Harlan Reservoir

2017 Fish Population Survey Summary

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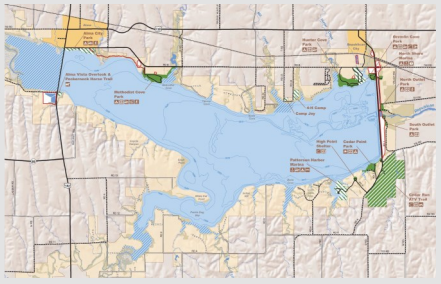
Nebraska Game and Parks Commission



Fish populations are surveyed every year at Harlan Reservoir using several methods. Gill nets are used to sample open-water fish species such as walleye and white bass, and trap nets are used for shoreline-oriented fish such as crappie. 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.

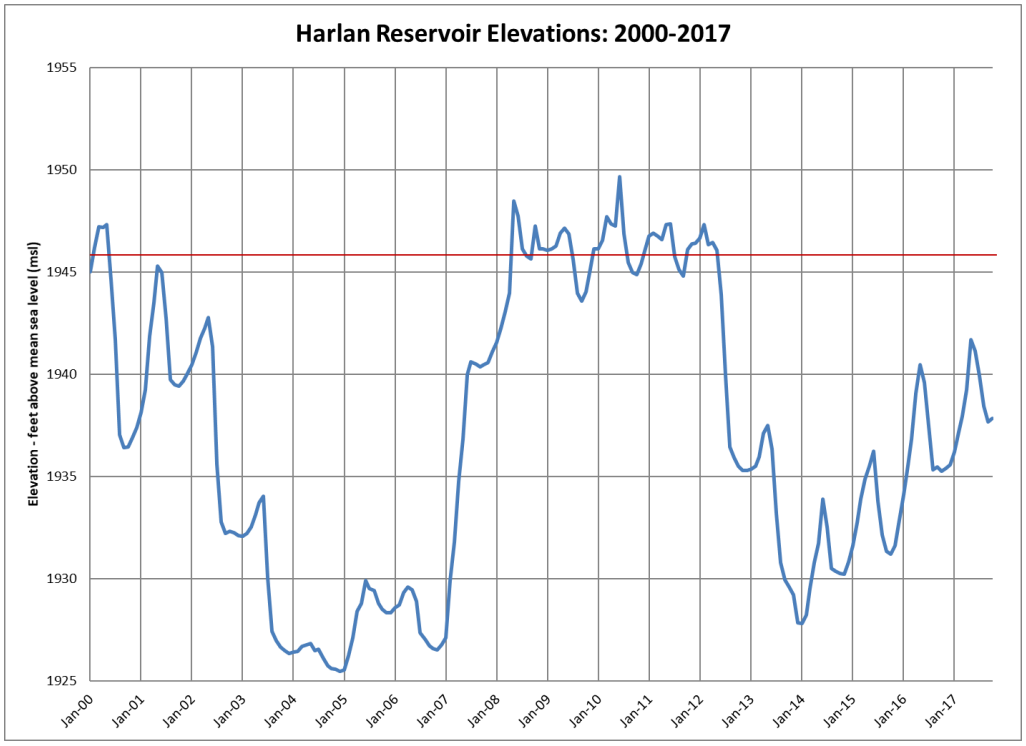
The following pages contain graphs and text that summarize netting surveys completed at Harlan Reservoir. Graphs show the total number of fish caught per net and the relative abundance of fish within several length categories. The text provides brief explanations of the information contained in the graphs. 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 2017, and the red line shows the conservation pool elevation of 1946msl.

After high water conditions from 2007 through 2011, Harlan Reservoir experienced lower water levels from 2012 to 2015. Water levels have gained in the last two years, and if that trend continues, the good aquatic habitat conditions will return and improve populations of shoreline-oriented fish species like crappie.

