Calamus Reservoir 2022 Fall Fish Survey Summary
Nebraska Game and Parks Commission

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2022 Calamus Fish Management Summary

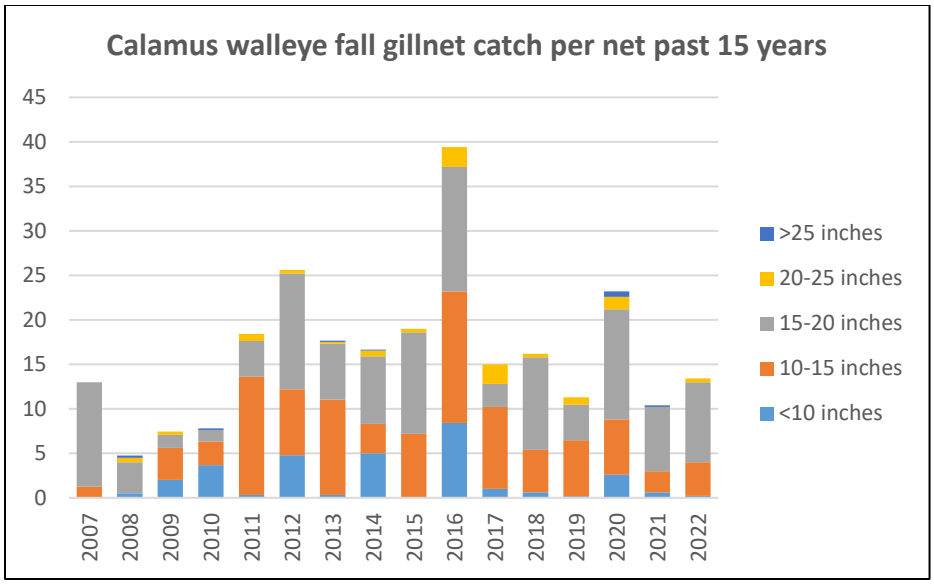
The following text and graphs are summaries from the 2022 fall gill net and nighttime electrofishing sampling conducted during October. Gillnets are used to sample fish species which primarily live in open water environments such as large reservoirs. Gill net sampling effort in 2022 was 5 nets located in the mid to lower reaches of the lake on October 10-11. Electrofishing for young-of-the-year fish was conducted on October 10. The same general areas of the lake are utilized for sampling locations each year for standardization. No angler creel survey was conducted in 2022.

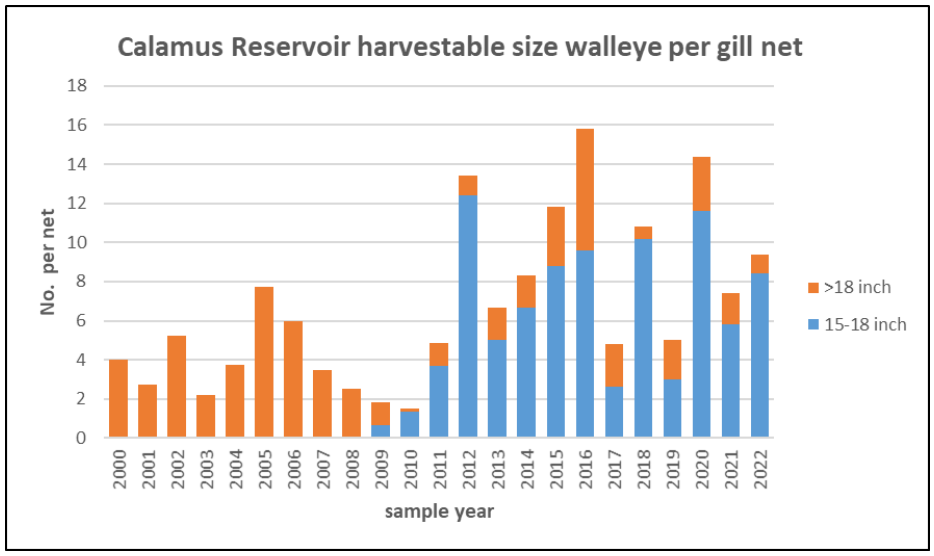
Walleye, channel catfish, and wiper populations are maintained through annual fish stocking. Muskellunge are stocked in low numbers biannually to maintain their population and provide angling opportunity. In 2022, both walleye fry and fingerling were stocked. In all 7.5 million walleye fry and 249,014 fingerling walleye were stocked along with 5,225 fingerling wipers; and 11,801 10-inch channel catfish. Fish stocking in 2022 will include walleye, wipers, and channel catfish. Fishing regulations include **a daily bag limit of 4 walleye, however, anglers may have no more than 2 fish between 15 and 18 inches and no more than 2 fish over 18 inches. Keep in mind only one fish in the daily bag may be longer than 22 inches in length. Also keep in mind that only 1 channel catfish over 30 inches is allowed in the daily bag limit of 5 channel catfish. This regulation is designed to protect large channel catfish from overharvest.**

