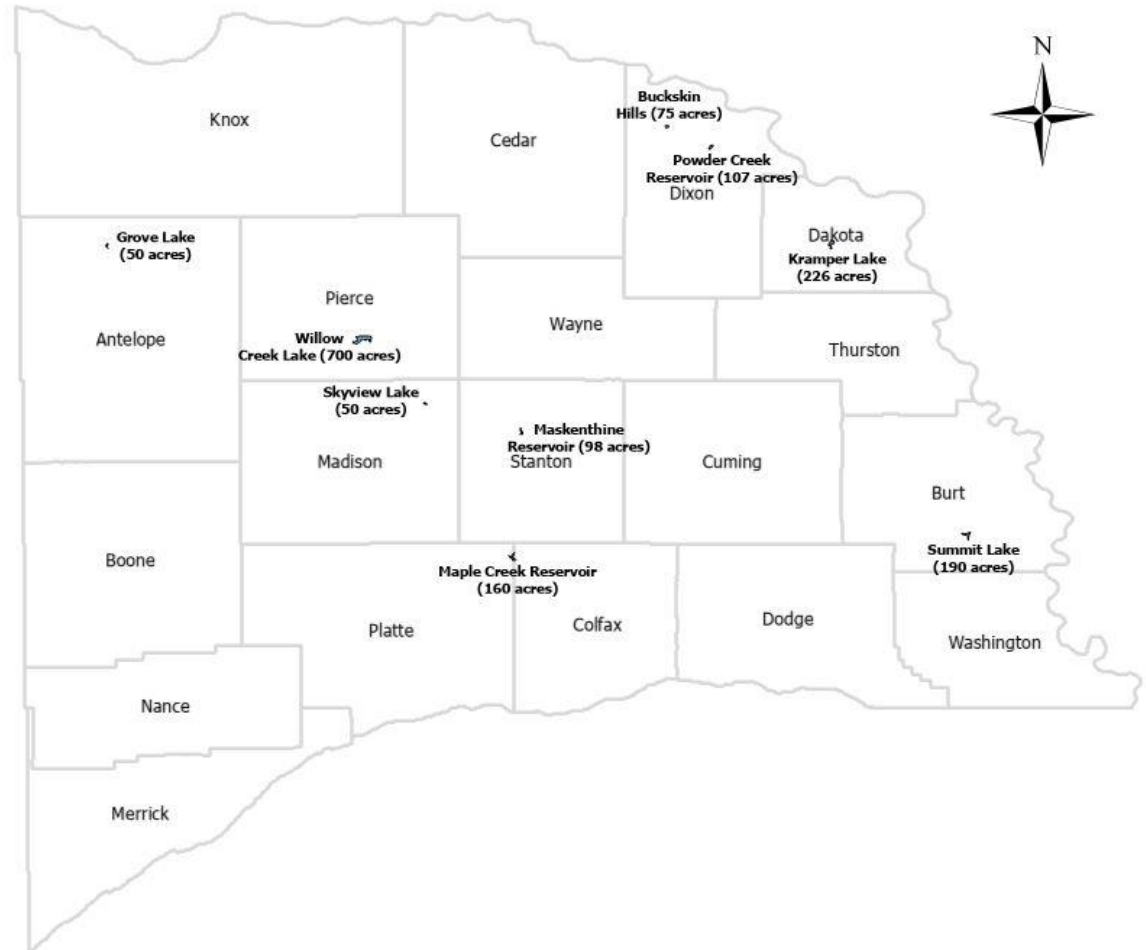


Background

Several flood control reservoirs dot the landscape of the Northeast District, ranging in size from approximately 25 to 700 surface acres. The primary species making up the fish communities in the smaller reservoirs are largemouth bass, bluegill, black crappie and channel catfish. Walleye are also found in low to moderate numbers in some of the smaller reservoirs. Most of the flood control reservoirs receive annual stockings of channel catfish, while about half are annually stocked with walleye. Besides channel catfish and walleye, most other species in these lakes typically maintain their populations through natural reproduction and recruitment.

In 2023, nine flood control reservoirs in the Northeast District were sampled, including Maskenthine, Maple Creek, Grove, Summit, Buckskin Hills, Powder Creek, Kramper, Skyview and Willow Creek.

Water levels were low at Maskenthine, Summit, and Willow Creek throughout much of the 2023 fishing season. These lakes remain low going into the 2024 fishing season and anglers may want to call ahead to inquire about boat access prior to going somewhere. Hopefully, these lakes will receive some precipitation to get back to full pool prior to the busy spring fishing season.



