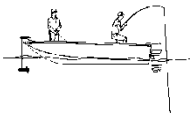
Fisheries Division

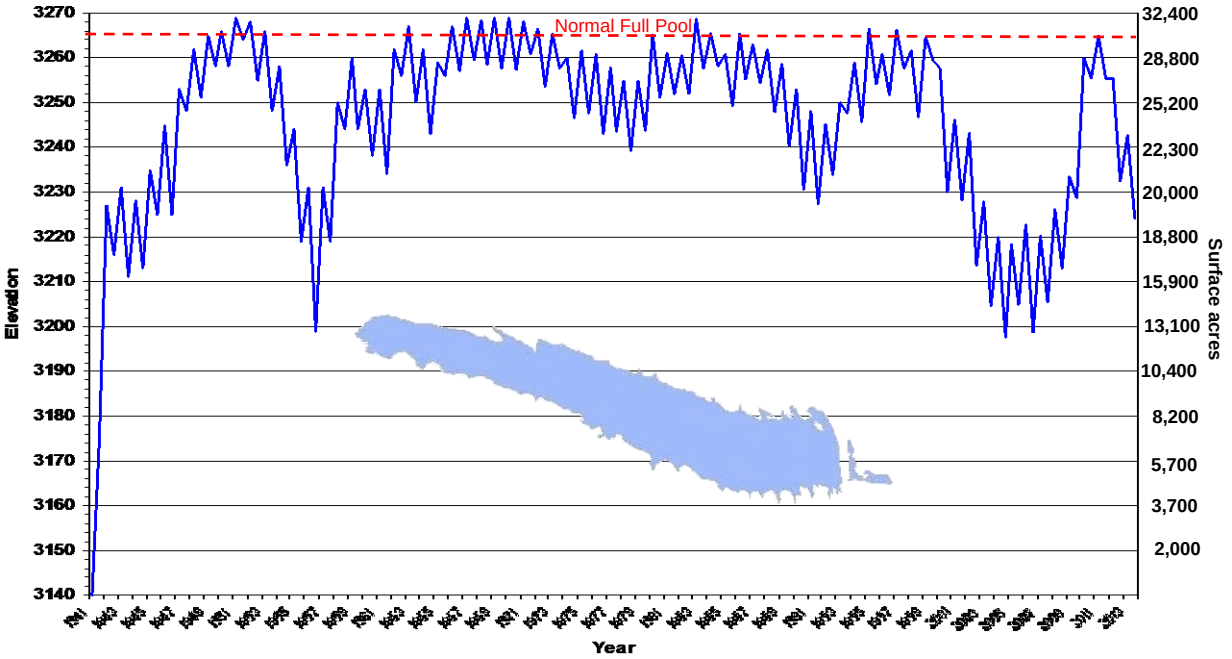
Lake McConaughy
2013 Fall Survey Summary



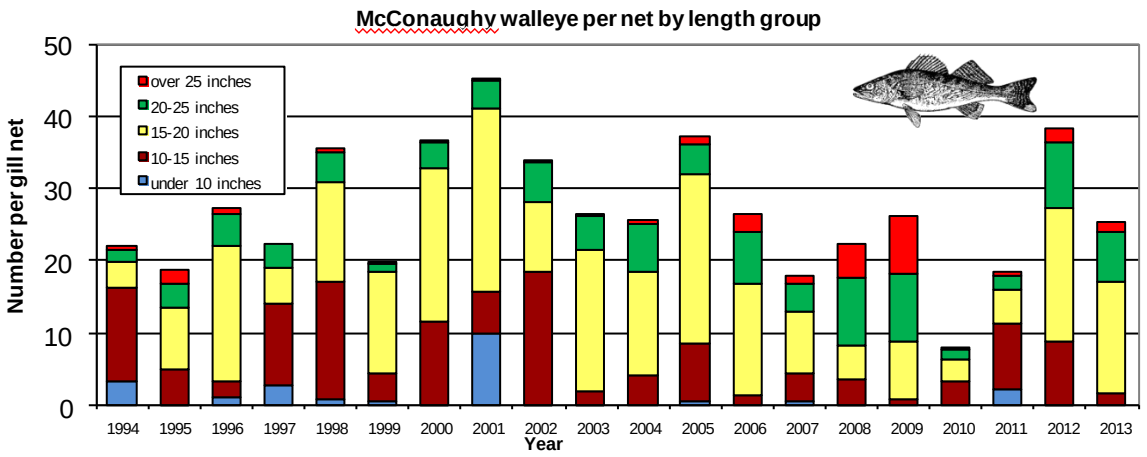
Nebraska Game and Parks Commission Darrol Eichner, Fisheries Biologist