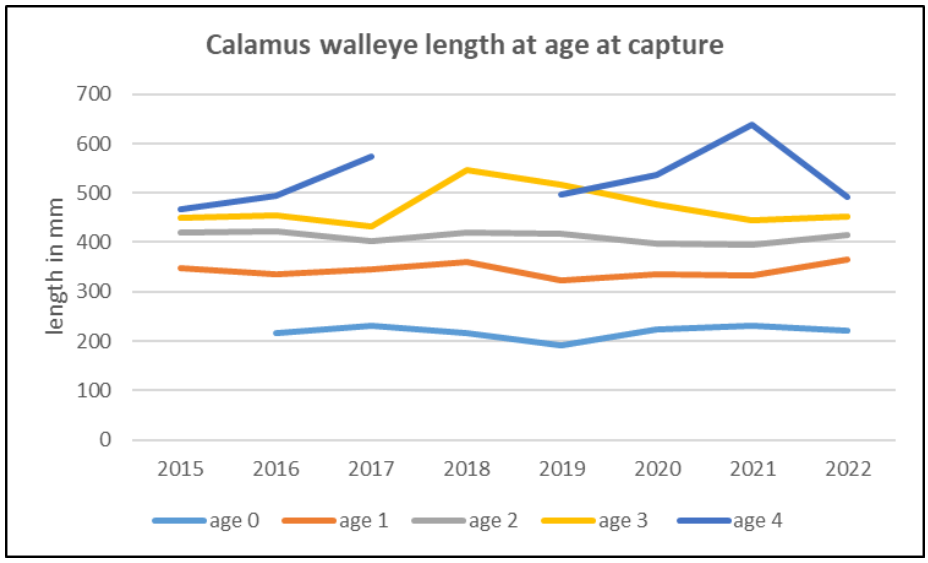
In short, populations of walleye, white bass, wipers, channel catfish and muskie continue to be strong and provide good angling opportunity.

Walleye

The walleye fall gill net index increased in 2022 to 13.4 and is just under the target objective of 15-20 per net. One underperforming net on the shallow west end of the lake dropped the mean catch rate and If that net catch is left out, the mean catch increased to 16 which is in our objective range. The past five year average for gill net catch is 15.2. Harvestable sized fish in the 15 to 18 inch size range still make up a majority of the sample while fish 18 inches and longer are also present in the population. The number of harvestable walleye per gill net set in 2022 was 9.4 which is right on the five year average. The chart below shows the catch rates of “keeper” walleye in annual gill net sampling. The mean number of harvestable walleye per net catch from 2000-2008 (18 inch minimum years) was 4.1. The mean net catch of harvestable sized walleye from 2011-2022 (special regulation years) is 9.4. Five year classes of fish were represented in the 2022 survey with age-1 to age-3 fish the most abundant. Walleye are reaching 15 inches in 3 growing seasons with fish reaching 18 inches in 4+ growing seasons. The dual stocking of walleye fry and fingerling will continue in 2023 to maintain high walleye recruitment levels and prevent a missing year class. Anglers should find good fishing again in 2023 with most harvestable fish subject to the 2 fish daily bag limit between 15 and 18 inches. However, anglers will also find decent numbers of fish over 18 inches.

