Merritt Reservoir

2019 Fall Survey Summary

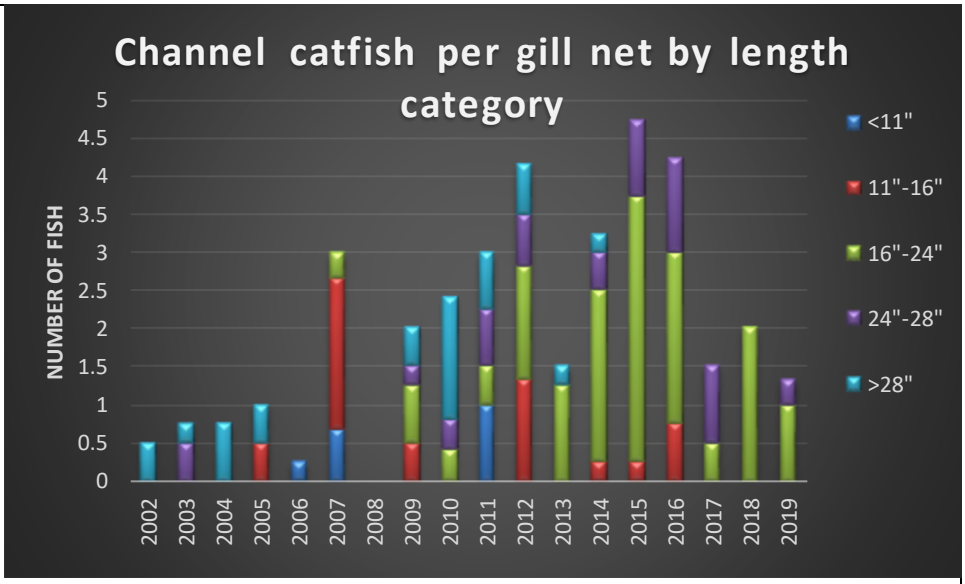
Zac Brashears Fisheries Biologist

Merritt Reservoir is located in the Nebraska sandhills approximately 26 miles southwest of Valentine, NE. The area is comprised of 2,905 acres of water with 6,000 acres of land adjacent to the reservoir. The reservoir was built in 1964 by the Bureau of Reclamation for irrigation purposes. When built, the Snake River was dammed near its confluence with Boardman Creek, flooding both valleys along with the Powder Horn arm of the reservoir. Flows from both the Boardman Creek and Snake River contribute to filling the reservoir to full pool each year. The water and land adjacent to the reservoir is managed by the Nebraska Game and Parks Commission for fishing, hunting, and recreational activities. Fishing is available year round and several different fish species are present in Merritt Reservoir which include: alewife, walleye, white bass, muskellunge, northern pike, yellow perch, bluegill, pumpkinseed, black crappie, largemouth bass, smallmouth bass, freshwater drum, black bullhead, white sucker, and common carp.

Facilities at Merritt Reservoir include nine campgrounds (four with electrical hookups and one with ADA accessible shower), one dump station, vault toilets, picnic shelters, two fish cleaning stations, five boat ramps with lighted parking lots, and an area concessionaire which provides permits, groceries, fee camping with RV hookups, boat rentals, fuel, cabins and guide services.

The following texts and graphs are the results of netting surveys completed at Merritt Reservoir in 2019 as well as historical data. Biologists use gill nets to sample species that are primarily found in open water such as walleye, white bass, and channel catfish and trap nets to sample shore oriented species such as bluegill, black crappie, yellow perch and northern pike. Electrofishing surveys are used to sample largemouth and smallmouth bass at Merritt Reservoir. The nets and electrofishing stations are sampled each year at approximately the same locations and dates as previous years to allow for trend comparisons.

Channel Catfish



Surveys for channel catfisih at Merritt Reservoir have historically shown a low abundance. In 2019, survey indicated a decline in abundance to 1.33 catfish per net from the past several years. These catch rates are much lower when compared to the 2014-2016 surveys. The average size of catfish sampled was 26.4 inches.