The following text and graphics is an effort to provide anglers with recent background on lake water levels and historical fall fish sampling efforts conducted by the Nebraska Game and Parks Commission. Lake McConaughy is Nebraska's largest reservoir and has a long history of being a very high quality sport fishery. Since completed construction in 1941 it also has a history of dramatic water level fluctuation as a result of drought related poor inflows and significant releases of stored water for downstream surface water irrigation. An additional negative factor is the reduced river and stream inflow related to increased upstream groundwater pumping.

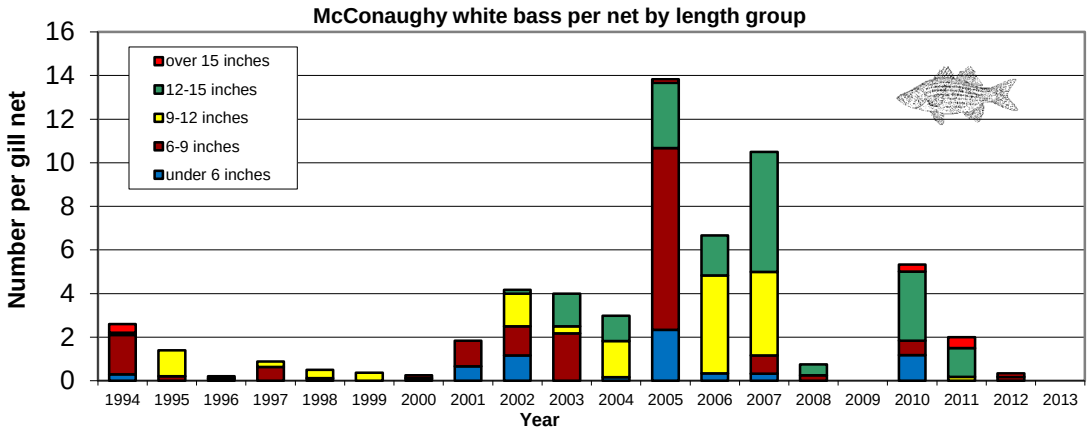
Lake McConaughy Annual High-Low Elevations, 1941-2013



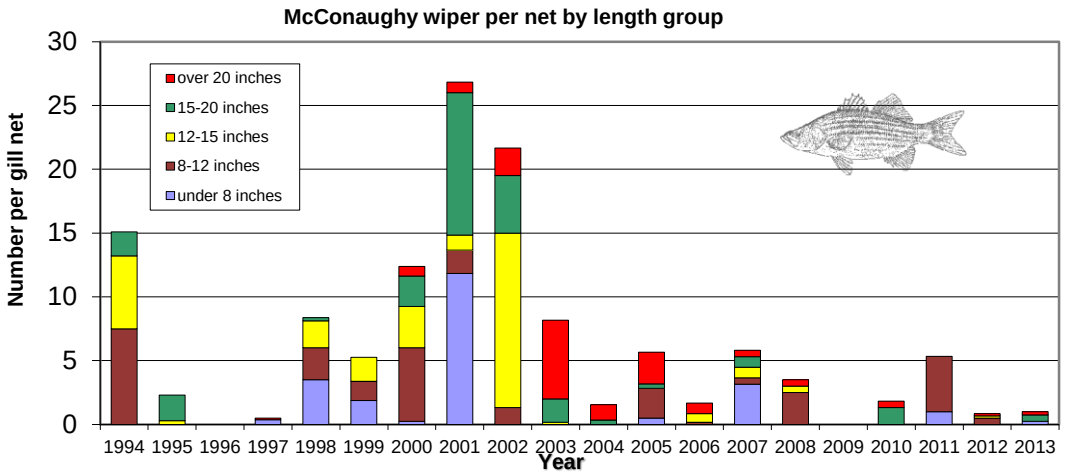
At normal full pool elevation 3265.0 Lake McConaughy has a surface area of 30,000 surface acres and storage volume of 1,743,000 acre feet (ac/ft) of water. The average annual summer irrigation drawdown since construction is 13.9 feet. As recently as 2004 McConaughy reached a new record low elevation of 3197.6, a loss of 67.4 feet of vertical water column over a four year period. The respective surface area was reduced to 12,400 acres with 340,000 ac/ft of storage. This put the reservoir at 41% of it's normal full pool surface area and 20% of normal full pool storage volume which can have a dramatic negative impact on both sport and prey fish populations. Increased natural mortality and fish escapement undoubtedly were factors but are not accurately measurable. After 2004 the reservoir never recovered above elevation 3233.5 until June of 2010 when it reached elevation 3260.0 which put it at 90% of normal full pool surface area. This was a one year gain of approximately 8,000 surface acres which covered vast areas of terrestrial vegetation that had established on the exposed lake bed over a period of nearly nine years. An additional 2,000 surface acres of water was added in 2011 when the lake elevation reached normal full pool 3265.0. From a fish management perspective it was hoped that the reservoir would maintain some resemblance of a full reservoir that would keep most of the established brush inundated for a period of years. However in 2012 the lake level declined 23.0 feet to elevation 3232.3 with an additional loss in 2013 of 8.2 feet to elevation 3224.1 and resulting surface area of less than 19,000 surface acres.