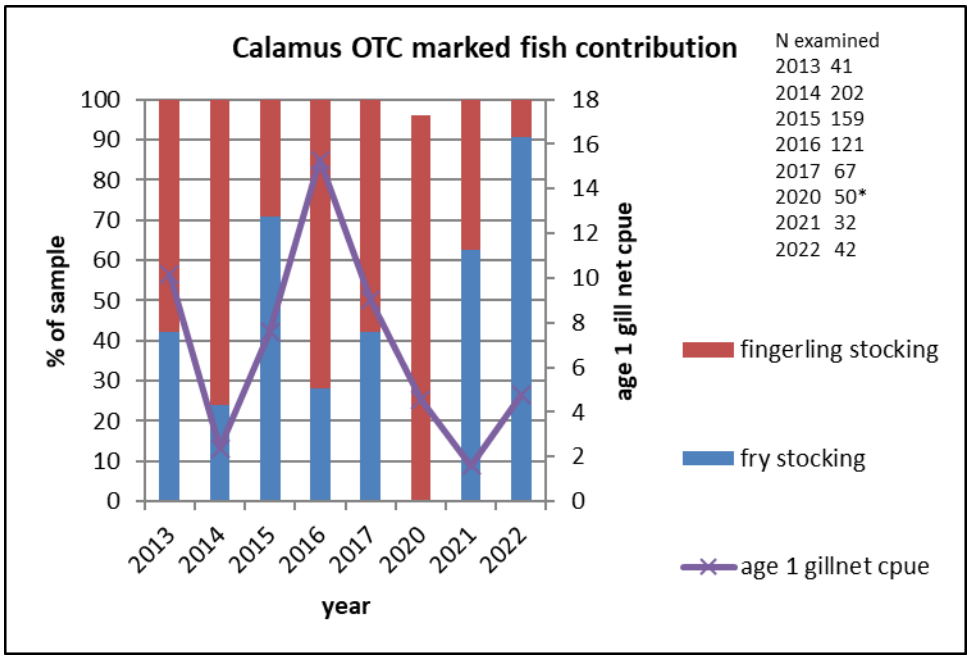

Calamus walleye fall gillnet catch per net past 15 years
45
40
35
30
25
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
>25 inches
20-25 inches
15-20 inches
10-15 inches
<10 inches


Calamus Reservoir harvestable size walleye per gill net
No. per net
18
16
14
12
10
8
6
4
2
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
sample year
>18 inch
15-18 inch


Calamus walleye length at age at capture
length in mm
700
600
500
400
300
200
100
0
2015
2016
2017
2018
2019
2020
2021
2022
age 0
age 1
age 2
age 3
age 4