Anglers do report excellent catch rates each year indicating the fish are there and possibilities of trophy fish do exist with fish over the 30" mark. The sampling gear used may not be effectively targeting these fish which tend to be in deeper water during these surveys at Merritt.

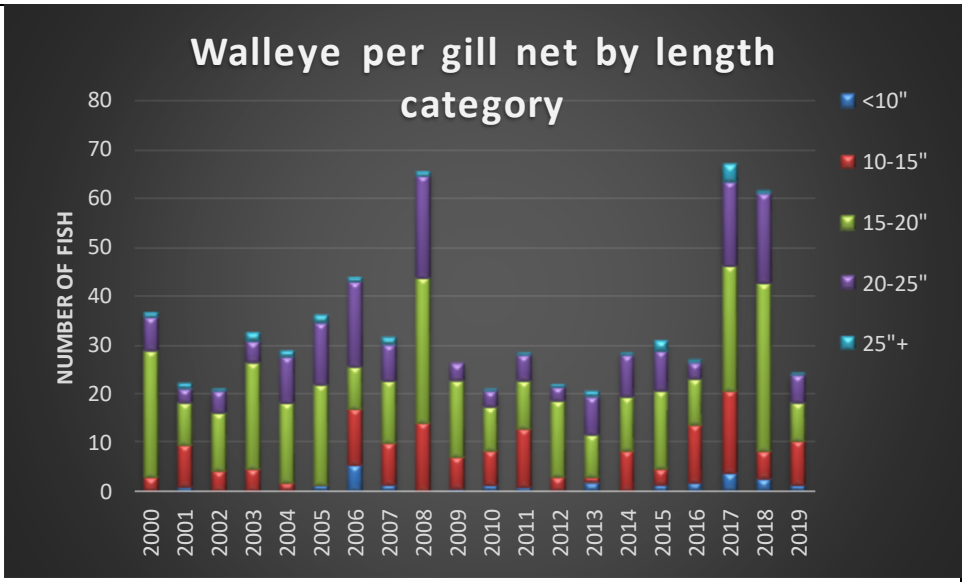
Anglers usually do good at Merritt drifting cut bait or dough balls and working the edges of drop offs in the early fall. These fish can also be targeted during the early spring as they venture into the weed beds and timber to spawn.

Stocking requests are for 10,000 ten-inch catfish to be stocked on alternate years at Merritt (even numbered years). Efforts are being made to provide anglers with opportunities at trophy channel catfish.

New Regulation:

Daily bag limit of 5 fish with a possession limit of 20 fish. The channel catfish daily bag limit at Merritt Reservoir and Calamus Reservoir shall include no more than one fish 30 inches or longer. This change is expected to protect larger fish at these reservoirs, which have experienced a reduction in overall size of catfish.