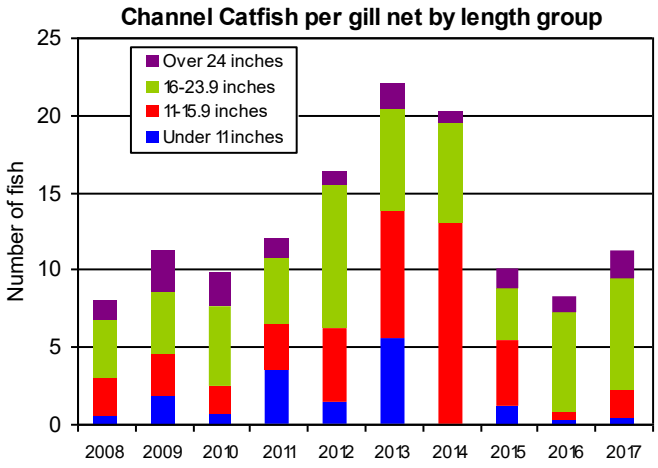
Current lake elevations can be found on the U.S. Army Corps of Engineers website:
http://www.nwd-mr.usace.army.mil/rcc/nwk/7daylak3.pdf



Channel Catfish

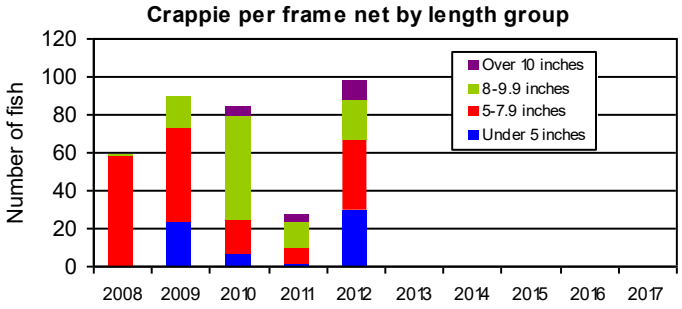
Gill net catch of channel catfish improved in 2017, and was near average for the last 10 years. Catfish were present in all size groups, with most in the 16 to 24 inch size range. The average length of catfish was 21 inches.

Current fishing regulations for channel catfish include a daily bag limit of five (5) in the reservoir, and a daily bag limit of ten (10) in the river. Harlan catfish anglers should expect good fishing in 2018 with a good variety of sizes available.



Crappie

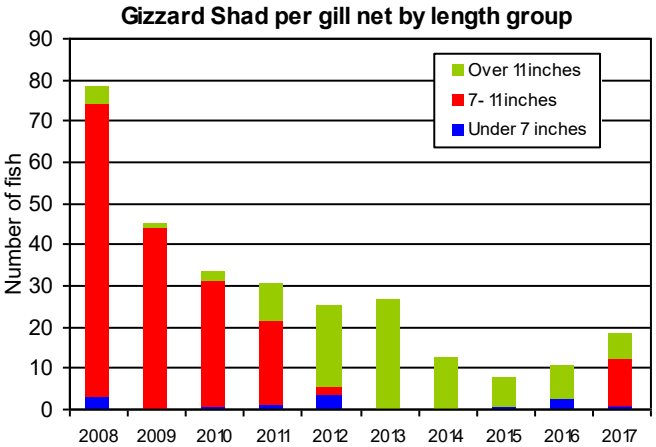
Because of low reservoir water levels, trap nets used to sample crappie were not ran from 2013 through 2017. Crappie sampling will resume when water levels allow sampling at standard locations in coves. Good crappie recruitment was documented from 2007 to 2012, but crappie numbers have declined and now are only caught sporadically by anglers.



Gizzard Shad

Gizzard shad numbers remain low. Most shad sampled in 2017 were 7 to 11 inches long. Large numbers of intermediate-sized shad (like the 2008 sample) result in more competition for food resources with juvenile gamefish, and may reduce survival of young -of-the-year walleye and white bass.

