Harlan Reservoir
Fisheries Update - Spring 2025

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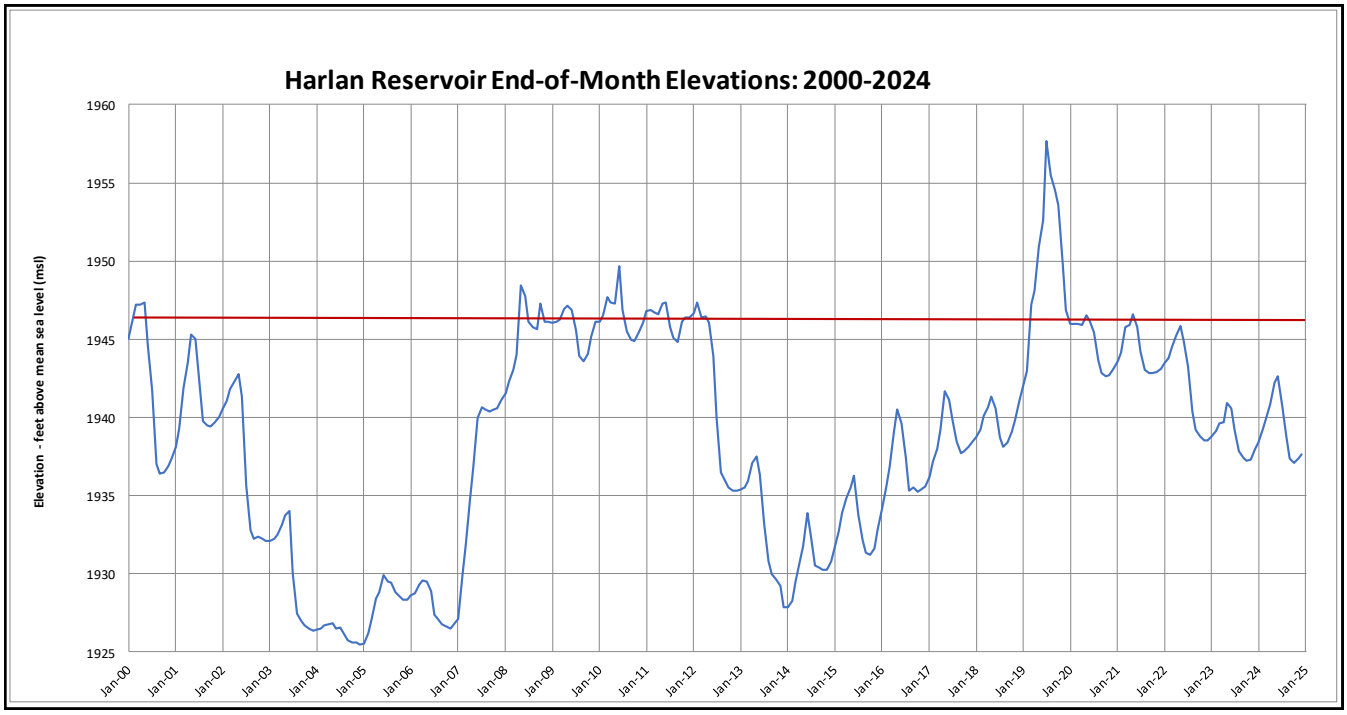
Nebraska Game and Parks Commission uses standard sampling methods to monitor the status of fish populations in Nebraska waters. At Harlan Reservoir, gill nets are used to sample open-water fish species such as walleye and white bass, while trap nets are used for shoreline-oriented fish such as crappie. Annual netting surveys are completed at approximately the same dates and locations to reduce variability and allow for trend comparisons of species abundance and size distribution.

The following pages contain graphs and text that summarize netting surveys completed at Harlan Reservoir. Graphs show the total number of fish caught per net and the relative abundance of fish within several length categories. The text provides brief explanations of the information contained in the graphs. In most cases, results are included from the last 10 years.

Water Levels

The following graph shows water elevations at Harlan Reservoir from 2000 through 2024 and the red line shows the conservation pool elevation of 1945.7 msl.