Walleye



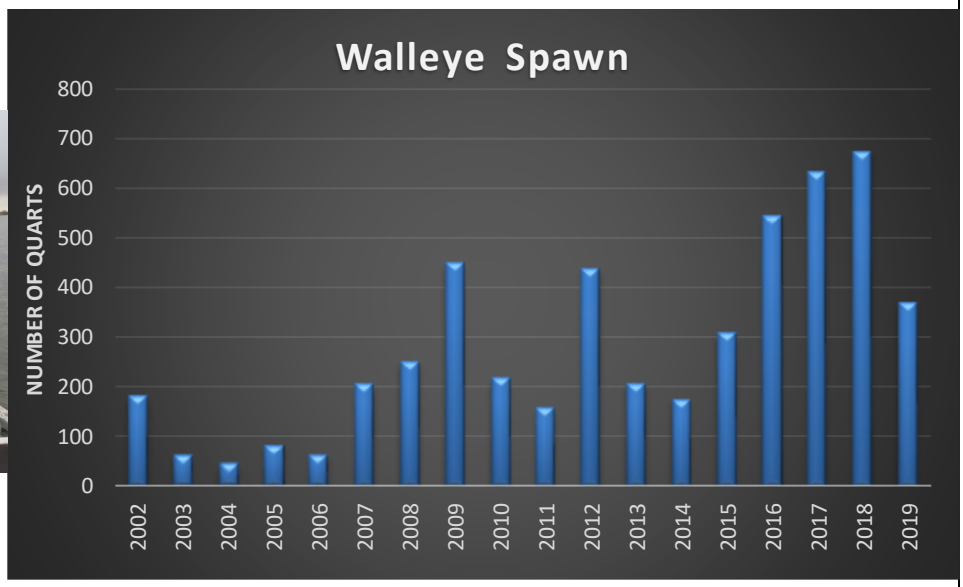
The 2019 walleye gill net catch decreased drastically to 24 fish per net and about 1/3 of what the surveys have indicated over the past couple years. This catch rate is very similar to the catch rates we observed from 2009-2016. The walleye population this year showed that approximately 58 % of the population averaged 16 inches in length and the largest fish sampled was 25.4 inches. Each size category was sampled and angler reports during the surveys indicated walleye were in much deeper habitats than the survey targets and could be the reasoning for lower catch rates. Walleye crews during the April spawn reported observing good numbers of fish over 22 inches in length.

Anglers at Merritt are allowed a daily bag limit of four walleye which may include one from 15 to 18 inches (it is allowable to have all fish over 18 inches) but only one fish over 22 inches is allowed in the daily bag. Possession limit of 8 fish. Anglers should still find success in the early spring and summer targeting walleye at Merritt. Common fishing techniques include slip bobbers along weed beds, running slow death rigs along flats and drop offs, and pulling crankbaits usually later on in the summer months.

Walleye stockings at Merritt Reservoir occur during the month of June with approximately 214,875 fingerling (2 inches) stocked to maintain the population. This stocking rate began in 2014 and is an increased stocking rate from 50 fish per acre to 75 fish per acre.

Walleye Spawn

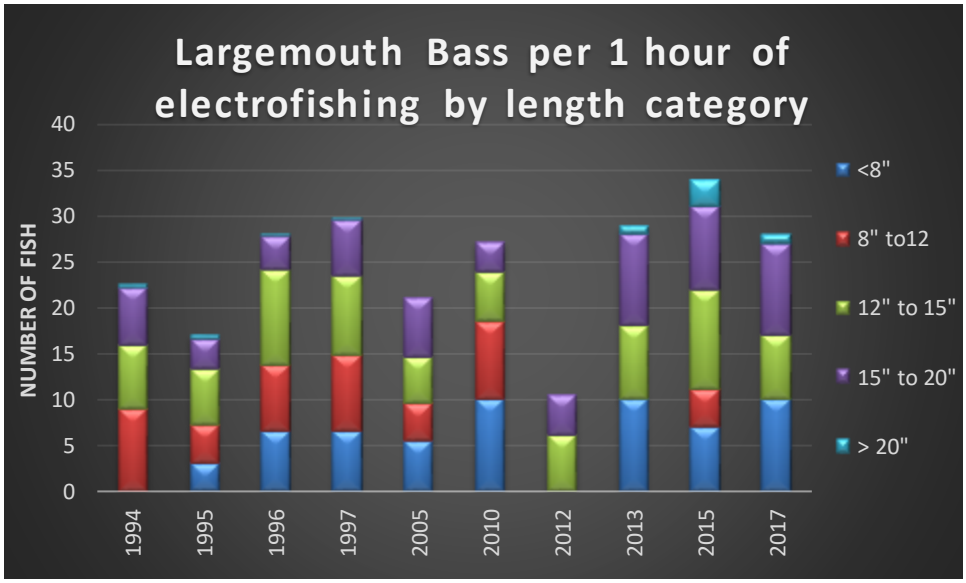
Fisheries Division will be conducting walleye spawn operations at Merritt, Sherman, and McConaughy Reservoirs in 2020. Walleye eggs usually average around 125,000 eggs per quart and in 2019, 370 quarts of eggs were collected from Merritt. These operations usually occur during late March or early April and last until hatchery production needs are met. Nets are set parallel to the dam or shoreline in order to collect females as they venture in to spawn. These nets are marked with a buoy on each end and anglers are reminded not to cast between the buoys or lures will be lost.



