Calamus Reservoir 2018 Fall Fish Survey/ Angler Creel
Nebraska Game and Parks Commission

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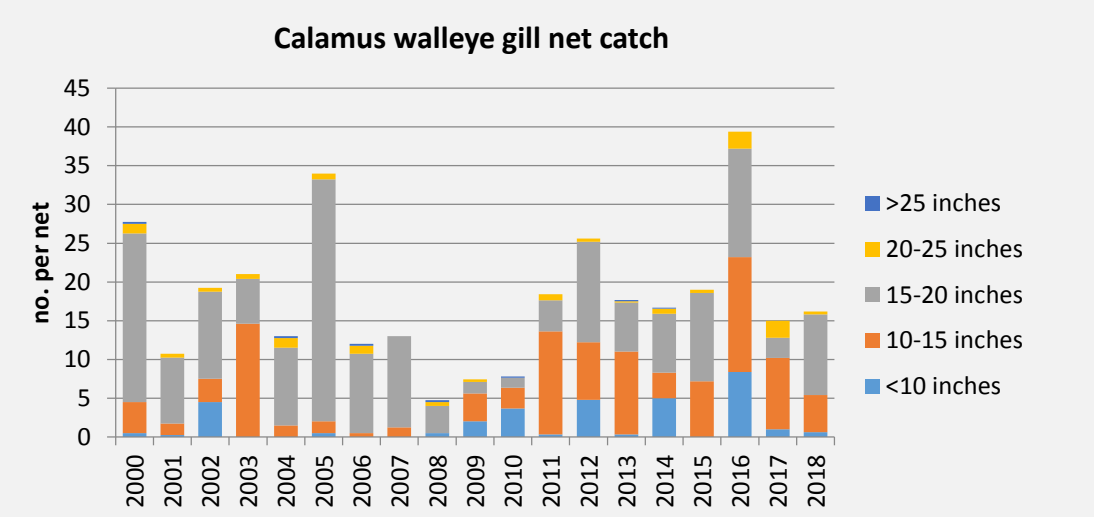
2018 Calamus Fish Management Summary

The following text and graphs are summaries from the 2018 fall gill net sampling conducted during October and the 2018 angler creel data. Gillnets are used to sample fish species which primarily live in open water environments such as large reservoirs. Gill net sampling effort in 2018 was 5 nets located in the mid to lower reaches of the lake on October 16-17. Electrofishing for young-of-the-year fish was not conducted in 2018. The same general areas of the lake are utilized for sampling locations each year for standardization. Angler creel data was collected from April to October by a technician from the UNL Cooperative Fish and Wildlife Unit.

Walleye, channel catfish, and wiper populations are maintained through annual fish stocking. Muskellunge are stocked in low numbers biannually to maintain their population and angling opportunity. In 2018, 8.62 million fry and 358,538 fingerling walleye; 24,492 fingerling wipers; and 32,313 5-inch channel catfish were stocked in the lake. In addition, fish produced from the Calamus hatchery in 2018 excess to agency needs were stocked into the reservoir. This amounted to 109,773 black crappie fingerling. Fish stocking in 2019 will include walleye, wipers, channel catfish, and muskellunge . **A new walleye regulation took effect beginning in 2016. The daily bag limit is 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.**

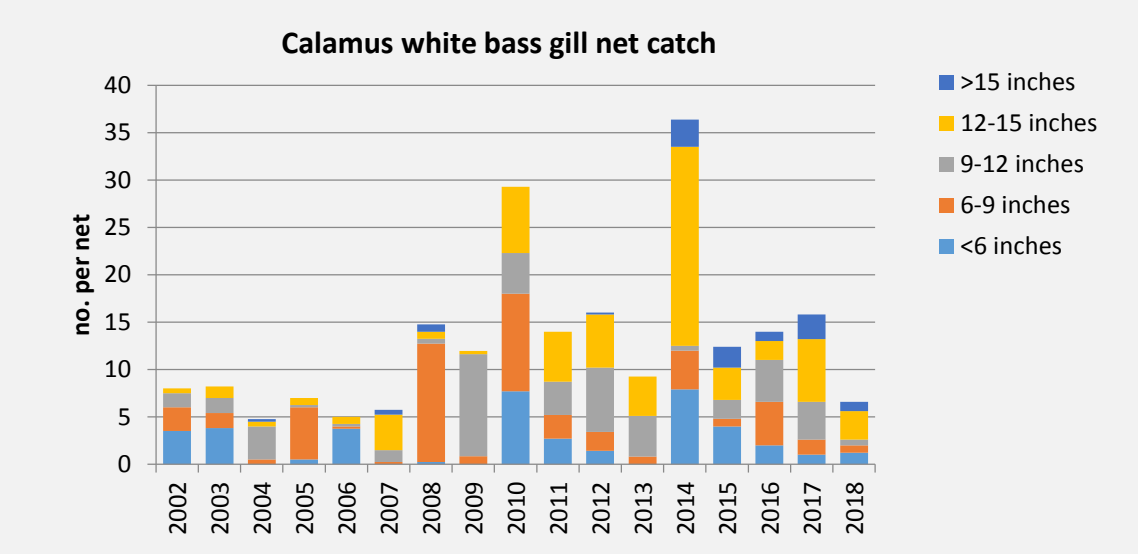
Walleye

The walleye fall gill net index increased slightly from that seen in 2017. The previous 5 year average is 21.5 fish per net. If you exclude the high catch seen is 2016 the average drops to 17 fish per net, similar to that seen in the 2018 sample. Harvestable sized fish made up about 2/3 of the sampled walleye in 2018 with 94% of harvestable fish in the 15-18 inch size range. Four year classes of walleye were collected, ages 0 through 3. The 2016 year class (2 year olds) dominated the sample followed by the 2017 year class. As you can see, the 2016 year class was seen as high young-of-the-year fish (<10 inches) in the 2016 sample. Walleye are reaching 15 inches between 2 and 3 growing seasons. Fish from the 2016 year class averaged 17 inches in the 2018 survey. Body condition of walleye remains good with a population mean of 95% of optimal condition. The dual stocking of walleye fry and fingerling will continue in 2018 in an attempt to maintain high walleye recruitment levels and prevent a missing year class. Anglers should find good fishing again in 2018 with most fish subject to the 2 fish daily bag limit between 15 and 18 inches.