Water levels have remained relatively stable the past two years, but overall are on a downward trend. Conditions in the Republican basin during 2024 allowed for average inflows during the early part of the year, but the gains were negated by dry conditions during the summer and fall months. The reservoir started 2024 at elevation 1937.9, reached it's peak on June 19th at 1943.0 and finished the year at elevation 1937.5. Irrigation releases and evaporation losses resulted in a 6.0 foot drawdown and the season low elevation of 1937.0 was achieved on October 28th. Unless moisture levels improve in the Republican basin in the next several months, reservoir levels are expected to continue to decline in 2025. Current lake elevation information can be found at this website: Current Data for Harlan County Dam, NE (usbr.gov)

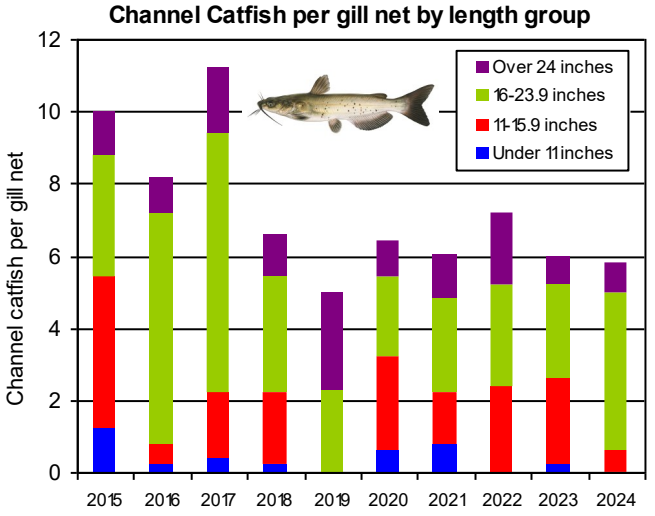


Channel Catfish

Gill net catch of channel catfish has remained stable the past seven years, but overall the catch remains slightly lower than results seen during the 2015-17 time period. The ten year average catch is 7.2 catfish per gill net.

In 2024, most catfish ranged from 16 to 22 inches and the average catfish length was 19.3 inches. The largest catfish sampled was 29 inches. Catfish fingerlings were most recently stocked in 2019, 2021, and 2023 to improve abundance. The catfish population will continue to be monitored to determine if future stocking is warranted.

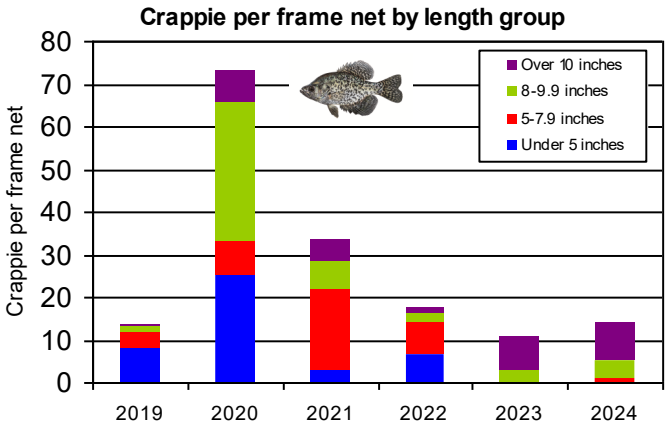
Current fishing regulations for channel catfish include a daily bag limit of five fish in the reservoir and a daily bag limit of ten fish in the Republican River west of the Highway 89 Bridge. Only one channel catfish 30 inches or longer can be included in the daily bag limit.