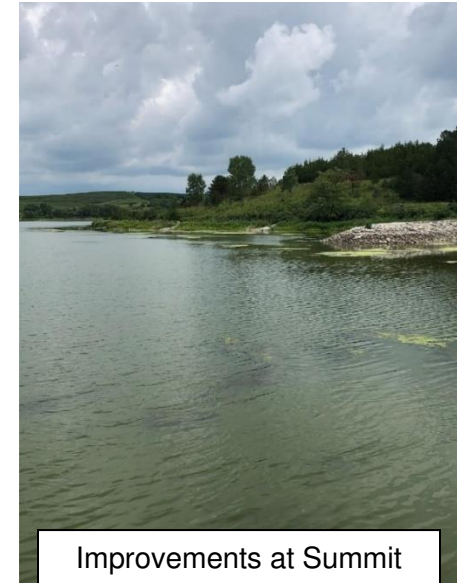
At Summit Lake, a rehabilitation project and renovation were completed in 2001 and 2002 to address sedimentation, erosion and to remove undesirable fish species. Updates were made in 2008 and 2009 to remove sediment from the west arm. From 2021-2022, a maintenance project was completed to remove accumulated sediment and nutrient inputs to improve water quality as well as access and fishing opportunities. These most recent updates were completed in spring of 2022.

Sampling Efforts

The standard gear used to survey panfish is frame nets with 5/8" mesh. Several factors including, but not limited to, lake size, topography and vegetation determine how many nets to set. Nets are set at various locations around the lake for one night.

Night electrofishing is used to survey bass and the number of stations depends on the size of the lake. Individual stations are typically 15 minutes of shoreline electrofishing, but times may be reduced if there is a high number of fish caught so the tanks do not get overcrowded and induce additional stress (see table below).

Willow Creek is typically sampled in late September with overnight sets of frame nets and experimental mesh gill nets. However, 2023 sampling effort was limited to two gill nets due to low water levels. Water levels during the Fall sampling season were low due to the drought, therefore the typical standardized sampling methods and effort used on this reservoir were not used because of the lack of locations available to set nets.



Improvements at Summit

Lake	Time	Gear	Effort
Maskenthine	Spring	Frame Nets	5 nets
	Spring	Night Electrofishing	15 min x 3 stations
Maple Creek	Spring	Frame Nets	5 nets
Grove Lake	Spring	Frame Nets	6 nets
	Spring	Night Electrofishing	15 min x 2 stations
	Summer	Daytime Electrofishing	60 min total
Summit Lake	Spring	Frame Nets	5 nets
	Summit	Night Electrofishing	15 min x 3 stations
Buckskin Hills	Spring	Frame Nets	6 nets
	Spring	Night Electrofishing	10 min x 3 stations
Powder Creek	Spring	Frame Nets	3 nets
Kramper	Spring	Frame Nets	5 nets
	Spring	Night Electrofishing	15 min x 3 stations
Skyview	Spring	Frame Nets	3 nets
Willow Creek	Fall	Gill Netting	2 nets



Low water levels at Summit

Sampling Results by Species

Largemouth Bass

Bass are collected by nighttime-electrofishing efforts conducted in the spring of the year. A catch rate of at least 150 bass per hour of electrofishing is desirable. A minimum catch rate of 150 bass per hour not only equates to good catch rates for anglers seeking bass but can also limit panfish recruitment through predation to achieve desirable growth rates and size structure on those panfish.