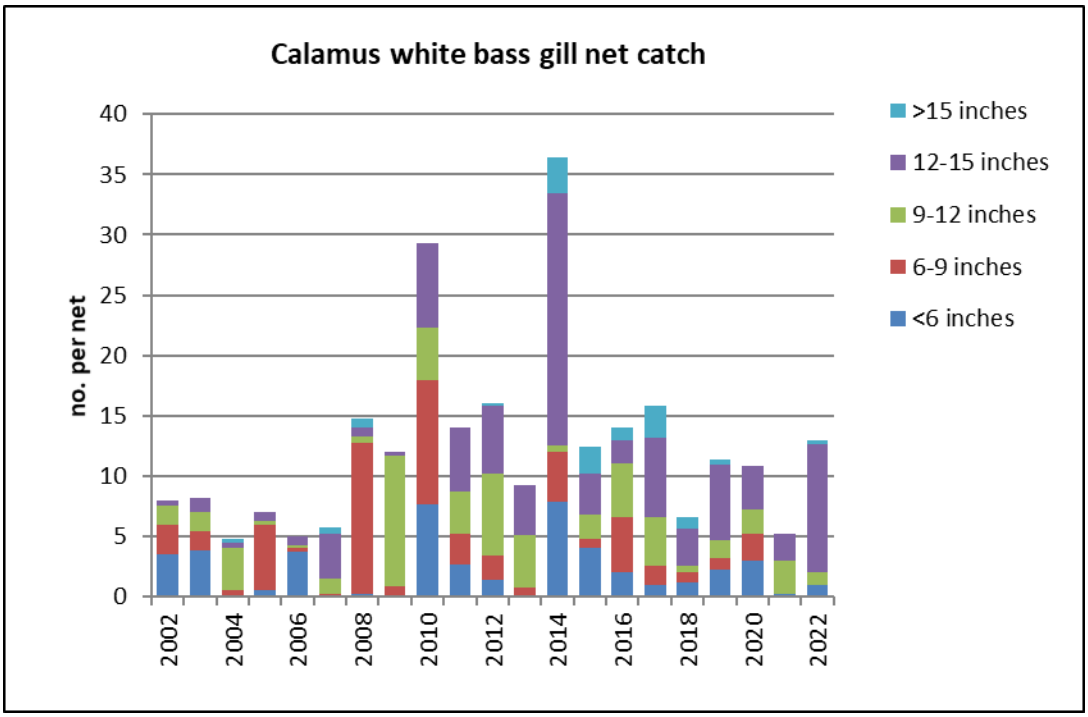
2022 Young-of-the-year Walleye Sampling

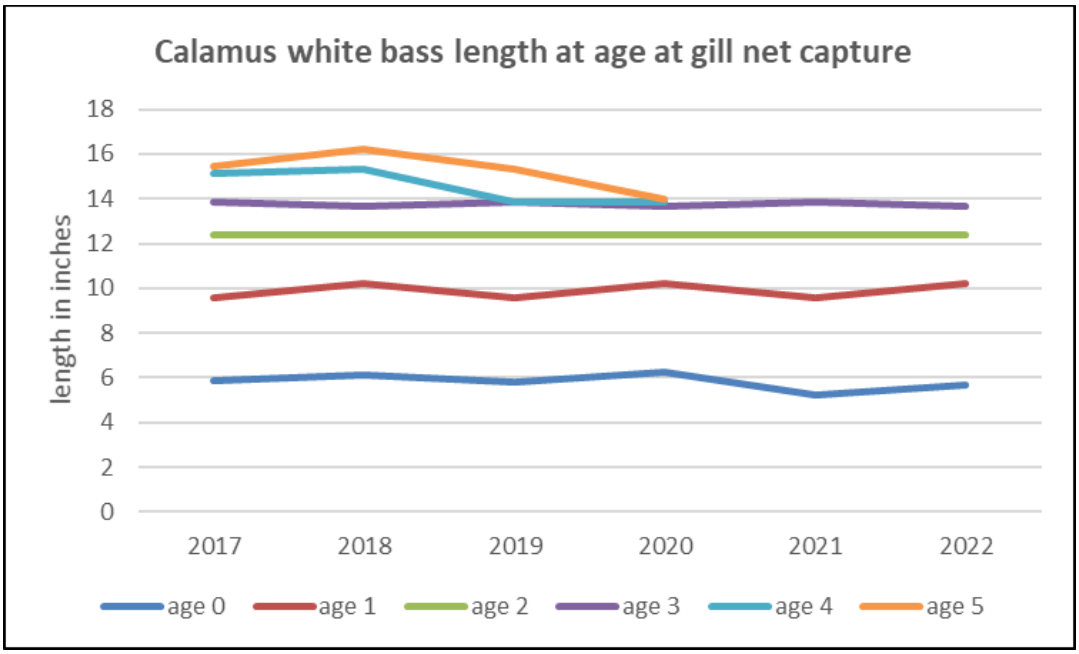
Age-0 walleye were collected by nighttime electrofishing on October10 and the sampling was hampered by very low reservoir water levels. Evaluation of the fry/fingerling concurrent annual stocking is ongoing through the use of chemical marking. Past research has shown that natural recruitment of walleye at Calamus is very low to non-existent so current efforts are concentrated toward fine tuning the stocking of fry and fingerling. In past years, the fingerling walleye received a chemical mark to help us evaluate which stocking strategy is contributing more fish—fry or fingerling. At this point in the stocking evaluation, both stocking strategies are contributing to year class strength However, one strategy can contribute a little better than the other in some years. It appears both stockings should be continued to ensure adequate walleye recruitment.



White Bass

A healthy, abundant white bass population is present in Calamus Reservoir. Gill net catch for white bass of 13 per net in 2022 was a large increase over the 2021 catch and also 30% above the past five year average of 10. Fishing pressure and harvest of white bass was high in 2022 as fish were abundant for the angler. The size structure of white bass is skewed toward larger fish but reproduction appeared to be good in 2022 as good numbers of young-of-the-year were seen during fall electrofishing. The 2018 to 2020 year classes are abundant and they will provide the majority of fish to the angler in 2023. Fish are present up to 15 inches offering anglers good opportunity at quality sized fish. White bass body condition is good and growth rates are consistent with fish reaching 12 inches in three growing seasons. Annual growth slows considerably after age 3 but most fish are harvested by that age. White bass fishing success in 2023 should be good and similar to what anglers have seen the past few years. . **Remember only 1 white bass/wiper greater than 16 inches is allowed in the daily bag limit.**