Crappie

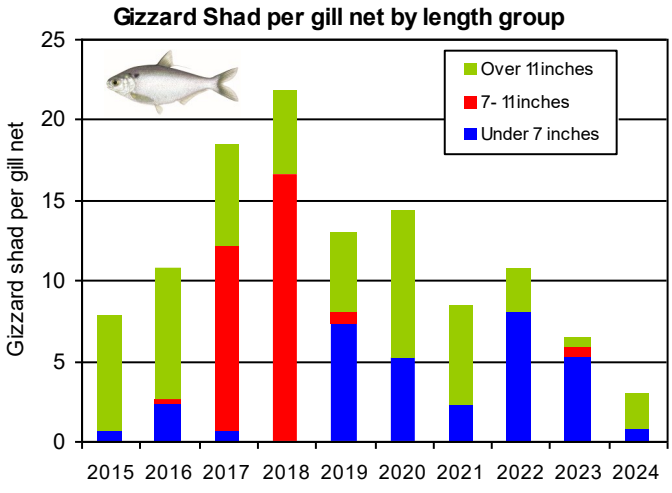
Trap nets are used to sample crappie populations when reservoir levels are high enough to use standard net locations in the major coves. Sampling in the spring of 2024 revealed that crappie abundance has remained stable the past three years, but is lower than what was experienced during the high water years of 2020-21. Low water levels reduce available spawning habitat and reduce survival of small fish. Although catch is lower than average, the Harlan crappie population continues to have good numbers of 10 to 12 inch black and white crappie.

The bag limit for crappie is 15 fish per day.



Gizzard Shad

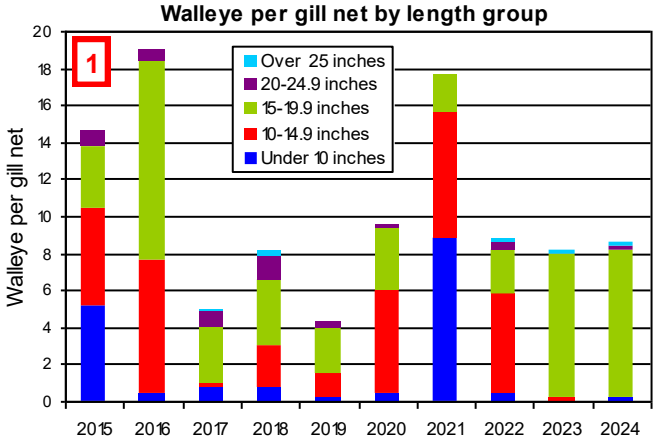
Gizzard shad are the primary prey species found in Harlan Reservoir and serve as the food source for all major game fish populations. Ideal shad populations consist of a few breeding adults and an abundant population of small young-of-the-year shad. High abundance of intermediate-sized shad (7 to 11 inches) can result in competition for food resources with juvenile gamefish and tends to reduce survival of young-of-the-year walleye and white bass. In 2024, shad catch was lower than average, especially for small shad, and the catch was the lowest sampled since 2018. Poor shad recruitment and a strong predator population are likely responsible for the low density of small shad.



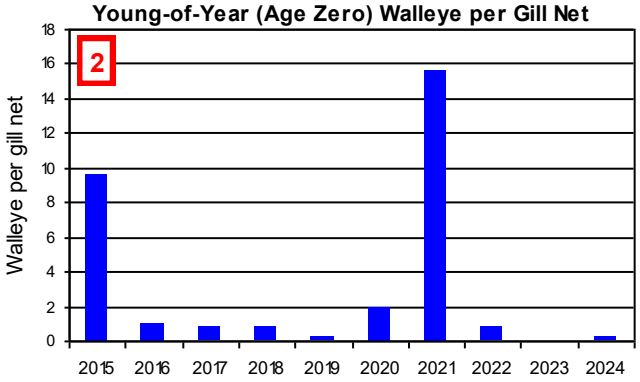
Walleye

The following four graphs depict the walleye catch from the fall of 2024.

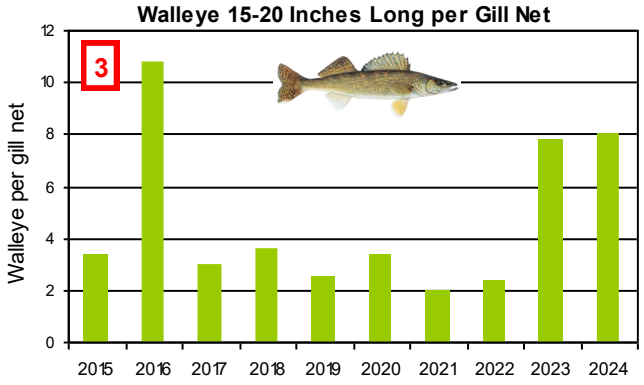
GRAPH 1: The 2024 catch of 8.6 walleye per net was consistent with results seen the past three years, but remains slightly below the ten year average of 10.4 walleye/net. Once again, nearly the entire catch was comprised of walleye from the 2021 year-class, which range from 15 to 20 inches. The average length of a walleye collected during the 2024 survey was 17.5 inches and the largest fish was 28 inches. Fish of legal harvest size (>15 inches) comprised about 98% of the total number of walleye sampled last fall.