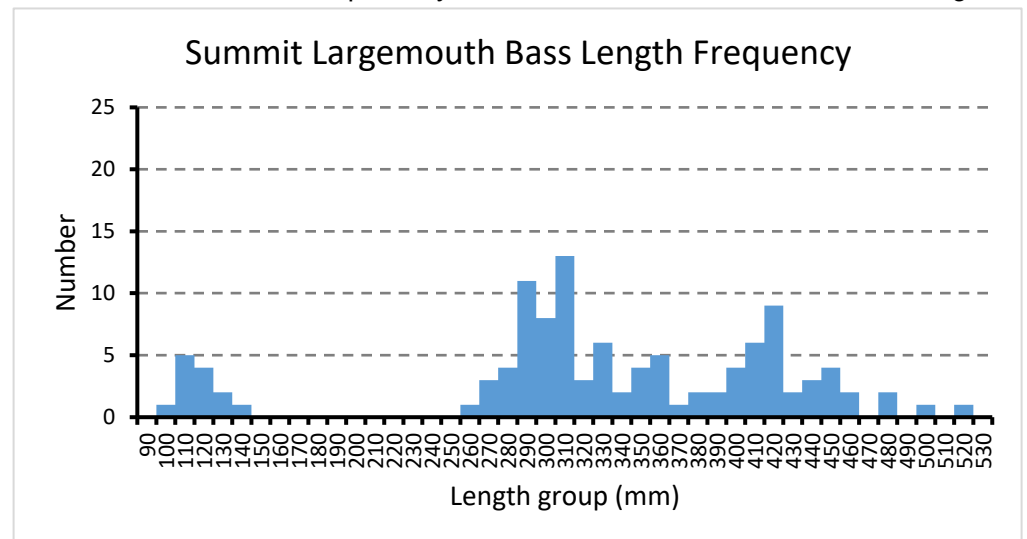
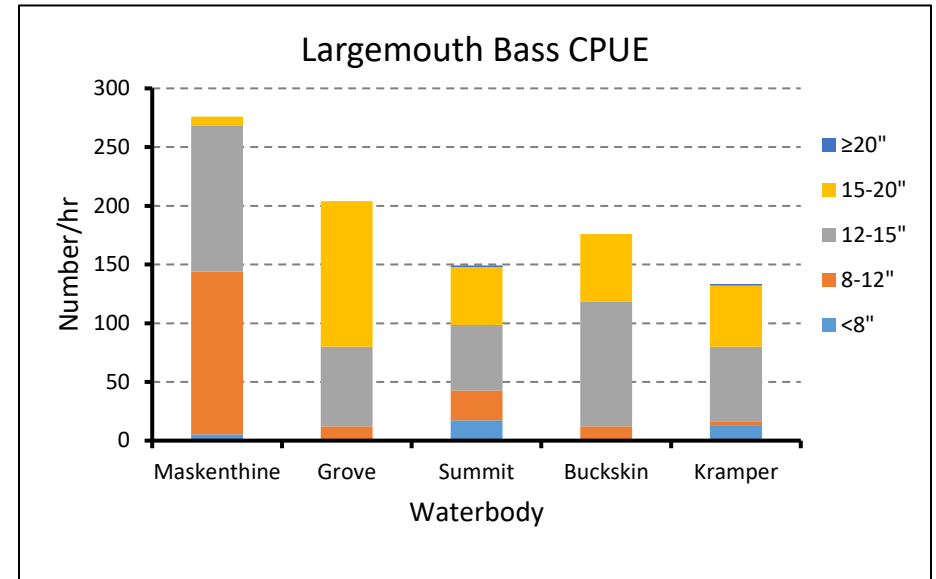
Maple Creek, Powder Creek, Skyview and Willow Creek were not surveyed for bass in 2023.

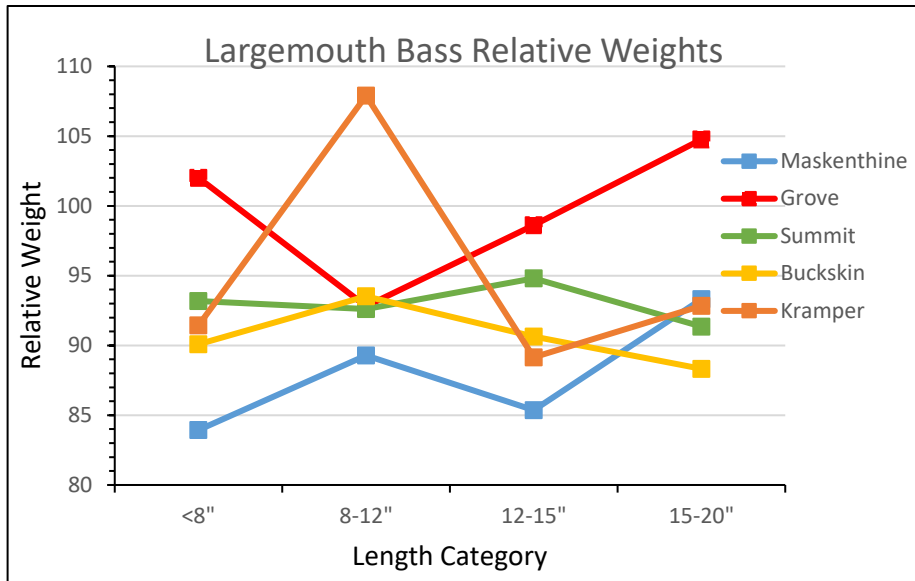
Maskenthine had the highest catch rate of largemouth bass in spring of 2023, with an abundance of fish in the 8 to 15 inch range and very few less than or above that range. Unfortunately, Maskenthine experienced a summer fish kill in early August that killed numerous bluegill and walleye and low numbers of channel catfish, and bass. The water levels were low throughout much of the year and continue to be and had been green with heavy planktonic algae. Low dissolved oxygen and high water temperatures were likely the cause of the fish kill. A follow up survey will need to be completed in 2024 to fully assess the impact of the fish kill to the fishery.

The largemouth bass population in Grove Lake was in great shape. Size structure was a little top heavy, with most fish in the 15 to 20 inch range, but fish were still in good body condition.

Summit lake had a nice distribution of largemouth bass across all size ranges and met the 150 largemouth bass per hour criteria. Body condition also looked great. Water levels at Summit had been drawn down during the rehabilitation project but they stopped drawing water down before the project was complete in Spring of 2022. Summit lake has had minimal rain or snow events within the watershed to bring the water levels back up and like most lakes across the district, water levels at Summit were down again in 2023.

Buckskin largemouth bass were in great shape. There was a nice distribution in size structure, with opportunities to catch some bigger bass. Catch rates and body condition were right where we would like them to be.