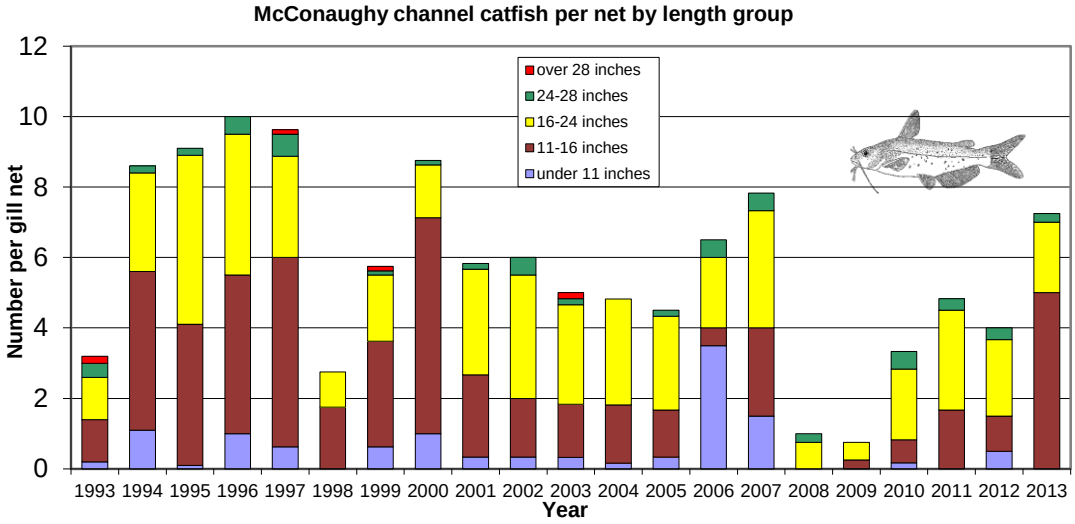
Standardized fall fish sampling methods involve the use of experimental mesh gill nets placed at historical stations utilizing GPS coordinates. It needs to be noted that dramatic changes in lake elevation, as have been experienced, can add variability when comparing yearly catch numbers. With that consideration the 2013 walleye total catch was lower than 2012 at 25.5 per net. The past 12 year average catch is 25.7 per net. Walleye in the 15-20 inch length group for 2013, primarily 3-4 year old fish, were the most strongly represented length category. Larger size walleye over 20 inches are also well represented in the catch. A calculated relative weight (Wr) index based on a length-to-weight ratio is used to measure the degree of 'plumpness,' or lack of, for an individual or group of fish. Applying that calculation to recent walleye catch indicates older fish in the 20 inch and larger length categories had elevated Wr values of 108 or above, higher than the theoretical optimum standard value of 100. Walleye in the other length groups were slightly under the 100 Wr value.