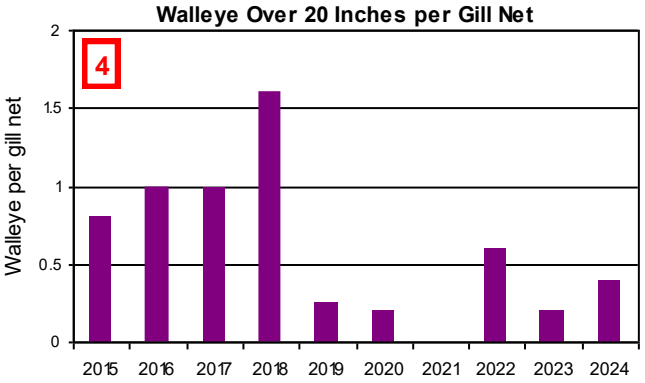
GRAPH 2: Walleye recruitment is sporadic in many reservoirs across their range and Harlan is no exception. After sampling a record year-class of walleye in 2021, results from the past three years indicate poor recruitment. Although the number of fry stocked from 2022 to 24 has remained consistent, the survival rate of these fish has been low. The lack of small walleye present in the population will undoubtably impact walleye angling success over the next several years.



GRAPH 3: Numbers of walleye between 15 and 20 inches are presented in graph 3. The catch of fish is this size category has been nearly identical the past two years and is comprised primarily of fish from the 2021 year-class. This year-class has dominated the gill net catch the past three years and has also provided most of the angler catch the past two seasons. As this cohort of walleye continues to age, it should contribute to an increase in the abundance of walleye greater than 20 inches in the reservoir.



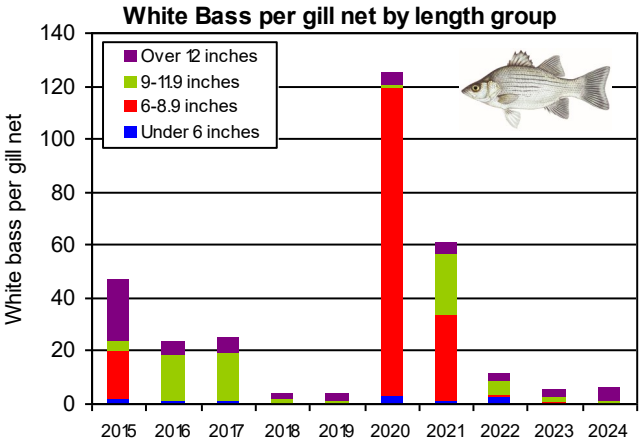
GRAPH 4: Walleye over 20 inches are displayed in the fourth graph. Catch of these larger fish has been lower than average the past six years. Most walleye in this size range are age five or older. These large fish can be more difficult to sample in standard survey gear as they are less abundant and sometimes occupy different habitats within the reservoir. High angling related mortality also negatively impacts the abundance of these large fish.



The walleye regulation for Harlan allows the harvest of one fish from 15-18 inches and three longer than 18 inches; or four longer than 18 inches. Only one fish larger than 22 inches is allowed.

White Bass

White bass catch has been all over the board during the past ten years at Harlan as catch has ranged from a low of 3 fish/net and a high of 125 fish/net. The ten year average catch is 31 fish/net. The 2024 catch of 5.8 fish/net was similar to the previous two years.