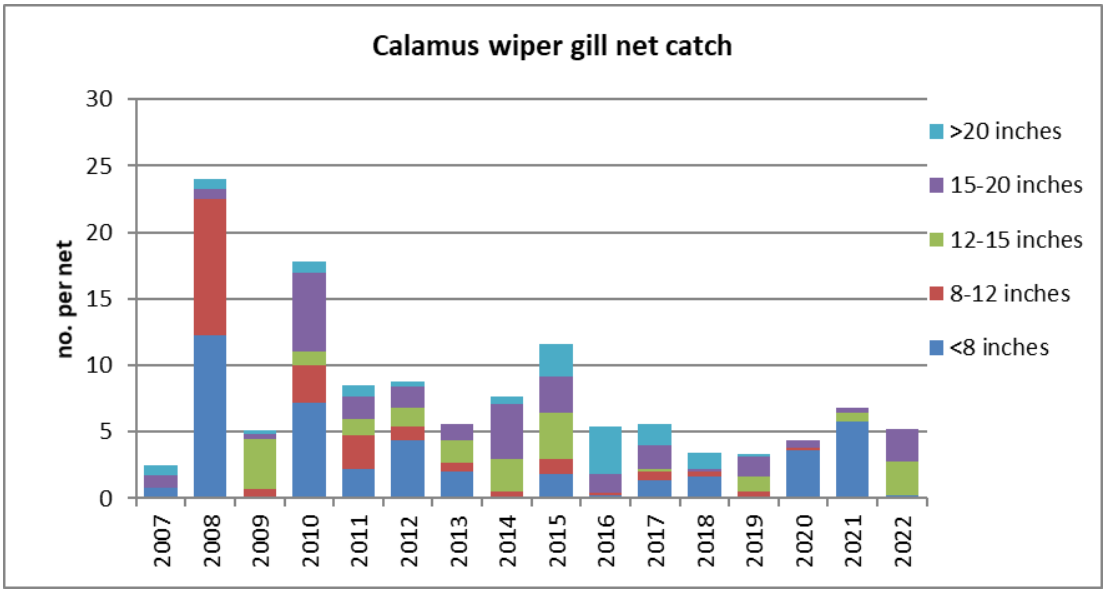

Calamus white bass gill net catch
no. per net
40
35
30
25
20
15
10
5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
>15 inches
12-15 inches
9-12 inches
6-9 inches
<6 inches


Calamus white bass length at age at gill net capture
length in inches
18
16
14
12
10
8
6
4
2
0
2017
2018
2019
2020
2021
2022
age 0
age 1
age 2
age 3
age 4
age 5

Wipers

The wiper catch per gill net in the 2022 sample is similar to that seen over the past few years with the exception that some larger fish were present. As always, wipers are a schooling fish and they can be a "hit or miss" sample. Angler success on wipers in 2023 should be better for somewhat larger fish than was seen in 2022. Wipers exhibit much faster growth than white bass and current data indicates wipers reaching 17—18 inches in three to four growing seasons and over 20 inches in four to five growing seasons. Like white bass, prey availability in the form of young gizzard shad influences year class survival and growth rates. The wiper stocking request in 2022 was not fully met due to poor production in the hatchery system. The actual stocking of 5,225 fingerling fish was only 20% of the request of 25,000. Hopefully this reduction in stocked fish will not have a dramatic negative effect on wiper numbers if just a single year occurrence. Anglers should see some wipers growing into the 20 inch and larger group barring any significant natural mortality. There have been some instances of bacterial infections leading to a die-off of larger fish after ice out at Calamus Reservoir. We will monitor the situation.