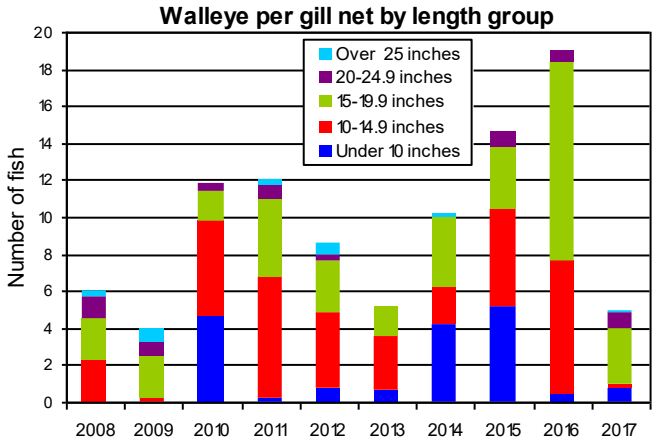
Very few small shad were sampled in the 2017 survey, and may have been too small to sample with standard gill nets. Gizzard shad are the most important prey species in Harlan Reservoir and serve as food for all the major game fish populations.



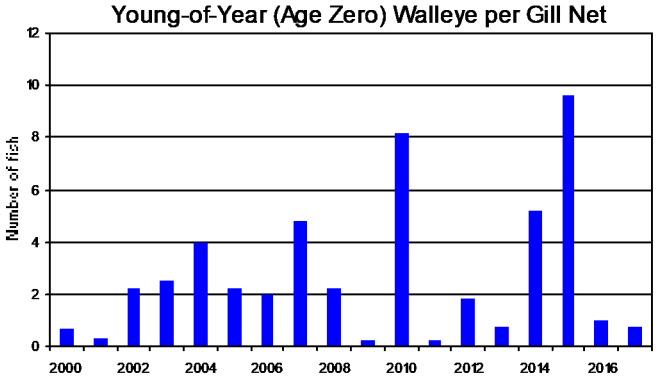
Walleye

Walleye survey information is displayed on four graphs: all sizes, young-of-year, 15-20 inches, and over 20 inches.

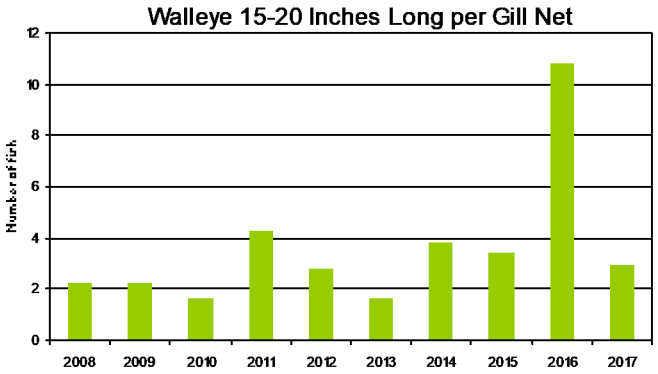
The first graph shows the 2017 walleye survey numbers dropped from the previous three years. Weather conditions the week of the survey may have contributed to reduced survey catch. The 2015 year-class was still dominant, and were 16 to 18 inches long in this survey. This is still the best walleye year -class ever documented in gill net surveys, and together with good recruitment from 2010 and 2014, should produce very good walleye fishing the next few years.



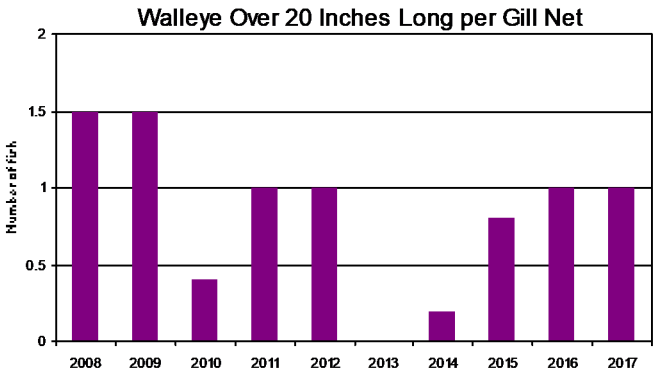
Numbers of young-of-year walleye sampled in 2017 were low for the second consecutive year (second graph). Walleye fry stockings have been completed every year since 2009, with about 10-14 million fish stocked each year. With three excellent recruitment years since 2010, overall walleye numbers at Harlan should be good.