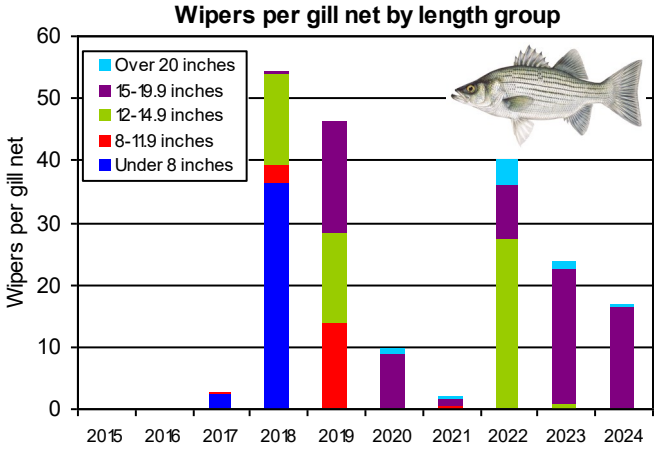
Most white bass sampled in 2024 were larger than 12 inches and the largest fish were 15 inches. The average length was 12.1 inches. Few fish younger than age-2 were sampled indicating poor recruitment the past two years. Based on fall shocking results, it appears that there was fairly good natural reproduction of white bass in 2024.

White bass angling success was excellent during 2023 and continued to be good in 2024. High angling mortality has played a role in the reduced abundance of white bass. Poor recruitment the past two years has also limited abundance of smaller fish which will impact angling success in the future. Although white bass abundance is lower, anglers should still find some quality sized white bass to catch during 2025.

The statewide daily bag limit for white bass is 15 fish per day, with only one fish greater than 18 inches.

Wipers

Wiper abundance has been high in Harlan since 2018, but population levels appear to be slowly declining. The 2024 wiper catch consisted of 16.8 fish per net and the majority of the catch was from the 2021 stocking. No fish from the 2017 and 2018 stockings were sampled last fall, indicating that the abundance of these two year-classes is likely dwindling. Wiper lengths ranged from 15 to 21 inches. The average gill net catch of wipers since 2017 is 24.3 fish per net.



Wiper fry stocking was re-instated in 2017 as poor survival was observed with the prior fingerling stockings. In 2017, there were 3.4 million fry stocked and in 2018 there were 2.6 million stocked. These two stockings were extremely successful and created large year-classes. Additional fry were stocked in 2021 at a much lower rate (850,000) and another strong year-class was created, most of which are currently ranging from 16 to 19 inches. Wiper fry (500,000) were stocked in 2024, but few age-0 fish were sampled during fall sampling indicating possible poor survival. Wipers are tentatively scheduled to be stocked again in 2027.

The Harlan wiper management goal is to maintain a sustainable population that provides a viable sport fishery with opportunity for trophy fish and also to maintain angler tolerance for those who prefer to fish for other species. In response to high wiper abundance, regulations have been liberalized to allow additional harvest on larger wipers, as the one over daily bag limit was increased from 16 inches to 18 inches. Sampling last fall indicated good abundance of wipers between 16 and 18 inches that will be available for harvest during the spring and early summer months. Anglers pursuing wipers at Harlan during 2025 should continue to have excellent success on fish ranging from 16 to 22 inches and the possibility of larger fish always exists.

The daily bag limit for wipers at Harlan is 15 fish per day, with only one fish greater than 18 inches.

Additional Information about Harlan Reservoir

Walleye Stocking

Walleye fry have been stocked at Harlan annually since 2009 (except 2020 due to Covid-19), with about 10 to 14 million stocked each year. Walleye recruitment has been documented in most of these years, including a record number of young-of-year walleye in 2021. Based on overall recruitment success with walleye fry stockings, this stocking strategy has been annually used at a rate of 1,000 fry per surface acre of available water. Due to anticipated lower reservoir levels, there are approximately 12 million fry scheduled to be stocked in April 2025. An additional experimental fingerling stocking of 400,000 one-inch fingerlings is also scheduled for mid-May. This stocking will attempt to place young walleye into the reservoir as gizzard shad are hatching to see if stocking survival for fingerling fish can be improved at Harlan. Previously, walleye fingerlings were stocked in mid-June and stocking success was highly variable based on shad size and availability. The walleye fingerlings will be chemically marked with oxytetracycline, differentiating them from the stocked fry, and allowing for the stock contribution of the fingerlings to be evaluated. To improve the chances of survival, fry and fingerlings are typically boat stocked in the upper end of the reservoir where available food resources have been shown to be more abundant.