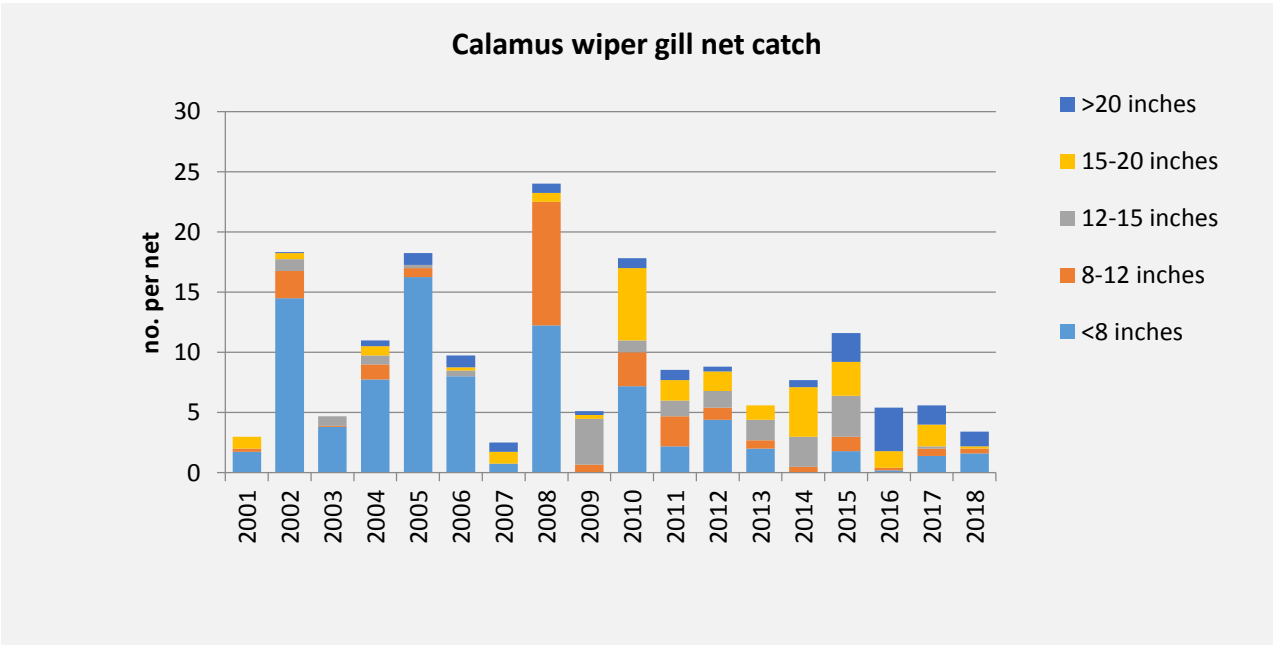
White Bass

White bass numbers in the 2018 fall survey showed a steep decline over the past few years but anglers should not look too much into this. A series of early cold fronts prior to our sample led to a drop in water temperature to 45 F. The cold water greatly reduced the number of white bass seen in our sample. The take home message is the size structure of the fish we did sample. Once again larger fish are available to the angler and all size groups are represented. Some fish in 2019 will exceed 16 inches in length and anglers are reminded only 1 of these is allowed per day in the bag. White bass body condition is excellent, indicating enough prey availability. The 2018 Calamus angler creel survey showed an estimated angler catch of over 43,000 white bass. In spite of what the gill net catch rate shows, white bass fishing in 2019 should be similar to 2018.



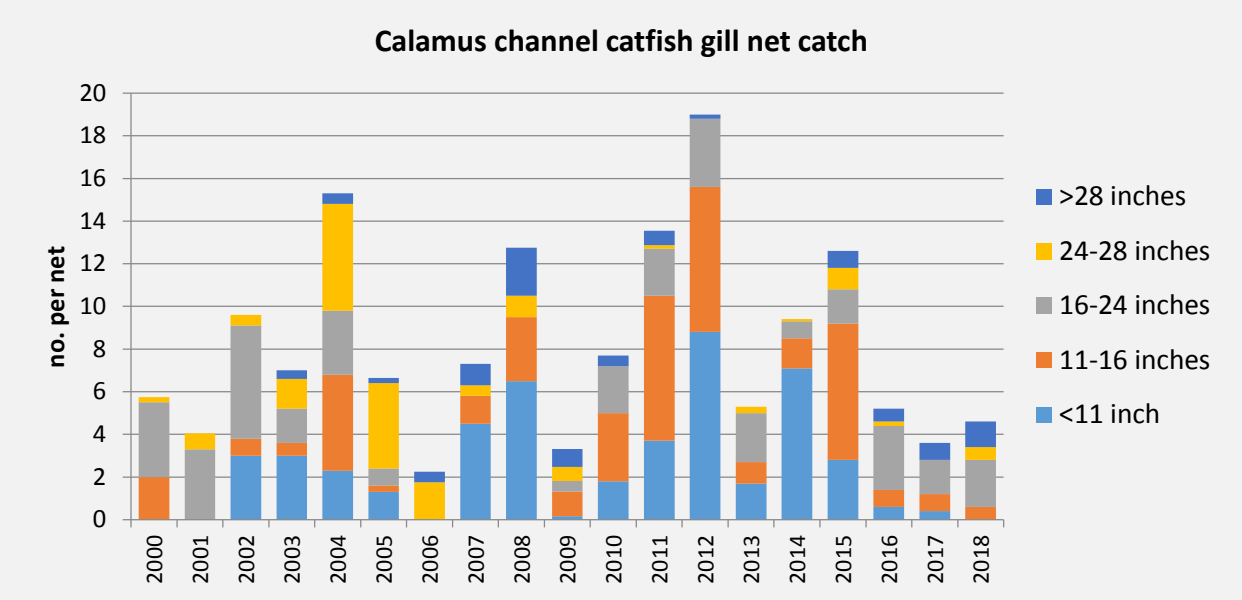
Wipers

The wiper catch per net in the 2017 sample was slightly below the previous five year average of 8.4/net. Fish were collected from all age groups 0 through 5 in 2018. There was some natural mortality of wipers just after ice-out in the upper part of the lake in the Spring of 2017 that likely had an effect on overall wiper numbers, particularly for larger fish. Fish collected at that time exhibited clinical signs of a bacterial infection that seemed to affect larger fish. As always, wipers are a schooling fish and they can be a "hit or miss" sample and no doubt the cold water temperature during the 2018 sample affected the gill net catch. Angler success on wipers in 2018 should be similar to that seen in 2017. Wipers exhibit much faster growth than white bass and current data indicated 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.