Poor body condition in last year's survey on Kramper prompted an additional look at largemouth bass. In this year's survey, Kramper did not meet the desired 150 bass per hour due to excessive vegetation, but the size structure looked great with some potential for 20 inch and larger bass. In previous years at Kramper, the size structure of bass was skewed toward smaller, younger fish but both the 2022 and 2023 surveys show improved size structure as well as improved body condition across all length groups. We will continue to monitor Kramper to ensure there is no need for concern.



Largemouth Bass from Kramper

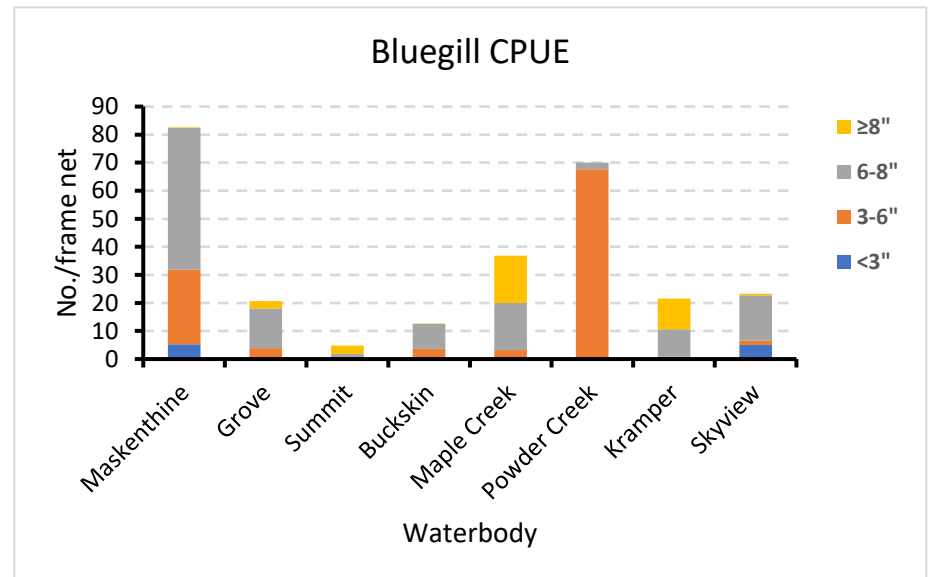
Bluegills

Bluegill are sampled with frame nets in the spring of the year, typically late-April thru mid-June. Bluegill are a tough species to get a good index of their numbers and size distributions due to their spawning behavior in the spring. Timing of sampling is important as catch rates can be hit or miss. Eight flood control reservoirs were sampled with frame nets in the spring of 2023.

Maskenthine sampling yielded the highest catch rates of bluegill with great size structure and lots of fish 6 inches and larger. The summer fish kill had high mortality on bluegill and a fair number of quality fish were lost. A follow up survey will be conducted in 2024 on Maskenthine to get a better idea of what the populations look like after the summer fish kill. The population will likely look much different in 2024 than our 2023 sample indicated.

Maple Creek had good catch rates as well as excellent size structure, providing the most opportunity to catch bluegill over 8 inches than any other lake other than Maskenthine in 2023.

Grove lake had good catch rates and size structure as well with the majority of fish in the 6 to 8 inch range. Reports of poor catch rates from anglers on Grove throughout the summer prompted additional surveys to ensure bluegill were still present. All additional sampling efforts gave no indication that there was anything to worry about. Excellent water clarity throughout much of the summer may offer some explanation as to why anglers were not having luck catching panfish in 2023, as fish may have been able to see



bait and lures and evade anglers more effectively. Considering the increased light penetration, some fish also may have relocated to different habitat types including, but not limited to deeper water than usual.

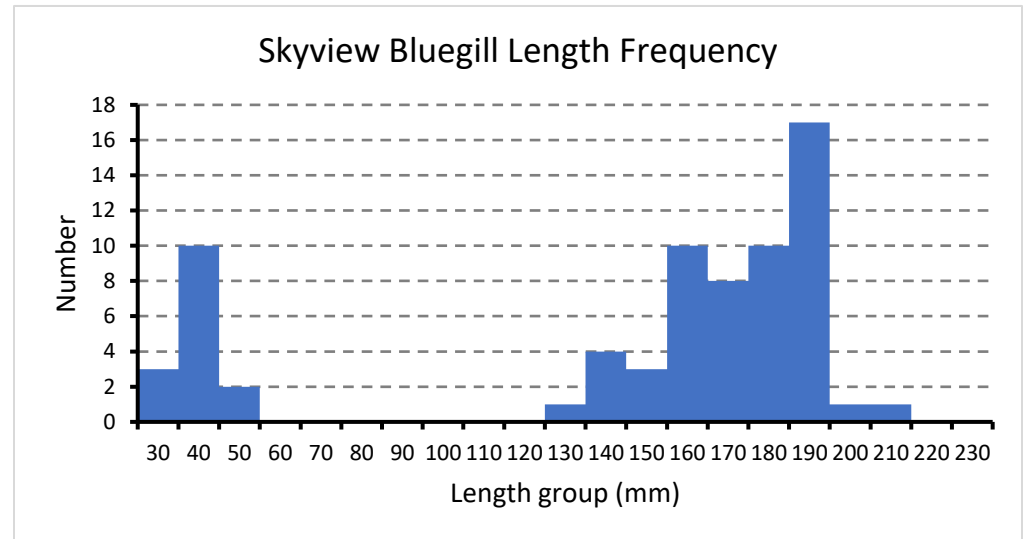
Summit lake sampling yielded the lowest catch rates of bluegill than any other lake sampled in 2023. However, some bigger bluegill 8 inches and larger were sampled. We may have missed the window for sampling bluegill at Summit in 2023 or the reduced water level could have influenced the catch. Another unfortunate find during spring trap netting was common carp. A total of eleven young common carp were caught in the nets, indicating they were recently introduced and successfully spawned in 2022. We will continue to monitor carp abundance along with our sportfish in years to come.