Walleye between 15 and 20 inches long are presented in the third graph. Numbers of fish in this size range dropped to about average over the last 10 years. Walleye in this size range are generally 2 to 4 years old. Related to the walleye fishing regulation at Harlan, the survey showed 20% of walleye are under 15 inches, 40% from 15-18 inches, and 40% over 18 inches.



Walleye over 20 inches long are displayed in the fourth graph. Walleye numbers in this size group were similar to the last two years, and are near average for the last 10 years. Most walleye in this size range are age five or older.

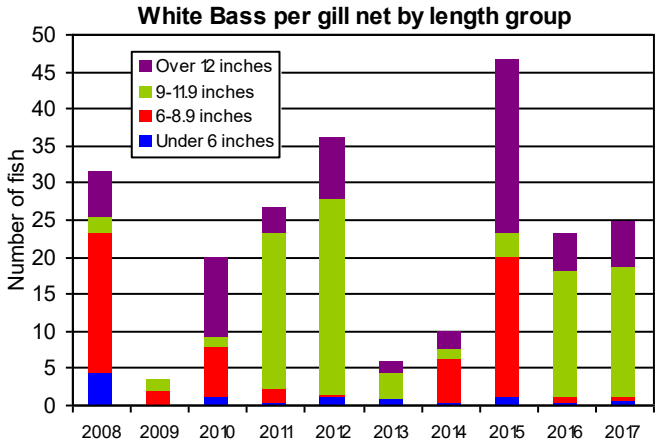


White Bass

White bass gill net catch was slightly higher than 2016 and near the average from the last 10 years.

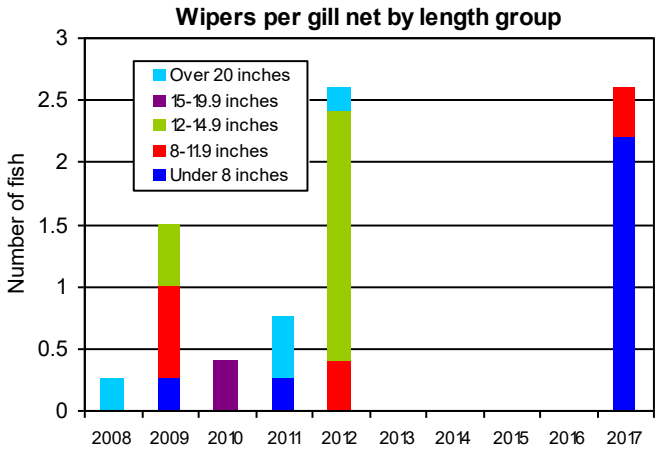
The most abundant white bass in the 2017 survey were 9 to 12 inches long, and correspond to strong recruitment from 2015. The average white bass was 11.4 inches long. Similar to walleye, there was an excellent 2015 year-class of white bass which has resulted in good fishing at Harlan Reservoir the past two years.

White bass fishing at Harlan was excellent in 2016 and 2017, and survey results indicate that should continue into the next year.



Wipers

Wiper recruitment was documented in the 2017 for the first time in the last five years. Most wiper stockings prior to 2017 were fingerling fish (1-2 inches), but wiper fry were tried in 2017 due to hatchery availability. Fry stocking provided recruitment and will be tried for the next few years. Overall wiper numbers are low and stocking strategies will be modified to improve recruitment of this popular sport fish species..