Largemouth Bass

Beginning in 2013, largemouth bass and smallmouth bass populations at Merritt will be surveyed on alternate years. Abundance of largemouth bass in 2017 declined slightly to 28 fish per hour. These fish did show an excellent size structure with several fish from 15-20 inches as well as fish over 20 inches in length. This catch rate is average when comparing it to historical data since 1994 (27.4 fish per hour). Approximately 40 percent of the largemouth population is over the statewide minimum of 15 inches. The largest bass sampled was 528 mm (20.8 inches). Smallmouth bass provide additional angling opportunities at Merritt although sampling of this species can be relatively difficult.

Black Bass Regulations: Minimum length limit of 15 inches with only one fish longer than 21 inches in the daily bag. Daily bag limit of 5 fish with a possession limit of 10 fish.



Muskellunge and Northern Pike

Muskellunge are difficult to sample during our standard spring and fall surveys but are often collected during the spring walleye operations at Merritt. Muskellunge are typically spawning during a similar time frame. Muskellunge observed in during the 2019 spawning operation ranged from 28-39 inches.

Merritt Reservoir continues to draw more anglers each year in search of trophy muskellunge. Angler testimonials as well as photographs have even had a few fish pushing 50 inches. The state record came from Merritt in 1992 and weighed 41.5 pounds. Northern pike are also present in Merritt Reservoir adding additional fishing opportunities especially during the spring months or during ice fishing.

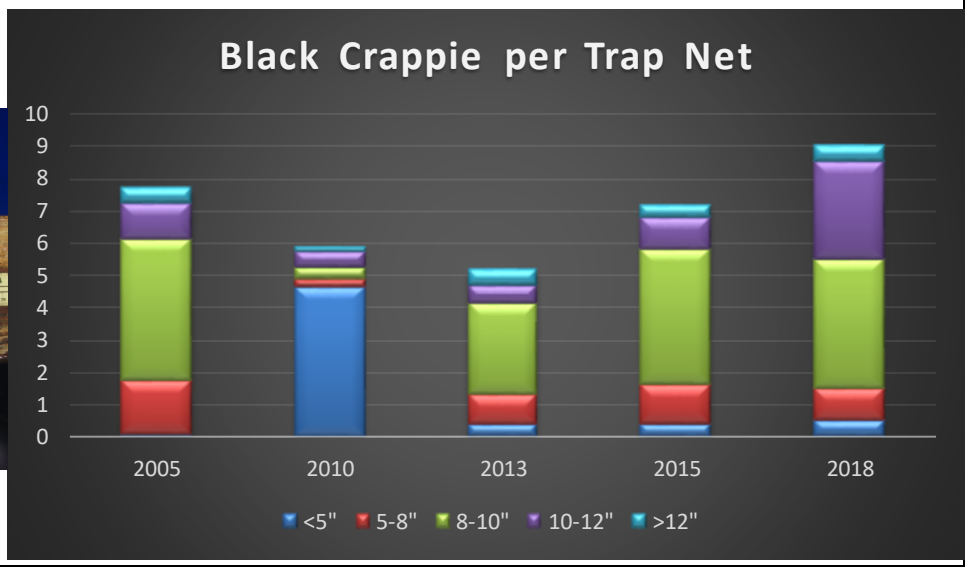
New Regulation:

There is a 50-inch minimum length limit for muskellunge and tiger muskellunge at Merritt Reservoir. This change is expected to protect large muskie and establish a destination location and trophy fishery at Merritt. Bag limit of 1 fish with a possession limit of 2 fish.