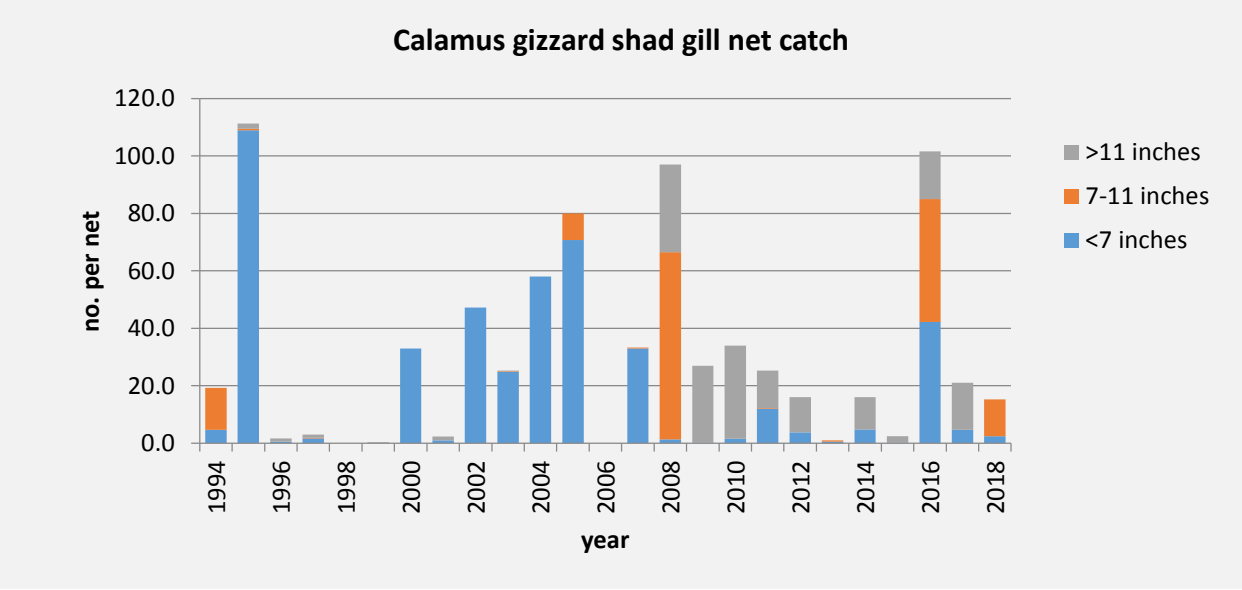
Channel Catfish

Channel catfish catch per net in the 2018 survey showed a slight increase in numbers collected. However the 2018 catch rate is still about 40% below the previous five year average. The difference in catch rates is partly due to the number of smaller fish found in the survey. The discrepancy in the catch rate of small fish can partially be explained by the timing of stocked channel catfish. Prior to 2016, larger ten-inch channel catfish had been stocked in the lake just prior to our Fall survey and the catch of those fish would be high. From 2016-2018, smaller 5 inch fish were stocked earlier in the year and in a different location from past stocking. This new stocking strategy is still being evaluated in terms of maintaining angler desired population levels. As you can see from the graph, catfish sample catch numbers tend to vary widely at times so more years of survey data are needed to evaluate any stocking strategy. However, the past 3 years have been pretty consistent. Multiple length groups of fish are found in the lake and trophy fish are present in Calamus Reservoir. We look for catfish angling opportunity in 2019 to be similar as that seen in 2018.



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 desirable sport fish such as walleye and white bass but lower adult numbers so as not to compete with desirable sport fish for space and food. Shad numbers in the 2018 survey are still considered near optimal for adult shad even though none over 11 inches were seen in the nets. Although the gill net catch of smaller shad appears low, anecdotal information and observation during the summer of 2018 suggested high numbers of young-of-the-year shad. Sometimes the young shad are too small to be effectively sampled in our gill nets and that may have been the case in 2018. Shad effectively over-winter in the upper end of the reservoir and the number of adult spawners to produce abundant young shad is usually not a problem.