Results from a 2002-2003 food habit study at Harlan involving major predator fish species indicated very little competition between wipers and walleye. Based on those results, wiper stocking was reinstated in 2005. The current stocking program should improve the population to provide a sustainable sport fishery with potential for trophy fish.

Additional Information about Harlan Reservoir

Walleye Stocking

Walleye fry have been stocked at Harlan annually since 2009, with about 11 to 14 million each year. Walleye recruitment has been documented in each of these years, including a record number of young-of-year walleye in 2015. Walleye recruitment has been excellent three of the last eight years. Special research sampling of young-of-year walleye from 2011 though 2017 has shown that over 90% of sampled young walleye were stocked fish. Based on recent recruitment success, walleye fry stockings are planned annually at a rate of 1,000 per surface acre of water.

Channel Catfish Stocking

Harlan Reservoir received stockings of channel catfish in 2007 and 2009 due to declining population trends and low recruitment. Each catfish stocking consisted of 10 fish per acre that were 5 to 7 inches long. Catfish numbers increased after 2010, and stocking was discontinued. Catfish stocking will be considered in the future if population numbers show downward trends.

Wiper Stocking

Based on results of several years of research into predator fish interactions in Harlan Reservoir, wiper stockings resumed in 2005 and were scheduled every other year. The most recent stocking was about 3.4 million wiper fry in 2017. Based on success of the 2017 fry stocking and improved hatchery availability, fry stockings will be requested in the future to help recruitment.

Angler Survey

There will not be an angler survey completed in 2018 at Harlan Reservoir. Future angler survey work is in the planning phase, and updates will be provided when available. These surveys provide valuable information on angling pressure, catch rates, harvest rates, and numbers and types of fish caught.

Dam Road Closure at Harlan Reservoir

There is an ongoing multi-year construction project on the dam at Harlan Reservoir. During construction, the road on the dam may be closed temporarily for construction activity. When the dam road is closed, vehicles access the Patterson Harbor area by driving the signed detour route through Naponee. Road closure information is available from the US Corps of Engineers office at 308 799-2105.

Aquatic Invasive Species – Zebra Mussels

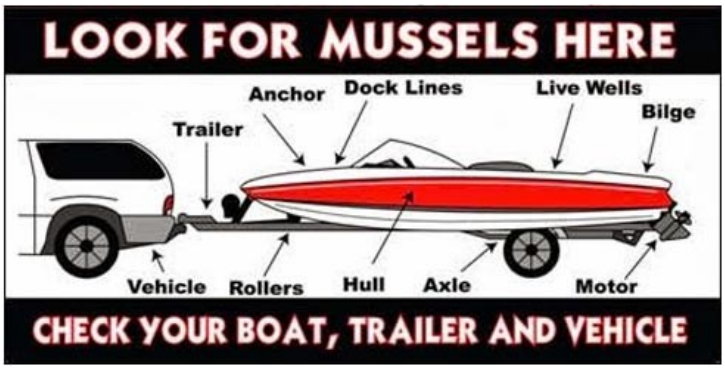
Anglers and recreational boaters should be aware of the threat of zebra and quagga mussels while using Nebraska waters. Currently in Nebraska, zebra mussels have been documented at Offutt Air Force Base, the Missouri River, and Lewis and Clark Lake. Invasive mussels have been documented in most of Nebraska's neighboring states, including over 25 locations in Kansas. Monthly monitoring completed at many Nebraska reservoirs during the last five years have not shown any new evidence of zebra mussels.

Anglers and 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.

- **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**.
- **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.**

A good source of information about invasive species can be found on the University of Nebraska's Invasive Species Project website:
http://neinvasives.com/resources/stop-aquatic-hitchhikers/

Technicians have been hired the past few years to conduct interviews of boaters and help provide more information about aquatic invasive species. Harlan Reservoir has been a priority location for this effort in the past, and will likely continue in future years.



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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