Black Crappie

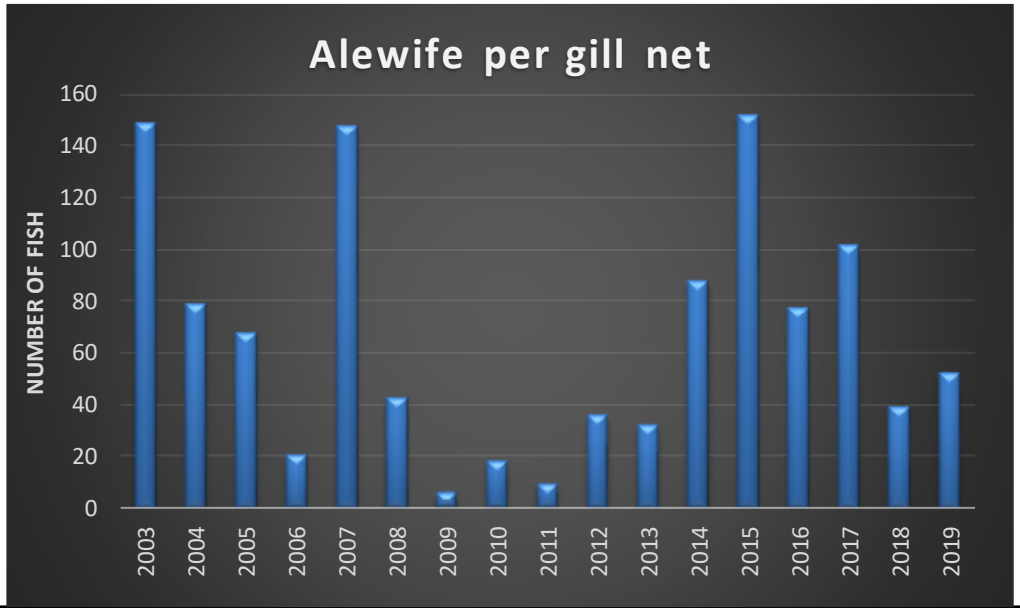
Panfish populations at Merritt consist of black crappie, bluegill, yellow perch, pumpkinseed, and green sunfish. These fish provide valuable opportunities in the late summer months when other species are tough to find and target and also provide great angling opportunities through the ice during the winter months. In 2018, trap nets indicated 9 black crappie per net and was the highest recorded since 2005. Approximately 39 percent of the fish sampled were greater than 10 inches in length and 78 percent over 8 inches. The largest crappie sampled 14.3 inches. Panfish populations will be surveyed at Merritt every 2-3 years.

Panfish Regulations: Combined daily bag limit of 15 fish with a possession limit of 30 fish.



Alewife

Alewife is the dominant prey species in Merritt for predators such as walleye, northern pike, muskellunge, and largemouth bass. Catch rates Increased slightly from the 2018 survey to 52 alewife per net in 2019. These fish make a very valuable prey and makes fish grow extremely well but can cause issues during stocking due to their predation on eggs and young fish and is the reason for most fingerling stockings in Merritt Reservoir.



Angler Access Project-Merritt Reservoir

A new boat ramp and breakwater was constructed in 2017 at the main area on Merritt Reservoir. The new boat ramp is providing access for a longer duration during the summer months.

Part of the project which was not completed is a breakwater to the south-west of the boat ramp (near Willow Cove Campground). Construction of this breakwater will occur as soon as water levels reach desirable levels for construction.

This project is paid for by the Nebraska Aquatic Habitat, Angler Access Program, Capital Development Maintenance funds and U.S. Coast Guard boating safety funding.

Invasive Species

Over the past several years invasive species have become a rising concern in Nebraska. In 2015, a new regulation was established to help prevent the spread of invasive species via boats and trailers. The new regulation states: It is illegal to either arrive or leave any water body in Nebraska with water other than from a domestic source (water supply system, well or bottled) except for firefighting purposes.