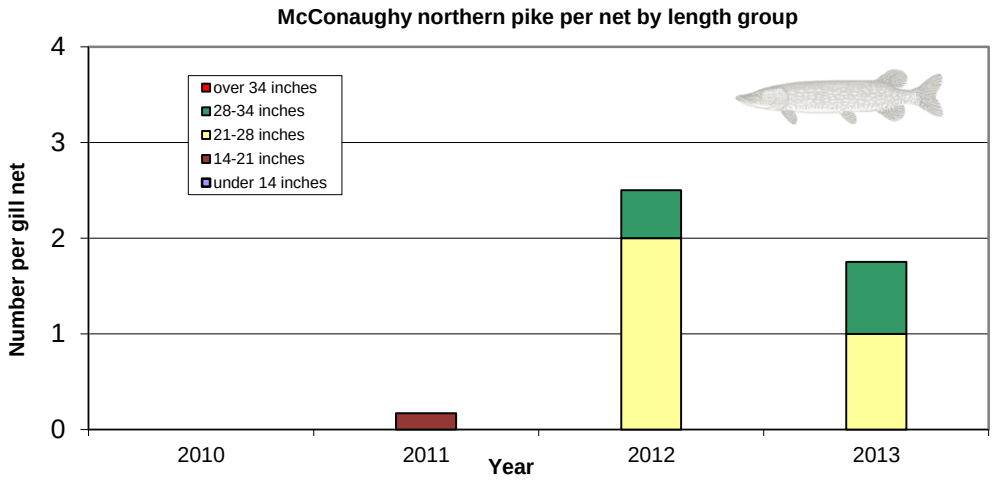
White bass survey catch rates at Lake McConaughy can be quite variable for a schooling fish in a large fluctuating reservoir and have remained generally low since the introduction of alewife in the early 90's. A number of factors can affect natural recruitment and establishment of strong annual year-classes of white bass. These include weather related cold fronts during the spawning run and egg incubation, declining change in reservoir elevation, lack of high river inflow, predation and food availability for larval/juvenile fish. Some of the zero catch in 2009 and 2013 can be attributed to a much later survey sampling date than normal. Size structure for larger 12-15 inch fish desired by anglers are present, but not in strong numbers. That size range of McConaughy fish are generally in the 3-5 year old age brackets. With consideration for the small number in the sample all white bass length categories sampled in 2012 had Wr values below 100. **Anglers are reminded of a new 2013 statewide regulation: no more than one wiper/white bass/striped bass 16 inches or longer in the daily bag limit.**



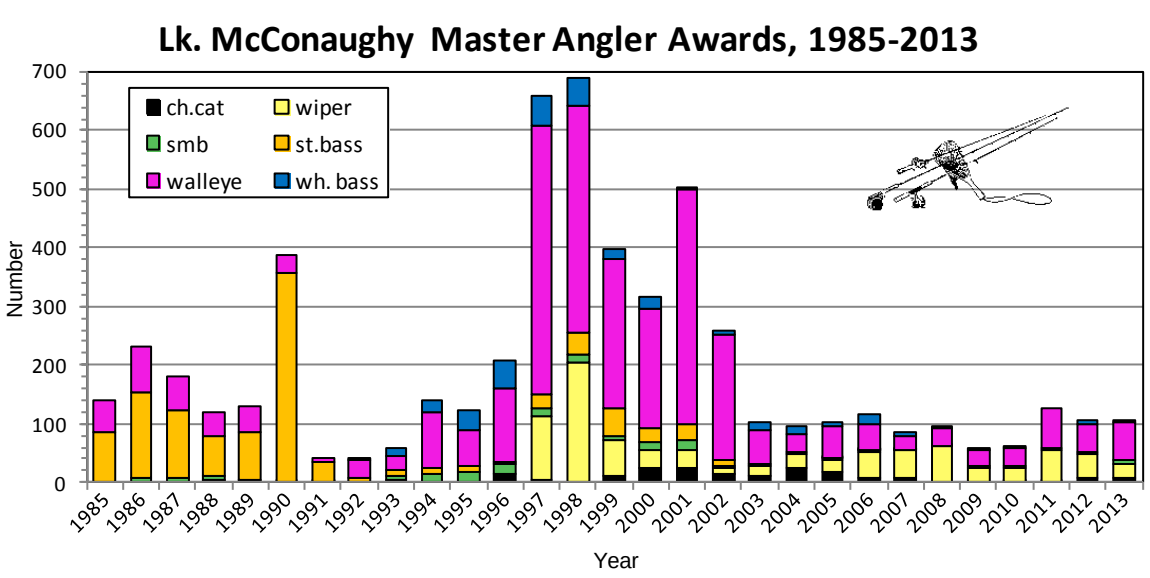
The historical wiper survey data also shows variable survey catch rates over time, similar to that of white bass. The zero catch in 2009 can also be attributed to a later than normal survey sampling date. The low catch rates of larger wiper from 2010 - 2013 are not indicative of what is available in the reservoir based on angler catch success. McConaughy wiper generally reach a length of 20 inches at age 4 or 5. The Wr values for the larger length categories have remained above the theoretical optimum 100 value over a period of years. **Anglers are reminded of a statewide regulation new in 2013: no more than one wiper/white bass/striped bass 16 inches or longer in the daily bag limit.**



