

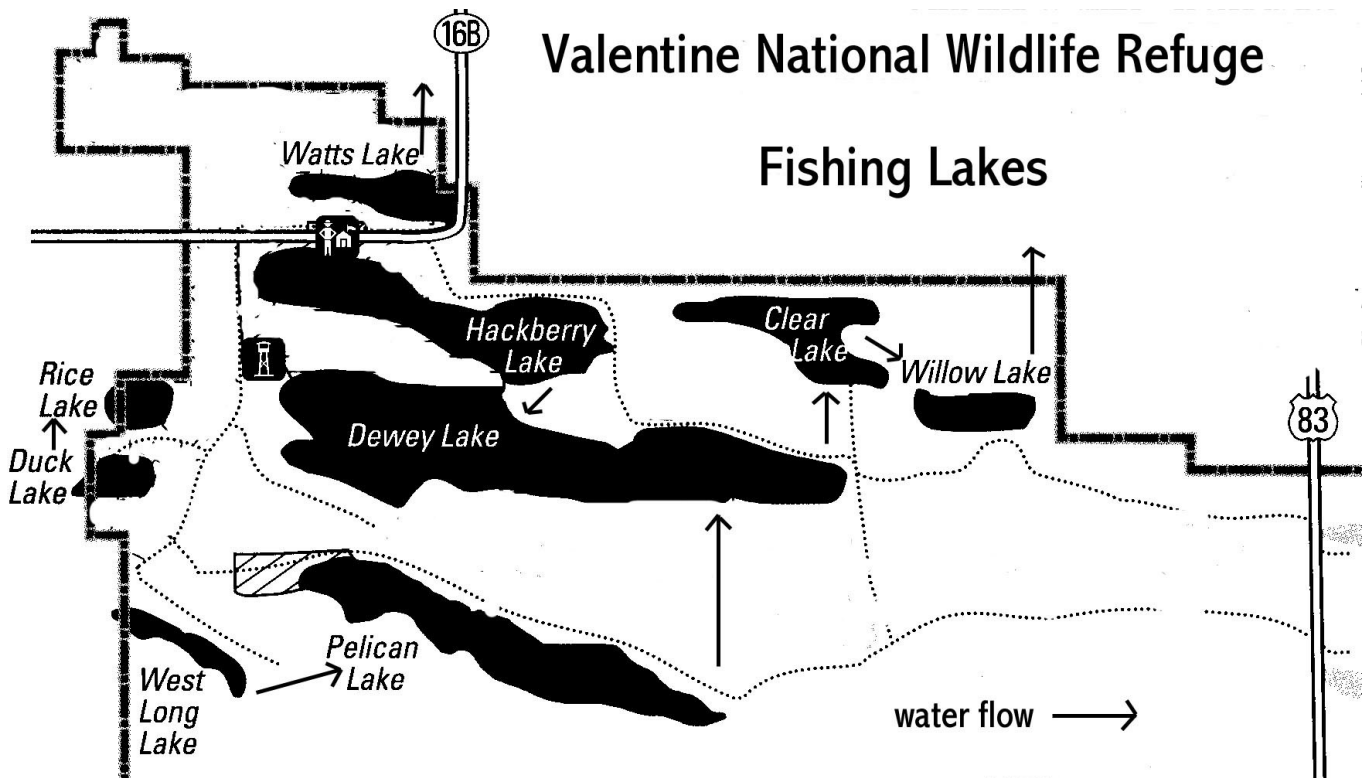
Valentine National Wildlife Refuge

2021 Fish Survey Report

Zac Brashears Fisheries Biologist



The Valentine National Wildlife Refuge (VNWR) is 71,516 acres and was established in 1935. The refuge not only protects a portion of the Sandhills but provides a resting, feeding, and nesting area for migrating waterfowl and habitat for many species of wildlife that use the refuge lakes, marshes, mid and tall grass prairies, and meadows. Public recreation including hunting and fishing are promoted. Nebraska Game and Parks Commission (NGPC) manages the lakes for recreational fishing in cooperation with the U. S. Fish and Wildlife Service (USFWS) as defined in a Cooperative Agreement between the USFWS and the NGPC. The VNWR contains 39 lakes of which 9 are open to fishing. Some of these lakes are too alkaline to support fish and a majority of the lakes are very shallow and can be heavily vegetated which makes them susceptible to frequent winter-kills and summer-kills. Those lakes that are open to fishing are: Watts, Hackberry, Dewey, Clear, Willow, Rice, Duck, West Long, and Pelican. Fish species found in these lakes include largemouth bass, bluegill, yellow perch, northern pike, black crappie, grass pickerel, black bullhead, and common carp. Due to common carp not being eliminated from Pelican Lake, tiger muskellunge were stocked to provide an additional angling opportunity while helping to control unwanted common carp numbers. Fishing is permitted on the Refuge from 1/2 hour before sunrise to 1/2 hour after sunset. The use of internal combustion motors is prohibited on all Refuge lakes. Boats propelled with oars, paddles, or electric motors may be used. The possession or use of live or dead minnows and the possession of any fish not taken from Refuge waters is prohibited. Frozen or dead smelt may be used as bait.



Map of the Valentine National Wildlife Refuge lakes open to fishing south of Valentine, NE.