Buckskin was surveyed for bluegill several times due to low catch rates each visit. The overall number caught per net lift was low and size structure was poor. Buckskin will likely need to be surveyed again in 2024 to obtain a larger sample size and further assess their status.

Powder Creek bluegill showed a continued decline in size structure since the most recent 2020 survey. Powder Creek had the second highest catch rate, but most were small, with only a few above 6 inches.

Bluegill at Kramper are looking good, with most fish sampled six inches and larger. The lack of smaller fish in the sample was due to the timing of the sampling, which was done earlier to get out before the vegetation was too dense. Anecdotal summer sampling showed lots of smaller bluegill, so they are present and the lack of them in our spring sample is not of concern. We will continue to monitor the fishery at Kramper with another survey in 2024.

Skyview lake had decent catch rates of six to eight-inch bluegill with a few opportunities to catch fish over eight inches. The bass regulation change in 2016 was intended to decrease the number of bluegill and improve their overall size structure. Bluegill have positively responded to the change as catch rates have gone down and we now have more bluegill 7 inches and larger (Table 2).



Year	CPUE (number per net)	PSS- 7 inches
2015	258	0
2016	287	2
2017	67	10
2018	44	11
2019	56	22
2020	76	27
2022	32	44
2023	23	53

Crappie

Timing is critical for collecting crappie via frame nets in the spring. Net sets are usually considered to be timed well when the crappie are in the shallows spawning. Crappie observations are recorded during the spring frame netting efforts, but often are not reliable estimates of a lake's population. Summit, Buckskin, Maple Creek and Kramper surveys show those lakes providing opportunity for crappie 10 inches and larger. Buckskin, Maple Creek and Kramper also had an abundance of crappie that will be moving into the desired 10 inch and larger length group by spring of 2024. Anglers reported good fishing on Grove during the winter 2023-2024 of crappie 12 inches and larger. Crappie net catch was low at Maskenthine and Summit, but that may have been due to the timing and low water levels and not being able to set the nets shallow enough.