Channel Catfish Stocking

Due to declining catfish numbers since 2014, supplemental catfish stocking was completed in 2019, 2021, and 2023. The 2019 stocking consisted of 9,500 10-inch fish, the 2021 stocking consisted of 82,618 3.5-inch fish, and the 2023 stocking consisted of 42,900 5-inch fish. Based on improving abundance of small catfish in the reservoir, no channel catfish were stocked in 2024. Channel catfish populations are annually monitored to determine if future stocking is necessary.

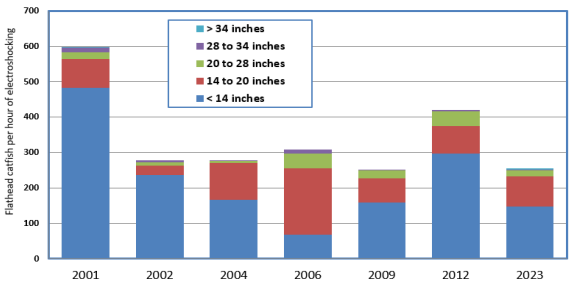
Wiper Stocking

Based on results of several years of research of predator fish interactions in Harlan Reservoir, wiper stockings resumed in 2005. Fingerling stockings during the 2005-2016 time frame were not very successful and created sporadic year-classes at best. In efforts to improve wiper stocking success, a fry stocking strategy was implemented in 2017. Wiper fry have also been stocked in 2018, 2021, and 2024. Stocking rates have been reduced with each subsequent stocking to reduce the size of each year-class. In 2024, there were 500,000 wiper fry stocked. In accordance with the wiper management plan, wiper fry are recommended to be stocked every three years. The next stocking is tentatively scheduled for the spring of 2027.

Flathead Catfish Sampling

No flathead catfish sampling was completed at Harlan during 2024. Sampling was previously done in 2023 and will be completed again in 2026. Flathead populations appear stable at Harlan.





Additional Information about Harlan Reservoir

Artificial Fish Attractors

Over the past several years, staff from the Corps of Engineers (COE) and Nebraska Game and Parks have worked together to construct artificial fish attractors commonly referred to as “Georgia Cubes”. Recently the COE have utilized volunteer labor to assist with construction of these structures, which has saved a significant amount of money and has allowed for many more cubes to be constructed. Although no cubes were placed into Harlan during 2024, volunteer crews have continued to build these structures and additional structures will be added in 2025. Below is a table of the approximate GPS points for the locations where 155 cubes have been added in recent years.

Location	Latitude	Longitude	# of Cubes
Cedar Point	40.05445	-99.21189	31
Patterson	40.04707	-99.23727	25
Indian Hill	40.04443	-99.27525	27
Hunter Cove	40.07369	-99.22858	20
Tipover	40.07448	-99.29833	28
Prairie Dog	40.04572	-99.28819	24

Aquatic Habitat Project— Methodist Cove Section 1135 Project

The Nebraska Game and Parks Commission (NGPC) and the U.S. Army Corps of Engineers (COE) are partnering on a largescale aquatic habitat restoration project at Methodist Cove that is intended to restore and protect aquatic habitat that has been negatively impacted by sedimentation and shoreline erosion. Construction began in December 2023 and is expected to be completed in the spring of 2025. The project has removed over 150,000 cubic yards of sediment from Methodist Cove and the sediment basin directly above it. Methodist Cove has been reconnected to the main reservoir through a 900 foot channel that will allow fish passage down to elevation 1936. More than 2,500 feet of rock breakwaters, baffles, and shoreline protection has been installed to prevent erosion, provide fish habitat, and angler access. Several hundred large cedar trees and artificial fish attractors have been added to the cove and to the deep water just outside of the cove in the main reservoir to provide spawning and deep water habitat. Once complete, the project will provide exceptional habitat for crappie, largemouth bass, bluegill; as well as walleye, white bass and channel catfish.