Zebra mussels (pictured right) were first documented in Nebraska in 2006 at Offutt Airforce Base Lake and have since been discovered at Zorinsky Lake (2010) (mussels eliminated via a winter drawdown that froze them out and haven't been sampled since), Lewis and Clark Lake (2015), Lake Yankton (2017), Glen Cunningham Lake (2018) and below Gavins Point Dam in the Missouri River. Zebra mussels and quagga mussels are small fingernail-sized mussels and adults are usually ¼ to ½ inches long with alternating yellow and brownish colored stripes on their shell. These mussels can spread in their immature form known as veligers by being transported in bilge, ballast, or live-well water or as adults attached to boat hulls, engines, aquatic vegetation, or other surfaces. Sampling for these veligers occurs statewide from the months of May through September. No evidence of these mussels has been discovered in any other lakes sampled.

Aquatic vegetation such as curly-leaf pondweed and Eurasian water milfoil are also invasive species present in Nebraska. Curly leaf pondweed is present in Merritt Reservoir. Both of these plants form dense mats of vegetation near the water's surface which make recreational fishing, boating, and swimming difficult. Spread of these plants can happen through stem fragmentation. A single segment of plant material can be transferred to another water body and form a new colony therefore removing any visible plant material from boats and trailers is a must and remember to **CLEAN, DRAIN, and DRY!**

CLEAN- Remove plants, animals, mud and thoroughly wash equipment that came into contact with the water.

DRAIN- Drain all water before leaving, including wells, bilge, ballast, and any parts or equipment that can hold water.

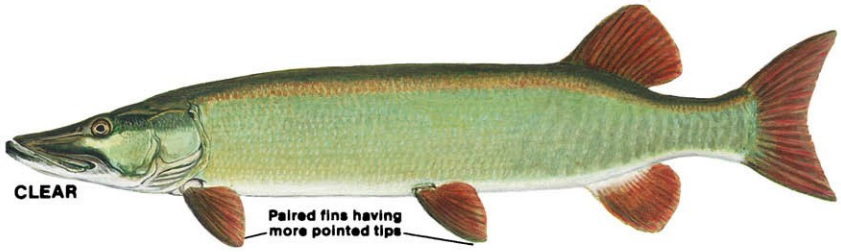
DRY-Allow all equipment to dry completely before launching into another body of water.

For more information on invasive species in Nebraska visit neinvasives.com.

For more information on fisheries management or activities on the Valentine National Wildlife Refuge contact:
Zac Brashears NGPC Biologist, (402) 376-8080 zac.brashears@nebraska.gov
Al Hanson (NGPC Manager) or Joe Rydell NGPC Biologist, (308) 763-2940 al.hanson@nebraska.gov, joe.rydell @nebraska.gov
Juancarlos Giese (USFWS refuge manager), (402) 376-1889 Juancarlos_giese@fws.gov

MUSKELLUNGE - NORTHERN PIKE

Know How To Tell The Difference!



CLEAR

Paired fins having more pointed tips

NOTE: Faint indication of marking pattern is *sometimes* present on posterior ⅓ of body in "clear" variation of muskellunge.

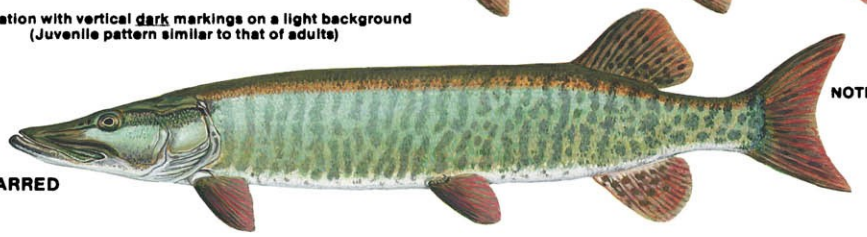
Caudal fin with pointed tips

MUSKELLUNGE
(Esox masquinongy)