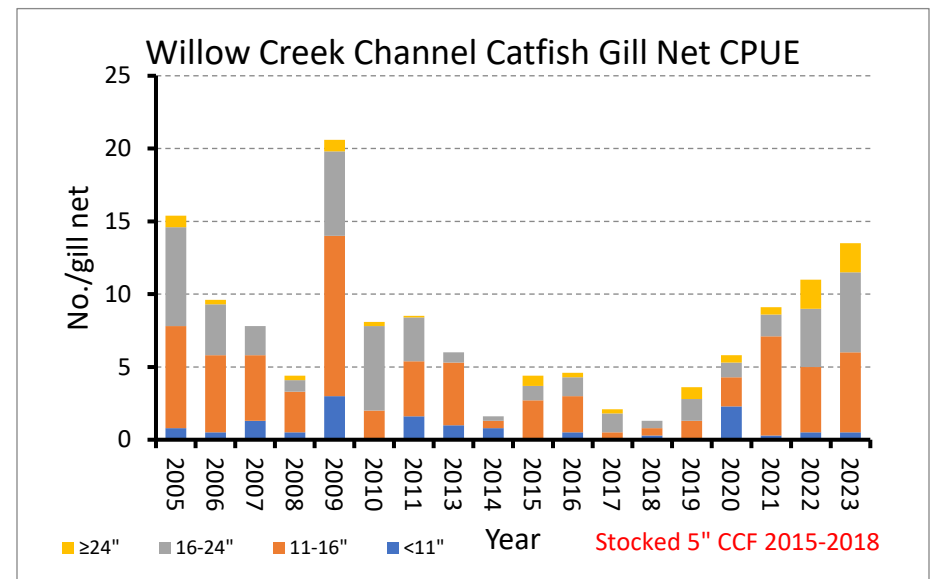
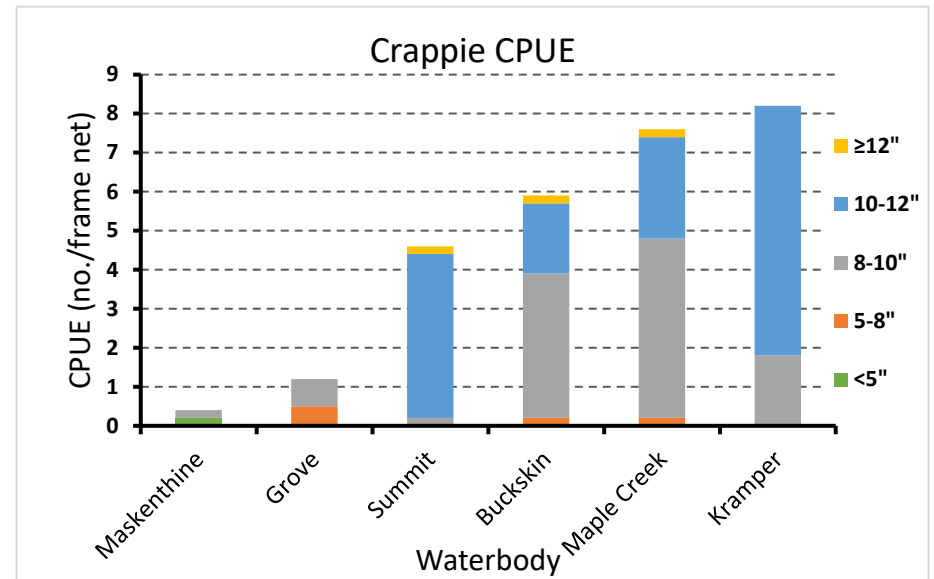
Channel Catfish

Open water, offshore species like walleye, saugeye, catfish, white bass and wipers are sampled with gill nets set in the fall of the year. No fall sampling was conducted in any flood control reservoirs other than Willow Creek in 2023. All other lakes have strong channel catfish numbers and we continue to stock them with 10 inch fish.

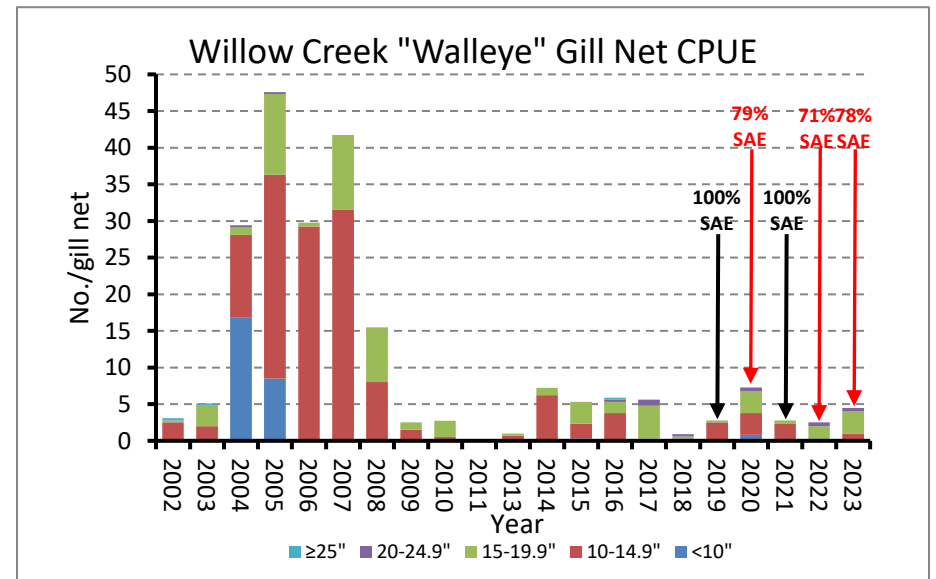
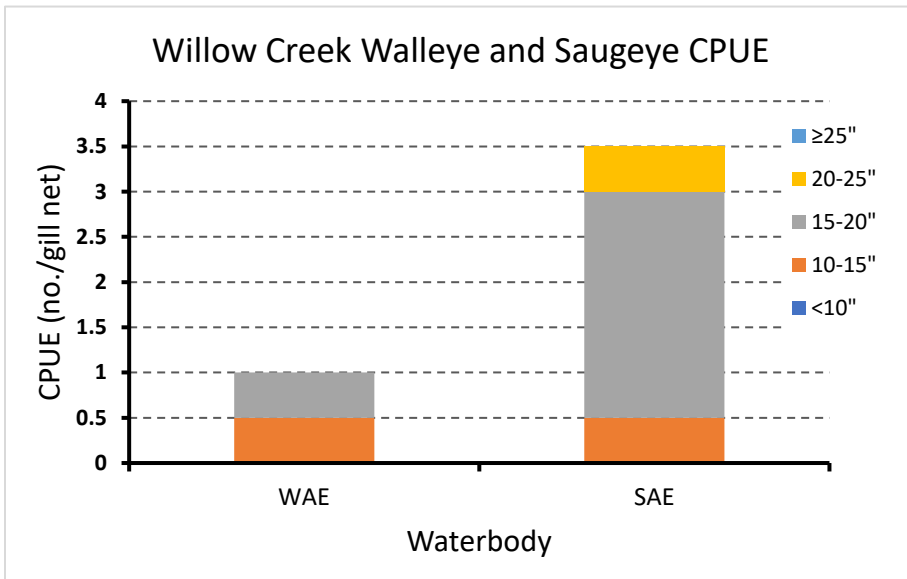
During 2023, the trend of increasing numbers of channel catfish in Willow Creek Reservoir continued. Size structure improved even more since the 2022 survey, where more fish moved into the 16 to 24-inch range as well as the 24 inch and larger category. There were even some impressive opportunities to catch channels 24 inches and larger. Previous surveys have shown a pattern of good gill net catfish catch during years with low water levels and 2023 was a low water year. The shift toward larger fish shows promise that catfish angling at Willow Creek has and will continue to improve over the next several years. Most of the flood control reservoirs in the Northeast district have good channel catfish populations, exhibiting moderate to high numbers and good size structure, and none of them should be overlooked by anglers seeking catfish.