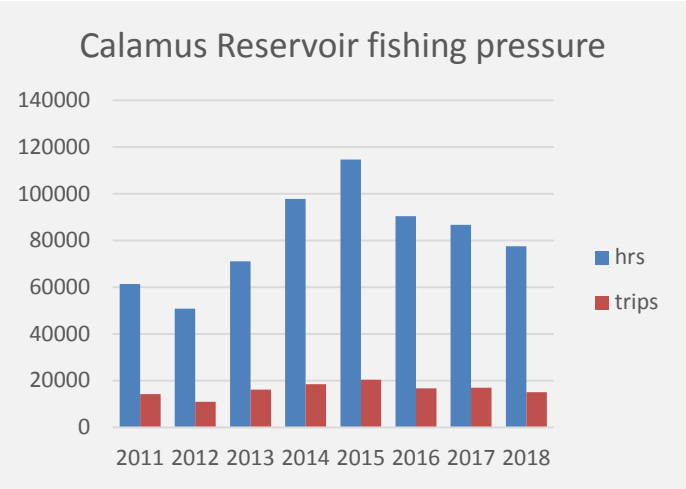


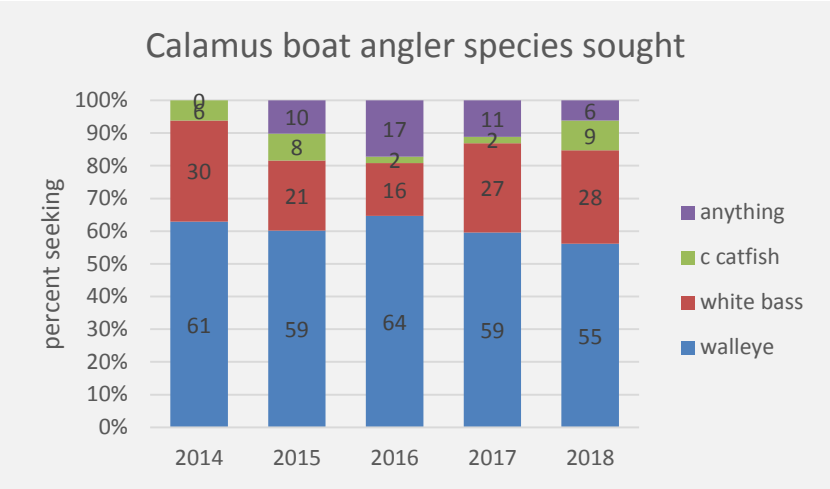
Other 2018 Activities

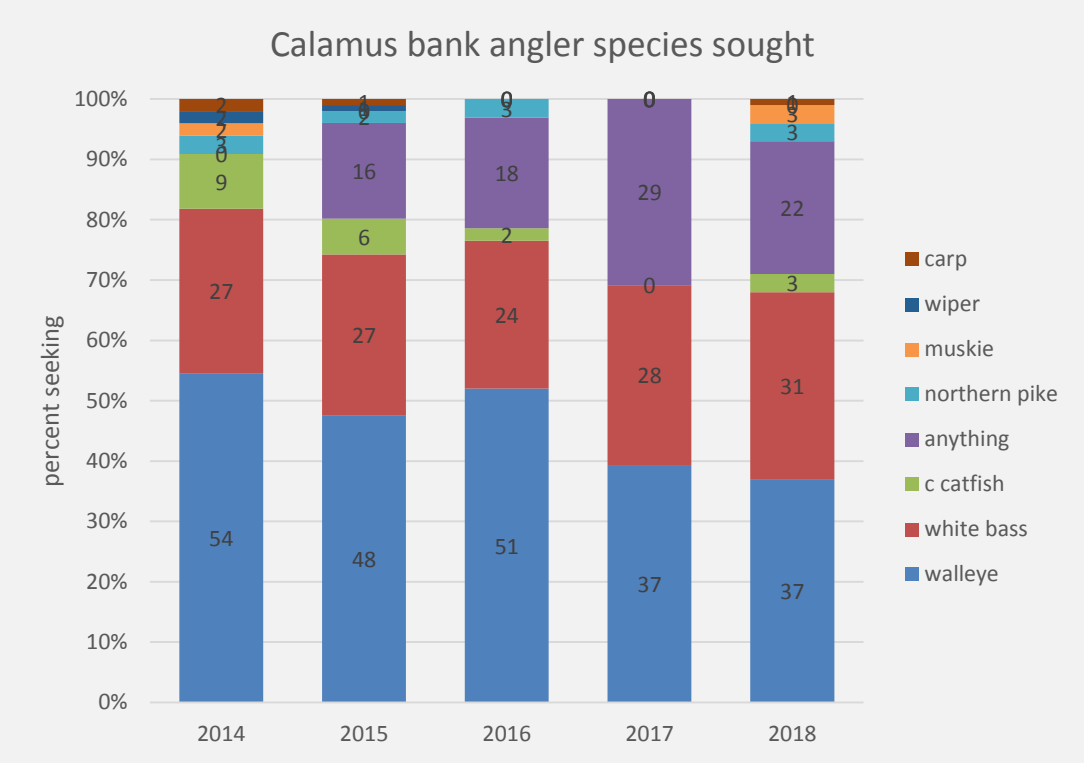
Fisheries Division conducted other activities at Calamus Reservoir in 2018. These included activities that affected boaters and anglers at the Reservoir and boat ramps. An angler creel survey was conducted through the UNL Fish and Wildlife Coop Unit from April through October. Angler creel data assists us with management of the aquatic resources. The angler creel studies at Calamus and other large reservoirs in Nebraska were part of a five year study with UNL into angler use, catch, patterns, human dimensions, and number of unique anglers. In addition, the angler creel survey assisted with the evaluation of the new walleye length and bag limits. The five year study is now complete and there will not be an angler creel survey in 2019. We have not ruled out conducting another creel survey in 2020 to further evaluate walleye catch and harvest. The Game and Parks Commission had an Invasive Species Technician conducting boat inspections and interviews for all boaters and lake users, primarily at boat ramps. **We appreciate your cooperation and patience when contacted by these technicians**. AIS technician boat inspections assist with zebra mussel prevention to protect our aquatic resources, protection of all water based recreation activity and protection of your personal property against these invaders. **An Aquatic Invasive Species technician will once again be working Calamus and conducting boater inspections and survey in 2019. Thank you for your cooperation.**

Angler Creel Survey Summary

The following charts will serve to summarize the Calamus angler creel data collected over the past 8 years. To frame the data, creel surveys conducted between 2011 and 2014 were inclusive from May through August. Surveys conducted from 2015 to 2018 were inclusive from April through October and utilized a slightly different statistical program to generate use and catch outputs. The data from 2011 to 2014 is included here because the majority of fishing pressure and catch occurs May through August.