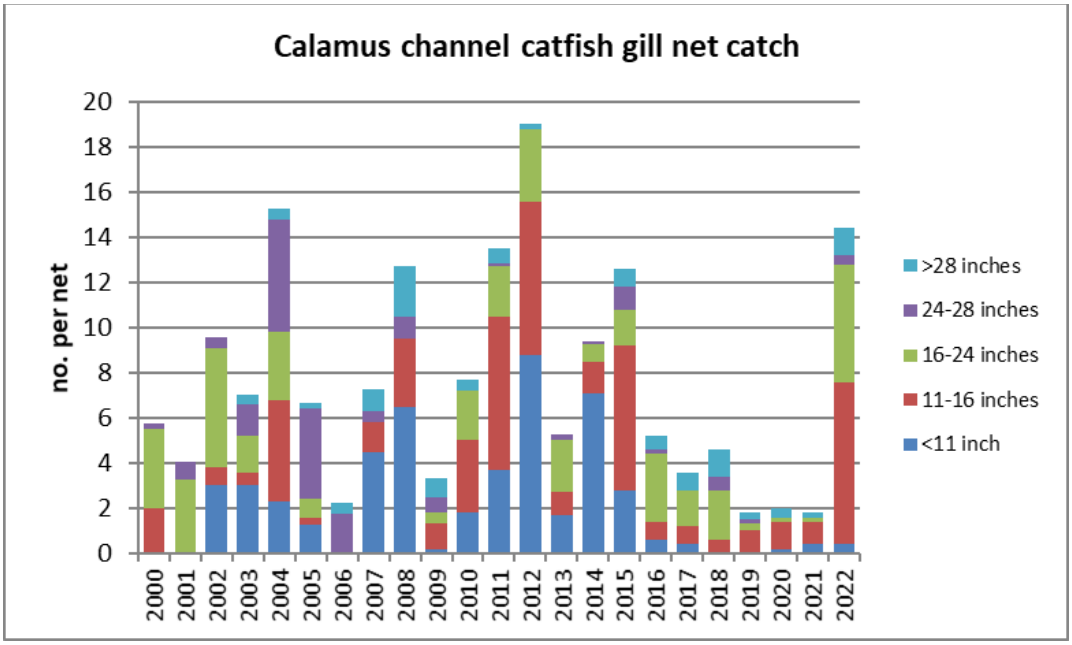
Only 1 wiper/white bass greater than 16 inches is allowed in the daily bag.



Channel Catfish

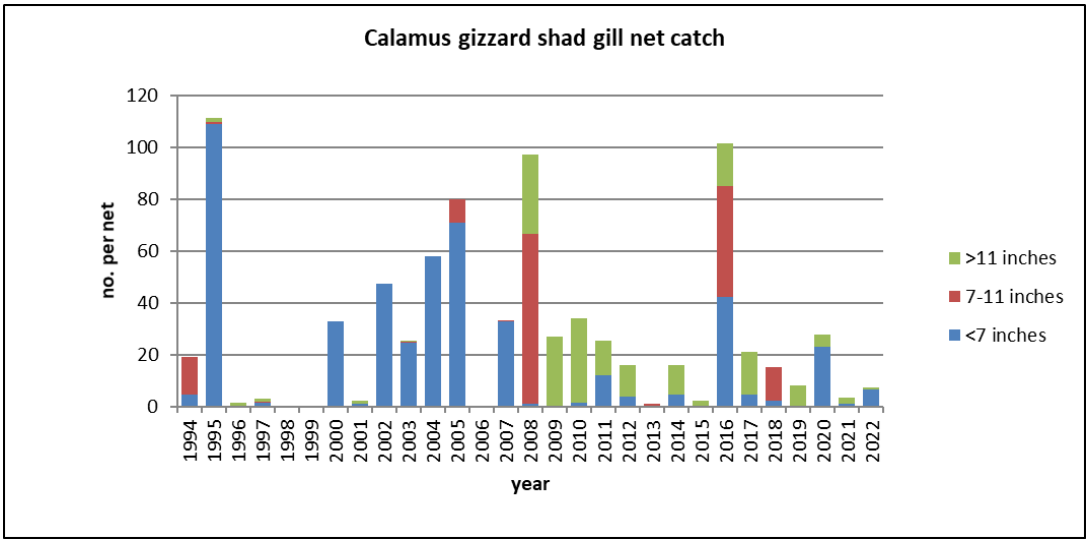
Channel catfish catch per net in the 2022 survey is considerably higher than seen the past few years. The high catch is somewhat hard to explain since the fish collected were large enough to have been in the lake the past several years. The high catch may be due to the fact the lake was 19 feet or more low due to extreme irrigation demand in 2022. The mean catch for 2017-2021 was 2.8 while the 2022 mean gill net catch was 14.4. To improve catfish recruitment, we have returned to stocking 10 inch size catfish and that may have contributed to the higher catch rate. As you can see from the graph, catfish sample catch numbers tend to vary widely at times. Data analysis indicates a negative relationship between reservoir water level elevation and catfish gill net cpue (correlation coefficient -0.65). In other words, the lower the lake level the higher the catfish catch rate in the nets. This relationship describes some of the variation in annual gill net catch but not all, so other factors are at work. Our gill net sampling technique may not be conducive for good catfish samples looking into population levels and trends. Anecdotal information from