Walleye/Saugeye

Many of the smaller flood control reservoirs in the district receive annual walleye stockings. Willow Creek was the only flood control reservoir in the northeast district that was sampled in 2023 using the standard gear type, gill nets. Other gear types provide some evidence that there are quality walleye fisheries out there. In 2023, Buckskin had nice walleye surveyed ranging from 18.5 inches to 27 inches. Summit, Maple Creek and Kramper also all had decent walleye bycatch in other surveys, with some as big as 20 to 24 inches.

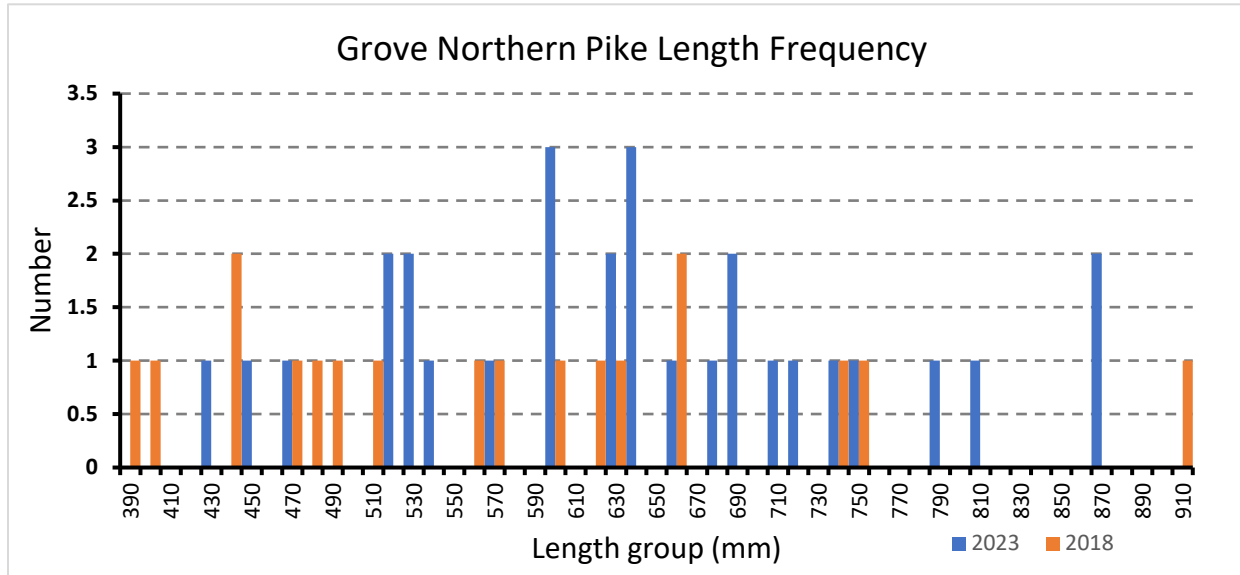


Walleye fry stocking in Willow Creek was initiated in 2004 and was very successful up until 2008. Fry stocking rates have remained the same or higher ever since that time, but they have failed to create a good year class since 2008. Willow Creek experiences substantial algal blooms, which may be negatively impacting recruitment of some species, walleye in particular. Considering the poor walleye recruitment and seeing success in other areas of the state with saugeye (a cross between walleye and sauger), it was decided to try them in Willow Creek. Saugeye tend to be a bit hardier and may handle the poor water quality better than the walleye. Saugeye stockings began in 2017 and have continued annually since. Overall, saugeye seem to be doing better than walleye, but the water quality degradation and sedimentation issues are still having an impact on recruitment to the fishery. The 2023 survey only caught two walleye, a 13" and 17.5", and seven saugeye ranging from 13 to 20 inches. The saugeye and walleye stockings will continue, but action should be taken to improve water quality in the future for the Willow Creek fishery to reach its full potential.