With the exception of 2008 and 2009 channel catfish survey catch rates have been consistent most years with two length groups, representing fish from 11-24 inches, making up a majority of the catch. McConaughy channel catfish historically have been a slow growing population with fewer fish found in the two larger length categories. Long term fall survey age and growth analysis indicates that a length of 16 inches is generally not reached until age 6-7 with fish 20 inches or larger at age 9 and older. The population is maintained by natural recruitment from both the reservoir and North Platte River.



Although northern pike numbers have historically remained very low for many years their population has increased along with the recovery of the lake level in the late 2000's. This increase is a result of natural recruitment related to more ideal spawning conditions available in shallow vegetated shoreline areas. Age and growth analysis indicates the majority of these fish in the surveys are from the 2008 and 2009 year classes. While most 'northern' catch for anglers is incidental when fishing for other species, a few anglers are targeting these fish with success. A total of ten Master Angler northern pike, ranging from 32 to 37 inches in length, were recorded from Lake McConaughy in 2013.



A total of 62 master angler walleye were recorded from Lake McConaughy in 2013 representing 37% of the entire statewide listing. Twenty of the 24 largest walleye recorded in the state came from McConaughy with two 14 pound 8 ounce fish being the largest recorded by weight statewide. McConaughy has averaged 41 master angler walleye per year in the past 10 years. McConaughy also had 22 master angler wipers recorded with a 32 inch, 15 pound 8 ounce fish the largest listed. Five of the largest 8 wipers recorded statewide by weight came from McConaughy. The largest McConaughy master angler smallmouth bass by length was an 21 inch fish and a 34 inch channel catfish recorded as the largest by length for that species. The largest master angler northern pike recorded was a 37 inch, 12 pound 6 ounce fish.

Fish stockings

As is the case with environmental and biological factors having an influence on natural reproduction and recruitment of larval/juvenile game fish, supplemental fish stockings can have similar degrees of success or failure. Walleye fingerlings are stocked annually at McConaughy with a 2013 request of 1,250,000 fish based on a per acre stocking rate at an expected 25,000 surface acres. A total of 1,262,000 fingerlings were stocked. The walleye stocking in 2012 totaled 1,594,800 fingerlings. The walleye stocking request for 2014 is 1,200,000 based on the expectation of a reservoir below full pool at the time of stocking. Stocking requests for white bass or wiper are on an alternating year schedule. The white bass stocking request for 2012 was 300,000 fingerlings however limited hatchery production did not provide any fish in 2010 or 2012. All wiper recruitment into the reservoir population is supported by stockings and the 2013 request for wiper was 90,000 fish. A total of 99,885 fingerlings were stocked as a result of surplus hatchery production. The 2014 request will also be for 300,000 white bass fingerlings.

Aquatic Invasive Species

Because of Lake McConaughy's status as a popular destination for anglers and recreational boaters it draws visitors from a large geographic area making it very vulnerable to introduction of a number of threatening aquatic invasive species. To protect this very valuable resource it is important to adhere to recommended **'Clean-Drain-Dry'** protocol for all boats and watercraft. With emphasis on cleaning and drying livewells, bilge water areas and motor cooling systems. **A new regulation placed in effect starting in 2013 states that any conveyance (vessel) that has been on a waterbody must drain all water from their compartments, equipment or containers before leaving the launch area. Felt sole boots or waders are not allowed to be used on Nebraska waters.**

For more information, please contact the Nebraska Game & Parks Commission 402-471-5552

For further information contact Darrol Eichner, Fisheries Biologist, Nebraska Game & Parks Commission
308-284-8803