3 COMMON PATTERN VARIATIONS

SPOTTED

Coloration with vertical dark markings on a light background
(Juvenile pattern similar to that of adults)



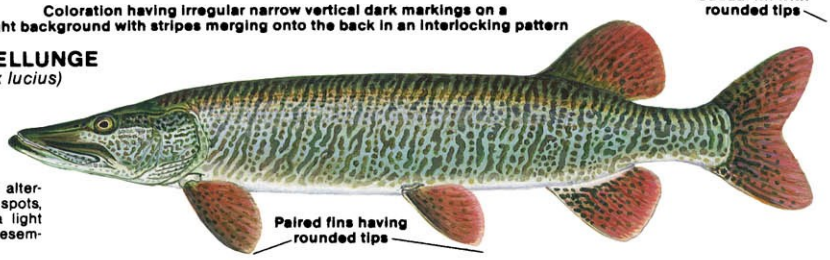
BARRED

NOTE: Background colors of fish can vary slightly depending on environmental characteristics of the water body and its geographic location. One marking pattern may dominate in an area, but all 3 can be present.

Caudal fin with rounded tips

Coloration having irregular narrow vertical dark markings on a light background with stripes merging onto the back in an interlocking pattern

HYBRID "TIGER" MUSKELLUNGE
(Esox masquinongy × Esox lucius)

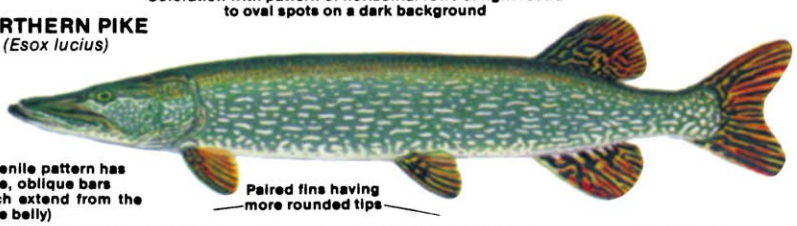


NOTE: Sides sometimes exhibit an alternating pattern of stripes and spots, or narrow paired-bars on a light background. Pattern *never* resembles that of northern pike.

Paired fins having rounded tips

Coloration with pattern of horizontal rows of light round to oval spots on a dark background

NORTHERN PIKE
(Esox lucius)



Caudal fin with more rounded tips

NOTE: Some areas may contain "Silver Pike" which is a mutant color variation of northern pike that lack the characteristic spots and have dark to light greyish/blue sides. Fin coloration normal for northern pike is exhibited in the "silver" variety.

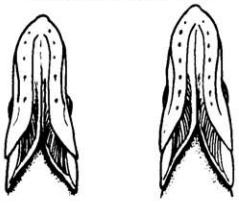
(Juvenile pattern has white, oblique bars which extend from the white belly)

Paired fins having more rounded tips

Color illustrations by:
IVAN PECK ©86

IN MOST AREAS THESE FISH HAVE MINIMUM SIZE RESTRICTIONS, MAXIMUM POSSESSION LIMITS, AND SPECIAL OPEN SEASONS... CONSULT LOCAL FISHING REGULATIONS FOR SPECIFIC DETAILS.

Location of submandibular pores on under side of lower jaw...



NORTHERN PIKE 5 or fewer pores

MUSKELLUNGE 6 to 9 pores

NOTE: Hybrids have 5 to 8 pores on each side of lower jaw.

For further information please contact the Nebraska Game and Parks Commission or...

Muskies Inc.
www.muskiesinc.org

MUSKIES INC. Youth Fisheries Research

NEBRASKA GAME AND PARKS COMMISSION

Line diagrams courtesy of Dr. James, C. Underhill, University of Minnesota

Upper half of cheek and operculum with scales

MUSKELLUNGE

Entire cheek and upper half of operculum with scales

NORTHERN PIKE

NOTE: Hybrids have ⅔ or more of cheek and upper half of operculum with scales.