Most of the funding for this 10 million dollar project is being provided by a Section 1135 grant administered by the COE to restore and enhance degraded aquatic ecosystems on projects that are owned by the COE. NGPC has provided approximately $2.5 million in matching funds through the Aquatic Habitat Fund, which is funded by the sale of Nebraska fishing permits.



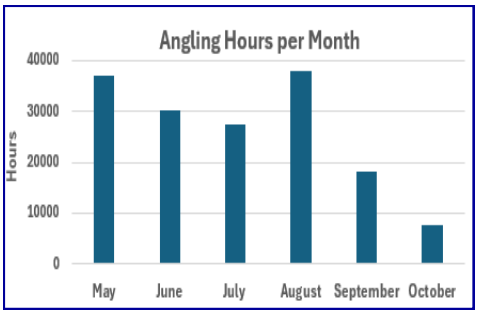



Additional Information about Harlan Reservoir

Angler Survey

An angler survey was completed at Harlan Reservoir in 2024 that ran from May through October. During the survey, anglers were counted and interviewed on approximately 10 week days and 6 weekend days per month. In total, there were 100 days surveyed and 484 angler parties were interviewed during the six month time period. The angler survey provides estimates of fishing effort, catch and harvest rates, and size structure of fish caught. The following text and graphs summarizes the results from the 2024 survey.

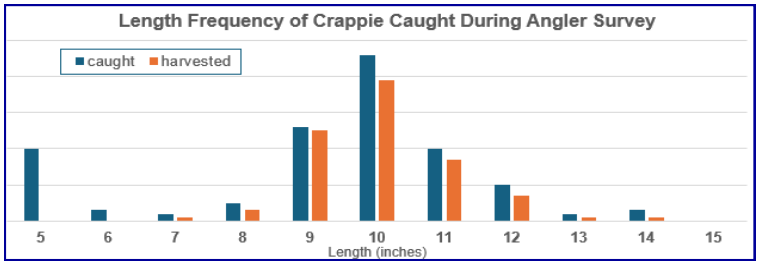
There were an estimated 33,881 angler trips made to Harlan during the May through October time period. This consisted of 27,345 boat angler trips and 6,536 bank angler trips. There was an estimated 158,376 hours (boat 143,828; bank 14,548) of angling effort during the survey period. Most anglers who fished Harlan were from Nebraska, but anglers from five other states were contacted during the survey. Nebraska anglers originated from 117 Nebraska communities and 47 counties. The most common counties included Harlan (14%), Adams (13.5%), Buffalo (12%), Lancaster (7%), Phelps (6%), and Hall (6%).



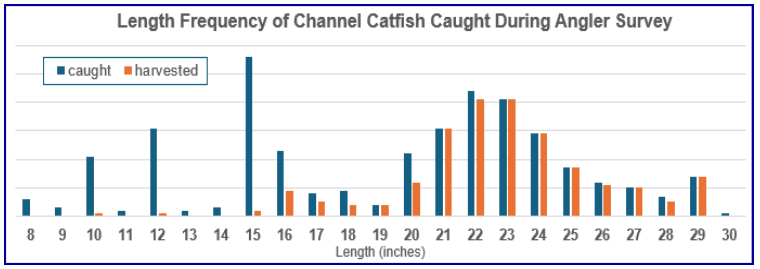
The table to the right displays total catch, harvest, and catch rates of the most common sport fish species caught during the angler survey.

Species	Total Catch	Total Harvest	Total Catch/hr	Total Harvest/hr
Channel Catfish	15,354	8,107	0.097	0.051
Crappie	2,966	1,790	0.019	0.011
Walleye	20,245	11,208	0.128	0.071
White bass	28,430	17,662	0.180	0.112
Wiper	22,687	11,686	0.143	0.074

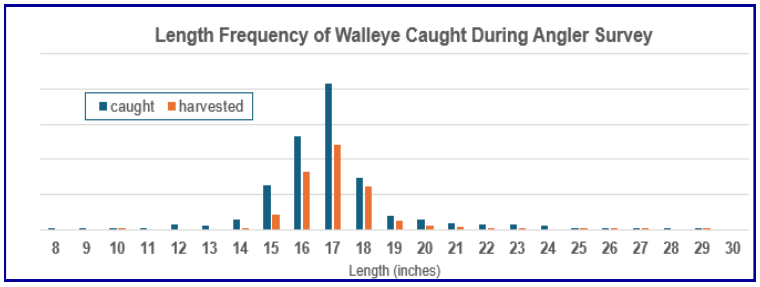
The graph to the right displays crappie catch and harvest during the survey period. Crappie abundance is relatively low at Harlan, but the size structure is good and most harvested crappie are nine inches or larger.