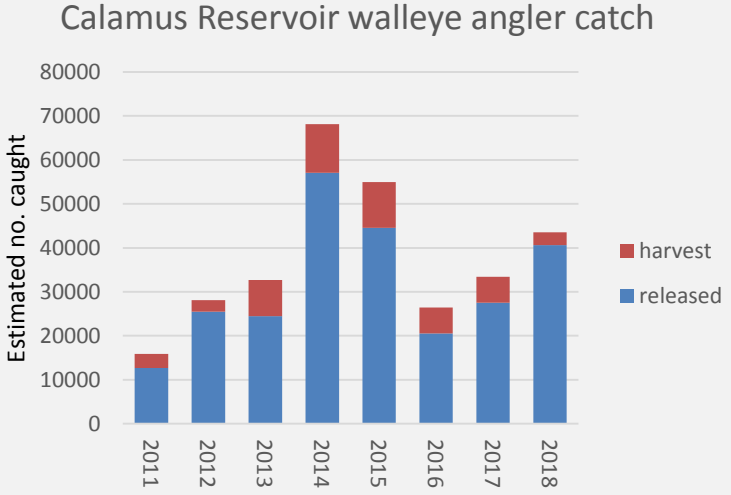


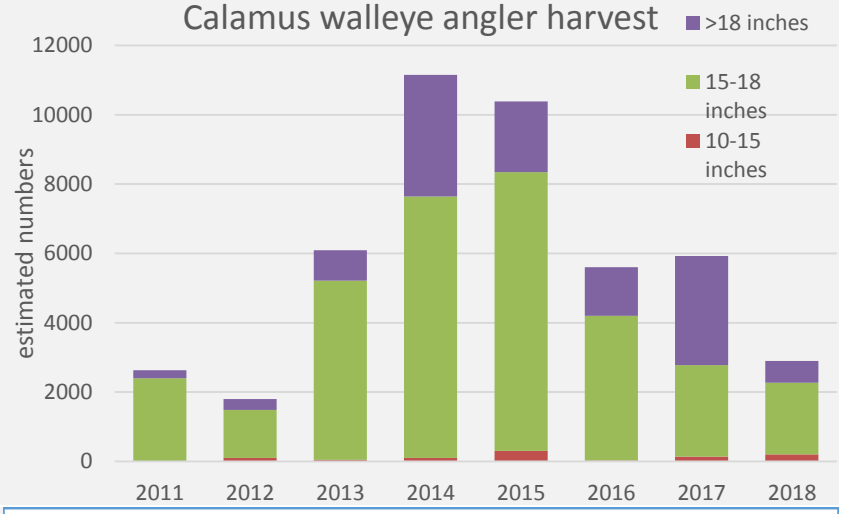


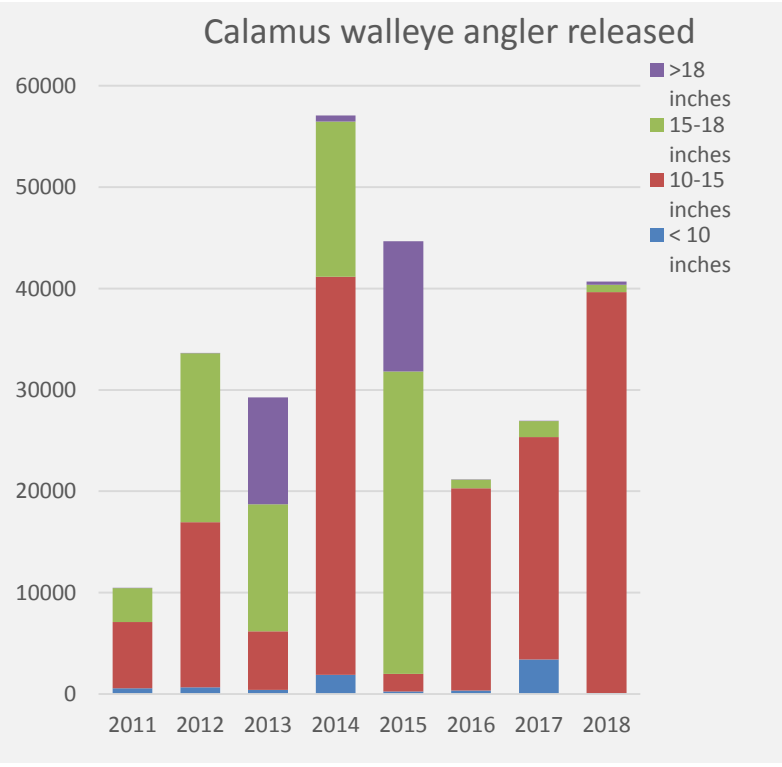


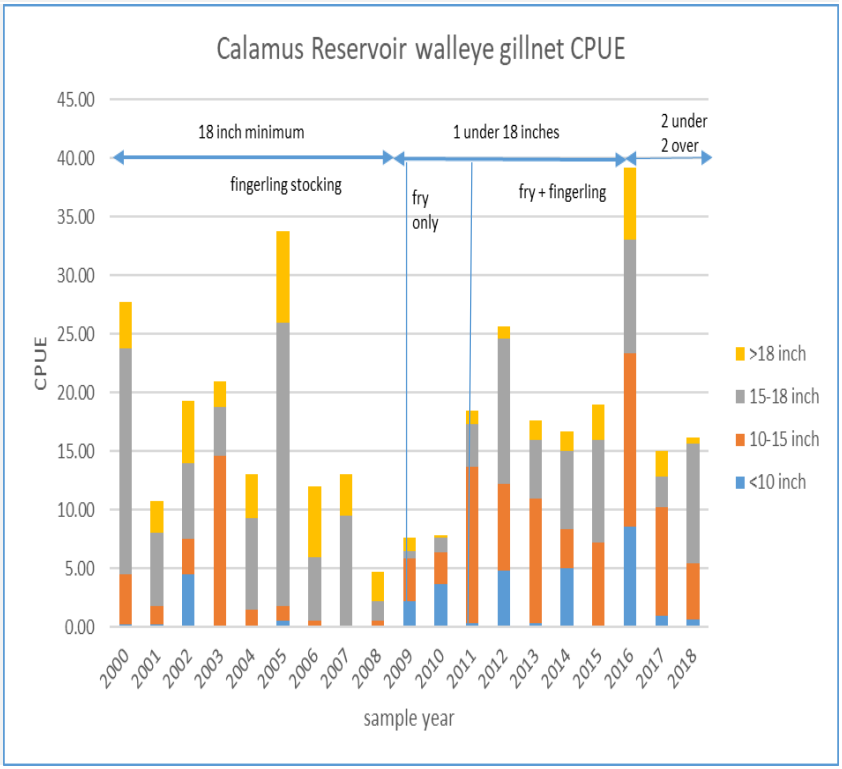
Calamus is subject to fairly high fishing use and generally was between 80,000 and 100,000 hours the past 5 years. The majority of anglers fish by boat and from 1/2 to 2/3 of those anglers target walleye. White bass is a strong second with about 1/3 of the boat anlgers seeking them. Channel catfish are sought by less than 10% of the boat anglers and in some years 10% or more of the anglers are fishing for “anything”. Bank anglers show a little less emphasis on walleye and more on “anything”. As with boat anglers, about 1/3 of the bank anglers were after white bass. There are more bank anglers targeting muskie and northern pike than boat anglers. This has to do with the seasonal fishing that occurs for those species on the west end of the reservoir.

Walleye fishing has been good the past few years even with some fluctuations in success between years. Walleye fishing success is driven by a number of factors including fish number, size structure, prey availability, and weather. The charts below illustrate the walleye angling success documented by angler creel surveys. Normally it appears the annual catch will fluctuate between 30,000 and 50,000 fish annually. On average the harvest component will make up 10-20% of the total catch. Regulation changes have occurred the past several years, within a 4 fish bag, and have gone from an 18 inch minimum length limit to a "1 under rule" which allowed one fish in the daily bag between 15 and 18 inches while the rest had to be over 18 inches. In an effort to allow a higher harvest of the more abundant smaller fish, the regulation was amended in 2016 to allow 2 fish between 15 and 18 inches and 2 fish over 18 inches in the daily bag. In essence the harvest was segmented into two groups. It may appear things are not going as planned, however, other factors are at play rather than just walleye numbers. The total catch in 2016 was lower and harvest dropped from the previous year due to high numbers of small shad present that survived the winter and impacted fishing success due to all the natural prey. It is felt this led to the higher numbers of walleye seen in the Fall 2016 net survey which is a reflection of the population after the fishing season. Indeed, 2017 was a good fishing year with a higher harvest of larger fish. 2018 showed a good overall catch of walleye but a low harvest which was somewhat predictable when looking at the 2017 Fall sample. In that sample, the numbers of harvestable sized fish were collected in lower numbers with good recruitment of 10-15 inch fish. The 2018 Fall sample would indicate harvest of walleye in 2018 should be good because over 60% of the fish in the sample were over 15 inches. A lot is going on with walleye at Calamus in reference to fish stocking scheme and regulations. It will take a few more years to figure out the best approach. Disregard the high numbers of 18 inch and larger fish released in 2013 and 2015. This is due to creel clerk error in regard to sizes of released fish and those fish should be in the 15 to 18 inch group.