anglers indicates that channel catfish are likely found in deeper water during the time of our gill net sampling. Trophy fish are present in Calamus Reservoir and catfishing can be quite good certain times of the year. Calamus has become known as a catfish angling destination and the site of catfish tournaments. We look for catfish angling opportunity in 2023 to be similar as that seen in the past few years. A regulation change occurred for Calamus Reservoir beginning in 2020. **A "1 fish over 30 inches in the daily bag limit" regulation is now in place for channel catfish.**



Gizzard Shad

Gizzard shad are the primary prey for managed sport fish in Calamus Reservoir and their size distribution is critical for proper growth, recruitment and maintenance of desirable sport fish species. It is desirable to have high numbers of young-of-the-year shad to provide food for the sport fish such as walleye and white bass, but lower adult numbers so as not to compete with sport fish for space and food. Shad numbers were adequate in 2022 and good numbers of small shad were seen in the lake throughout the summer and fall months. Good numbers of adult shad are currently overwintering at the upper end of the lake. Moderate winterkill of adult shad is a good thing for fish management purposes because the surviving adults produce a lot of young to serve as food for sport fish. We will continue to monitor shad numbers at Calamus Reservoir. The Calamus shad population continues to be a source of adult spawners that we can easily collect and relocate to other reservoirs as needed.



Invasive Species

Anglers and recreational boaters should continue awareness for zebra and quagga mussels while using Nebraska lakes. Monitoring was completed at many Nebraska reservoirs during 2022, including the Calamus. To date, no zebra mussel adults or veligers have been found at Calamus. Zebra mussels are found in Lewis and Clark Lake, the Missouri River, Lake Yankton, and Offutt Air Force Base Lake. Invasive species technicians will be inspecting boats periodically at Calamus again in 2023 as well as collecting samples for potential early detection of zebra mussels. Thank you for your assistance and patience while these surveys are conducted. Please clean, drain, and dry your water craft prior to leaving any water body and never arrive at a lake with water in your boat or live well from anything other than a bottled domestic source. Invasive mussels have also been documented in several neighboring states including Iowa, Kansas, Missouri, and South Dakota. **Special Note: Zebra mussels have been found in Lake Francis Case and Lake Sharpe in South Dakota. If you fish those lakes please take extra precautions to drain and dry your watercraft and tackle before returning to our Nebraska lakes and reservoirs.**

Invasive mussels will attach to almost any surface and have detrimental impacts on industry (power plants, water intakes, irrigation, etc), and recreational users (fouling boat motors, impacting beaches, etc.). Invasive mussels cause an estimated $5 billion per year in economic impacts in the United States for monitoring and control efforts. Inadvertent transfer by humans is the major source of new infestation for zebra and quagga mussels; primarily by boats, boat trailers, and fishing gear. Boaters and anglers are reminded that it is important to **clean, drain and dry** their equipment and boats before moving to different bodies of water. Anglers and boaters are encouraged to educate themselves on these and other aquatic invasive species. An excellent source of information regarding invasive species can be found on the University of Nebraska's Invasive Species Project website: http://www.neinvasives.com.

Regulations that took effect in 2013 mandate that all vessels and conveyance be drained of water prior to entering or leaving a lake to prevent the spread of invasive species. This means all livewells, baitwells, and boat hulls shall be drained and free of water except for water from a domestic source for bait fish. Additionally, all aquatic vegetation must be removed from boats and trailers prior to leaving a lake. Boats are subject to inspection by authorized personnel. Regulations will be strictly enforced. Remember to bring ice on your fishing trip to transport your fish home. All boats not registered in Nebraska must have a non-resident AIS sticker purchased and properly affixed to their watercraft.

For more information on fishing rules and regulations visit the Nebraska Game and Parks website at OutdoorNebraska.org.

For more information on the fisheries at Calamus Reservoir contact:

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