Northern Pike

Northern Pike are not stocked in any flood control reservoirs in northeast district, but there are some opportunities to catch them throughout the district. Northern Pike are naturally reproducing in Grove Lake and targeted sampling was done in 2023. Northern Pike in Grove looked healthy, size structure and numbers were good. Twenty-nine Northern Pike were sampled that ranged from 17 to 34 inches. When compared to the most recent 2018 survey, it appears we have more opportunity as more pike were sampled, but the size distribution is similar. Pike have routinely been sampled in low numbers in Maskenthine and Willow Creek over the years.



Fish Stocking

Flood control lakes in the northeast district have largemouth bass, bluegill, crappie and some have yellow perch populations that can maintain their abundance without stocking. Natural recruitment for sport fish species such as channel catfish, walleye, and saugeye is typically very low or non-existent in our flood control reservoirs and require supplemental stocking to maintain their numbers. Channel catfish are stocked in most flood control reservoirs as 10-inch fish, either annually or semi-annually at rates of 10-25 per surface acre. Stocking density is determined by lake size, relative population levels, and observed angler usage and harvest. Walleye and saugeye are stocked in select lakes annually with fish size and stocking rates determined by research and individual lake sampling. Stocked two-inch fingerling walleye do well in lakes such as Maskenthine and Buckskin Hills at a rate of 50 per surface acre. Larger "advanced" size walleye, typically 8-9 inches, are currently stocked annually in September at 5-10 per acre at Skyview, Maple Creek, Summit, and Kramper. These fish appear to be surviving much better than the two-inch fingerlings and show greater potential to maintain moderate to high numbers of walleye for the angler in these lakes. Willow Creek is stocked annually with 250,000 walleye fry and 70,000 fingerling saugeye.

Stocking records for all lakes in Nebraska can be found on the Game and Parks website at outdoornebraska.org.

Invasive Species

Fish species that were not stocked by NGPC have been observed in Maple Creek, Skyview, and Summit among others. As a reminder, **“It is unlawful to release into public waters of the state any fish that did not originate from that body of water, including the dumping of bait buckets.” Additionally, sport fish regulations state “It shall be unlawful to transport or possess live white perch, black carp, silver carp, bighead carp, and yellow bass away from the water body from which they were captured.”** Please call your local conservation officer (phone numbers are listed in the regulation guides) or the Wildlife Crimestoppers Hotline (1-800-742-7627) if you observe this or any kind of game violation.

Many of the Northeast District Lakes contain dense beds of aquatic vegetation on a seasonal basis. Curly-leaf pondweed is found in this area and is classified as an Aquatic Invasive Species. Those lakes that develop especially dense stands of curly-leaf include Pibel, Grove, Powder Creek, Summit, Buckskin, Skyview and Maskenthine. **Anglers are reminded of the Clean, Drain, Dry regulations that require any boat that has been on a waterbody to drain all water from all compartments, equipment or containers before leaving the launch area and to remove all aquatic vegetation from the boat and trailer before leaving the launch area.** These regulations are meant to control and/or limit the spread of aquatic invasive species, such as zebra mussels, Eurasian watermilfoil, curly-leaf pondweed, to name a few. Nonresident boaters are also reminded of the Invasive Species sticker requirement. The sticker provides funding for dealing with invasive species that are already present in addition to education and prevention activities that are meant to limit their spread. Nonresident boaters must have one of these stickers affixed to their watercraft before launching in any Nebraska water. Resident boaters automatically contribute to this fund through a surcharge on their boat registration, thus as long as their registration is up-to-date, residents are in compliance and won't have a physical sticker attached to their watercraft. Additional information about aquatic invasive species and preventing their distribution can be found in the 2023 Nebraska Fishing Guide and at the University of Nebraska Invasive Species website: <http://www.neinvasives.com>. More information for Northeast District lakes such as location, boat ramps, species present, special regulations, etc. can also be found in the Nebraska Fishing Guide.

More Information

Fishing rules and regulations

Visit the Nebraska Game and Parks website at:

www.OutdoorNebraska.org

Fisheries and/or fishing opportunities in the Northeast District

Contact us:

Jeff Schuckman, Northeast Region Manager, Norfolk Office, Phone: 402-370-3374, email: jeff.schuckman@nebraska.gov

Phil Chvala, Fisheries Biologist, Norfolk Office, Phone: 402-370-3374, email: phil.chvala@nebraska.gov

Rebecca Munter, Fisheries Biologist, Norfolk Office, Phone: 402-370-3374, email: Rebecca.munter@nebraska.gov