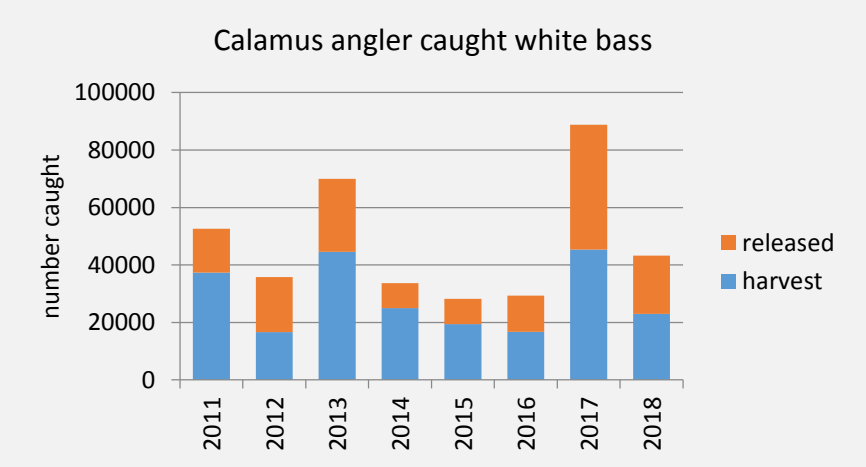


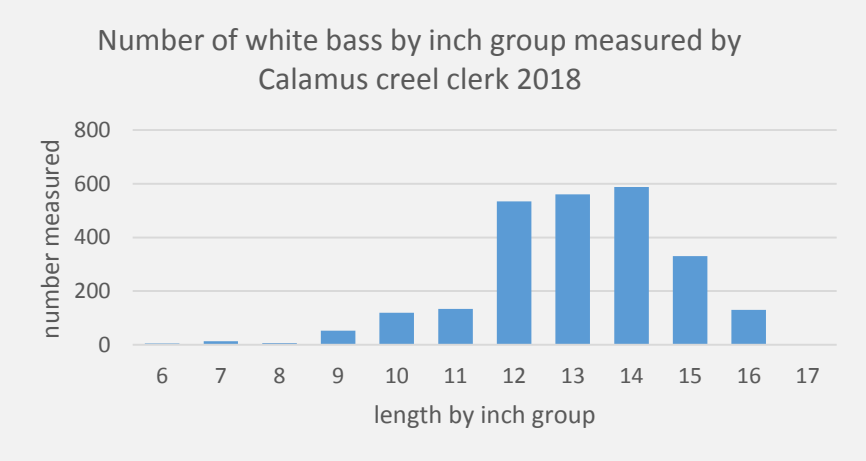


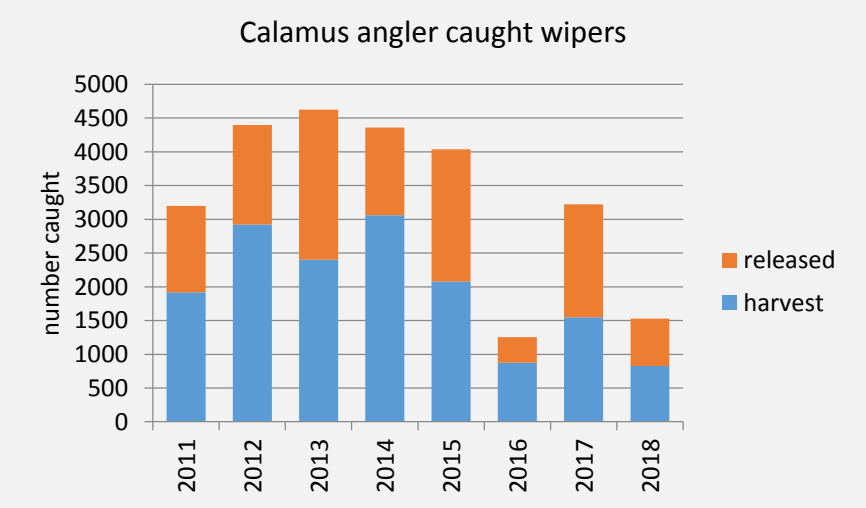


White bass fishing at Calamus has been very good and the lake is becoming a white bass destination lake. 2017 and 2018 have been a couple of the best years seen in terms of white bass catch and harvest. White bass recruitment and overall numbers have been high in recent years and anglers should expect to see somewhere in the range of 30,000 to 50,000 fish caught annually with about half of those harvested. The size structure of fish harvested in 2018 was excellent with 43% over 14 inches in length.

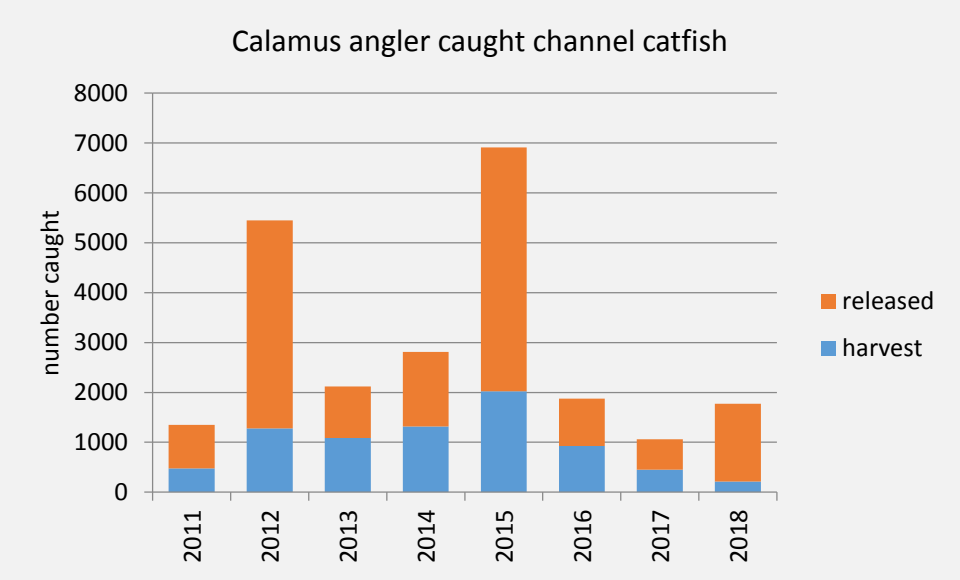
The estimated number of wipers caught by anglers at Calamus has been down 2 of the last 3 years. However, good fishing still exists for quality sized wipers. Few anglers actually target wipers but rather they are an incidental, and exciting, catch for most fisherman. There are some periodic die-offs from bacterial infections in the Spring of the year and this tends to limit numbers of larger wipers in the lake. This is a natural phenomenon and nothing can be done about it. To protect larger wipers, a "1 over 16 inches" length limit is in place for white bass and wipers in the combined daily bag of 15 fish. It is important to remember this as white bass over 16 inches are becoming more common in the angler catch.