The graph to the right displays channel catfish catch and harvest during the survey period. Channel catfish abundance and size quality is very good at Harlan and most harvested catfish were larger than 20 inches.

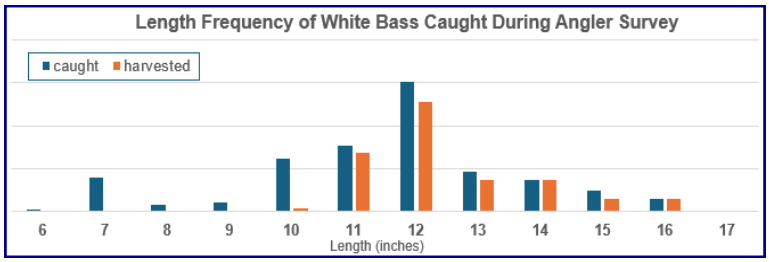


The graph to the right displays the lengths of walleye that were caught and harvested during the angler survey. The lengths of walleye caught by anglers correlates well with the fall gill net survey data, with most walleye in the population ranging from 15 to 19 inches.

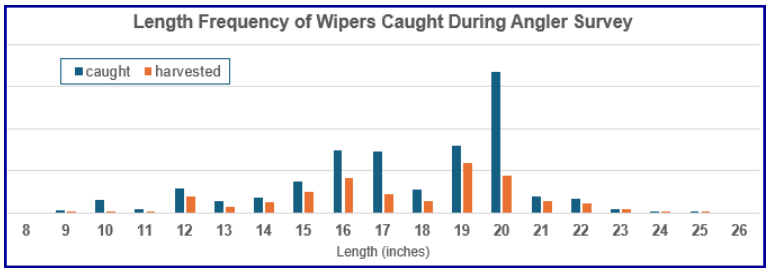


Angler Survey (continued)

The graph to the right displays the lengths of white bass that were caught and harvested during the angler survey. Most white ranged from 10 to 13 inches. There were very few white bass less than 10 inches caught by anglers.



The graph to the right displays the lengths of wipers that were caught and harvested during the angler survey. Most wipers that were caught were from the 2021 year-class. Few fish from the 2017 and 2018 year-classes were caught by anglers.



Aquatic Invasive Species – Zebra Mussels

Anglers and recreational boaters should be aware of the threat of zebra and quagga mussels while using Nebraska waters. Boaters using Nebraska waters need to be aware of current regulations dealing with aquatic invasive species. The following regulations are in effect to help prevent the spread or introduction of unwanted species in Nebraska waters.

- **It is unlawful to arrive at or leave any waterbody in Nebraska with water other than from a domestic source (such as a water supply system, well, or bottled), except for fire-fighting purposes. This applies especially to boats, their compartments, equipment or containers that may hold water.**
- **Any watercraft that has been on a Nebraska waterbody must drain the lake water from their compartments, equipment or containers before leaving the launch area. It is illegal to dump baitfish into a Nebraska waterbody.**
- **Livewells need to be drained prior to leaving a launch area: plan ahead and bring a cooler for harvested fish.**
- **All aquatic vegetation from that waterbody attached to the watercraft and/or trailer must be removed before leaving the launch area**.

A good source of information about invasive species can be found on the Nebraska Game and Parks Commission website: Aquatic Invasive Species Information

Harlan Reservoir remains a priority location for AIS work and efforts will continue during 2025 to inspect boats, educate boaters, and to conduct sampling for veliger's, adult mussels, and other types of aquatic invasive species.

For additional information about fisheries management at Harlan Reservoir, please contact the Nebraska Game and Parks Commission office in Kearney at 308-865-5310, or by email at the addresses listed below.

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