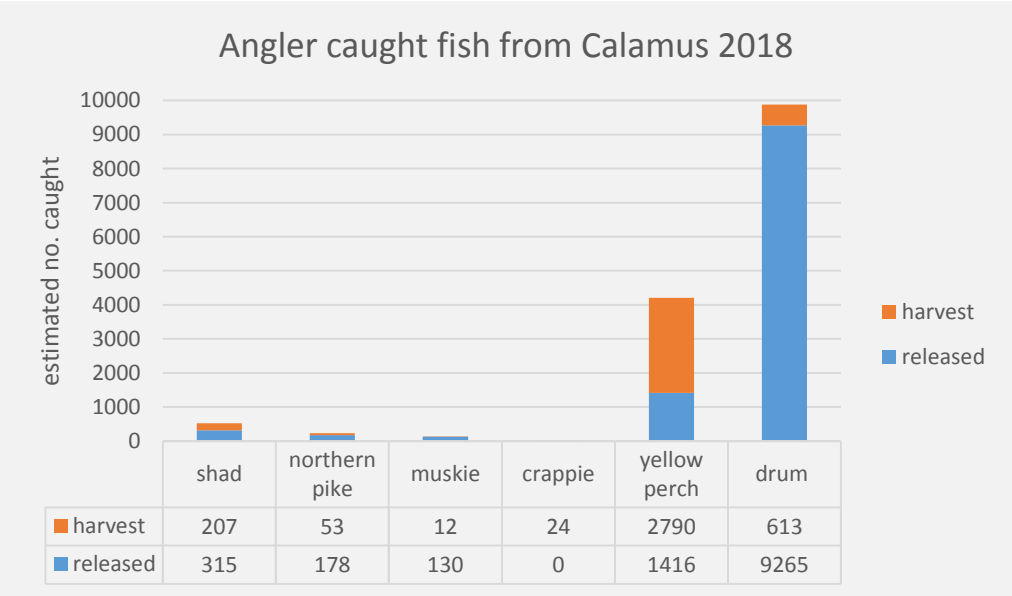




Typically, the numbers of channel catfish caught by anglers will be about 1,000 to 2,000 fish annually with most of those released. Many of the catfish caught are likely incidental catch to walleye and white bass anglers. Keep in mind that only about 10% or less of anglers who fish the Calamus are specifically targeting catfish. Catfish tournament organizers and anglers find the Calamus an attractive destination because of the quality sized fish found here. Likely the higher catfish catch seen in 2012 and 2015 were the result of creel clerks contacting tournament anglers. NGPC staff will continue to evaluate channel catfish stocking strategies, numbers, and harvest regulations to optimize catfish populations and angling potential.

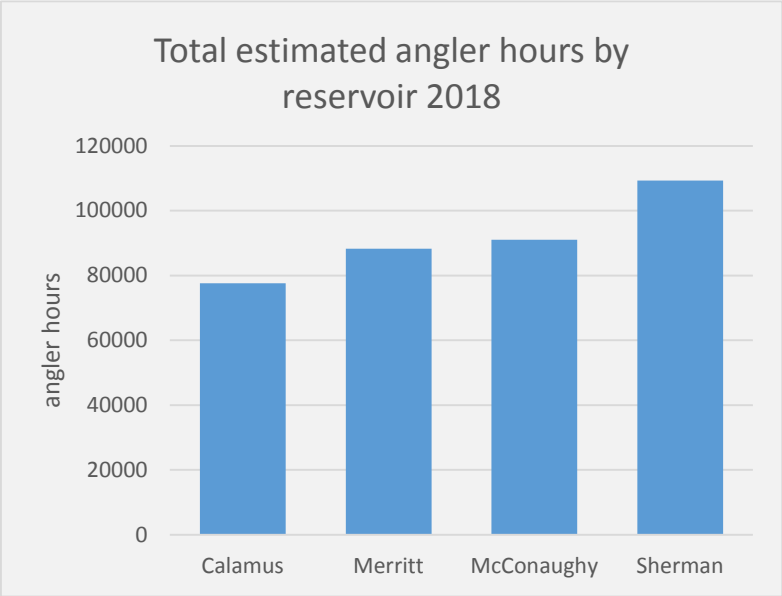


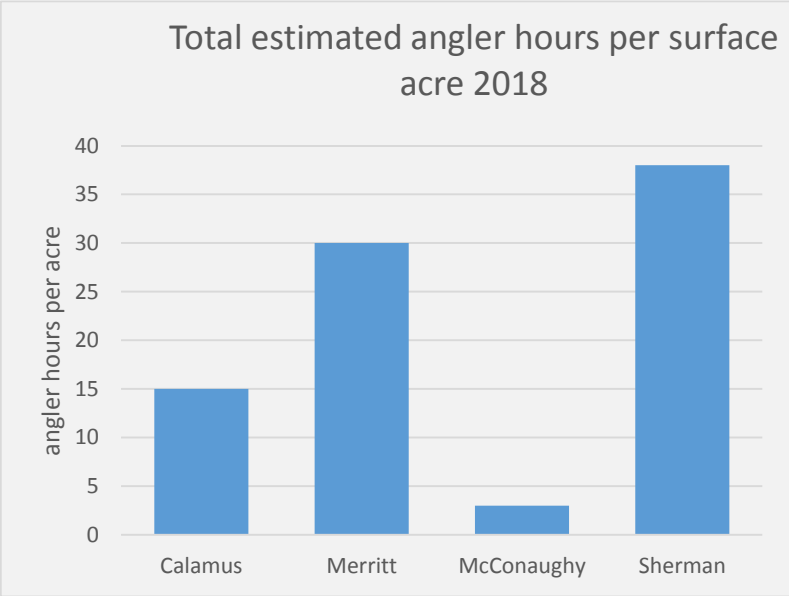
Other species are caught by anglers in other than the big "4" (walleye, white bass, wipers, catfish) and most are an incidental catch while fishing for other species. These species include drum, carp, crappie, and yellow perch. Some species such as muskie and northern pike are actively sought by anglers during certain times of the year. The following chart shows catch and harvest of other species caught by anglers in 2018. For some species, low numbers of anglers contacted having these fish in the catch leads to higher variance and confidence limits so the accuracy of the numbers of fish caught and harvested such as northern pike and muskie may be suspect. Yellow perch and freshwater drum are commonly seen in the angler bag. Anglers are keeping the majority of the yellow perch they catch.



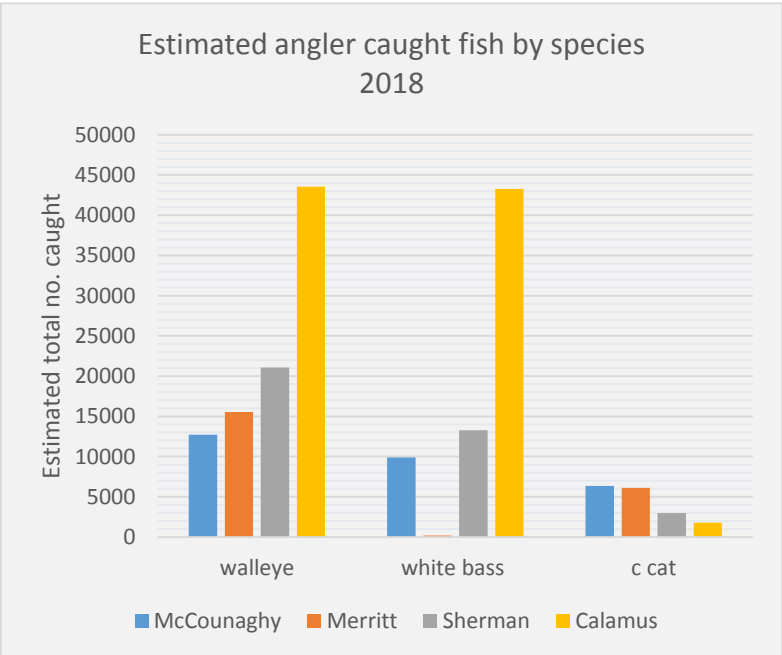
	shad	northern pike	muskie	crappie	yellow perch	drum
harvest	207	53	12	24	2790	613
released	315	178	130	0	1416	9265

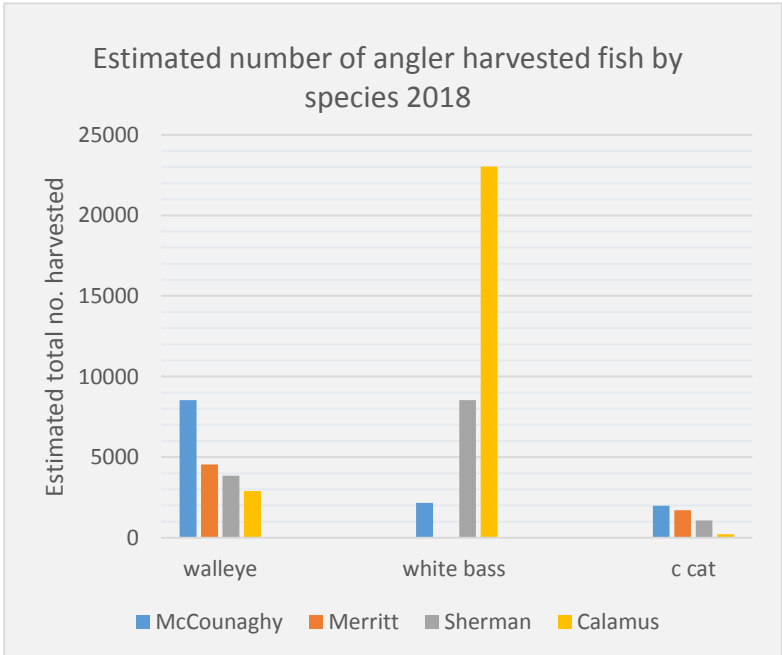
So, how does the fishing use and angler catch at Calamus compare to some other large reservoirs in Nebraska? The following charts compare angler use and angler catch between Calamus , Sherman, Merritt and McConaughy from 2018 creel data. The lakes do vary from one another in size as Calamus is 5,000 surface acres when full, Sherman is 2,844, Merritt is 2,905 and McConaughy is 30,000. All four reservoirs are favorite destinations for many of Nebraska's anglers. Sherman recorded the highest angler use among the 4 reservoirs in 2018 with about 110,000 hours of angler activity. Calamus was lowest in terms of angler hours but not far behind Merritt and Lake McConaughy. When looking at intensity of angling use (hours per acre) Sherman again tops the chart with Merritt a close second. Calamus receives about half the per acre use or intensity that Merritt and Sherman do. No doubt crappie at Sherman are the reason for the high angler use. McConaughy, because of its larger size, records much less intensity of angling per acre over the course of the fishing season. McConaughy does experience high fishing intensity at certain times of the year when anglers are crowded into a small space such as the dam during April.





Angler catch and harvest was compared by looking at three species common to all 4 reservoirs. Calamus is the leading reservoir by far in terms of walleye and white bass caught by anglers. However, in terms of harvested walleye, McConaughy leads the pack and Calamus was last in 2018. Calamus was first for numbers of white bass harvested with Sherman second. The high catch of walleye and white bass illustrates why Calamus has become a walleye and white bass destination lake. Channel catfish catch and harvest at Calamus is last among the 4 reservoirs but as mentioned earlier, few anglers are actually targeting catfish at Calamus. Channel catfish catch and harvest is low among all four of these surveyed large reservoirs.





Invasive Species: Zebra & Quagga Mussels

Anglers and recreational boaters should continue awareness for zebra and quagga mussels while using Nebraska lakes. Monitoring was completed at many Nebraska reservoirs during 2018, including the Calamus. Zebra mussels are found in Lewis and Clark Lake, the Missouri River, Offutt Air Force Base lake, and Cunningham Lake. Invasive species technicians will be inspecting boats at Calamus again in 2019. Thank you for your assistance and patience while these surveys are conducted. In 2018, AIS technicians completed 309 watercraft inspections at Calamus Reservoir. 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. Invasive mussels have also been documented in several neighboring states including Iowa, Kansas, and Missouri.

Invasive mussels will attach to almost any surface and have detrimental impacts on industry (power plants, water intakes, irrigation, etc), native fish and mussels, 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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Andrew Glidden, Fisheries Biologist, Basset Field Office, Ph: 402-684-2921, email: andy.glidden@nebraska.gov

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.**

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