Survey Methods

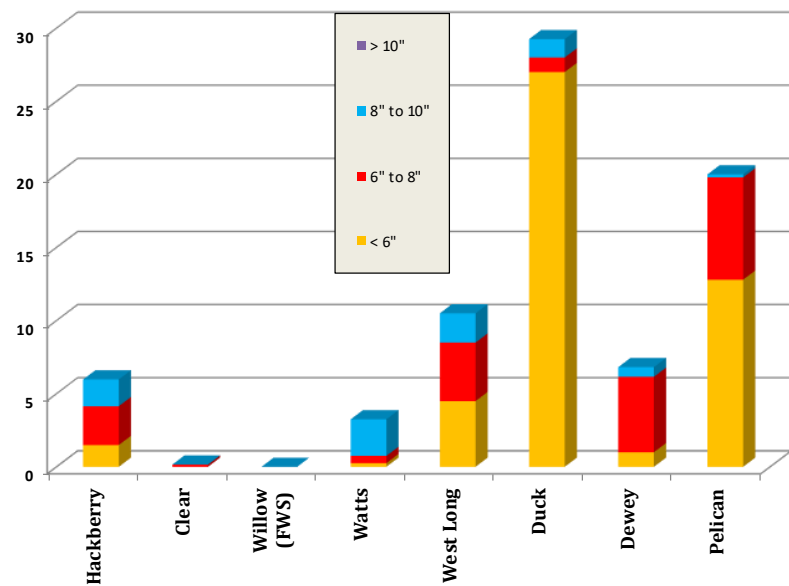
Nebraska Game and Parks personnel took over fish population surveys on the VNWR in 2014. Prior surveys were conducted by USFWS personnel out of the Pierre, SD office. Biologists use electrofishing to target largemouth bass at night and common carp during the day. Frame netting surveys are used to target shore-oriented species such as bluegill, yellow perch, black crappie, and northern pike. Once these fish are collected they are weighed, measured, and a few scales are removed to determine the age of the fish and evaluate growth compared to other lakes. Anglers are reminded they should not rely solely on what the surveys indicate as patterns of weather and timing of the surveys could have effects on catch rates for certain species. For example, yellow perch and northern pike are sampled in late-March or early-April when they are moving into the shallows to spawn; this can happen relatively quickly, sometimes lasting only a few days making sampling these species in several waterbodies relatively difficult.



Bluegill

Bluegill are one of the most sought after species on the VNWR and anglers come during the spring, summer and winter months in search of trophy bluegill over 10 inches. Unlike other eastern lakes, densities of bluegill in these systems are much lower. The aquatic vegetation and invertebrates in these systems make them very productive and bluegill grow extremely fast in these environments. Some lakes produce better growth rates but that depends on a number of factors including water quality, vegetation, and other fish species present.

Bluegill Catch per Frame Net



All 9 lakes open to fishing on the VNWR have bluegill populations. In 2021, 7 of the 9 lakes were sampled for bluegill. The highest abundance of bluegill was at Duck Lake with 29.25 bluegill per net. Out of those bluegill sampled only 4 percent were over 8 inches in length. Pelican Lake came in second with 20 bluegill per net. This lake was renovated in 2018 and the bluegill population is still growing but during the spring sampling period some of these fish were pushing the 8" mark. Duck Lake, West Long, Watts, and Rice show fairly consistent catch rates as a result of being carp free and northern pike abundance is low or non-existent. The biggest bluegill observed in 2021 came from West Long and measured 10.5 inches.

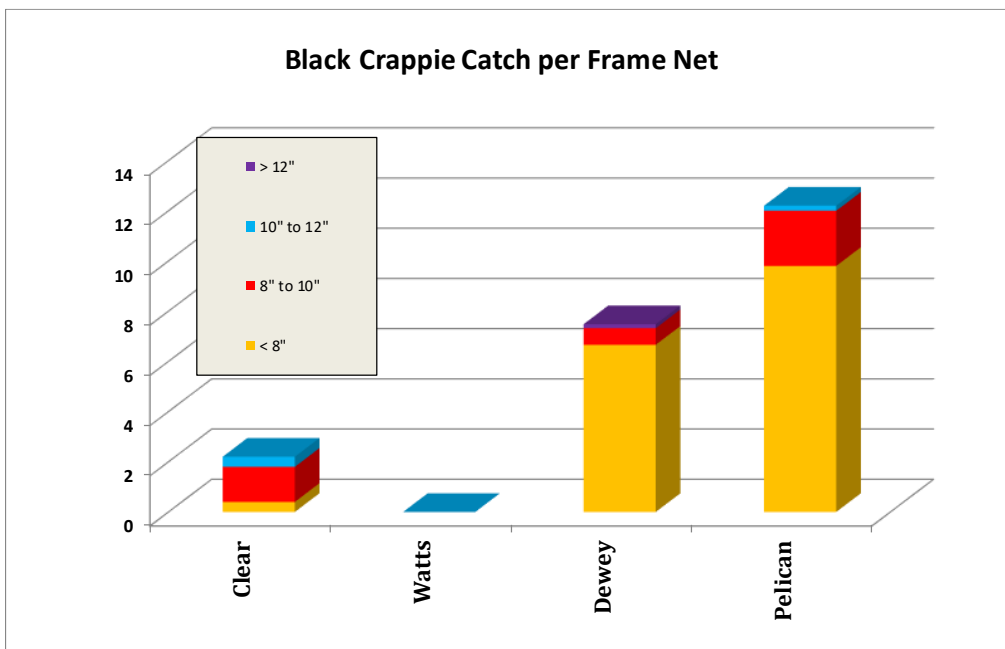
Panfish Regulations: Bluegill, Yellow Perch, Crappie, Green Sunfish, Etc. Bag limit of 15 fish in combination and a possession limit of 30 fish. The daily bag limit shall include only five bluegill of which only one fish can be 10 inches or greater in length at Pelican Lake.



Black Crappie

Black crappie populations exist in 5 of the 9 lakes open to fishing. Black crappie were stocked in Pelican in 2018 and are doing extremely well with a catch rate of 12.2 fish per net. This population is still growing and recruitment has been fairly good over the last year with higher water levels. The big end on these crappie are measuring 9.8 inches. A picture of crappie

sampled at Pelican can be seen below. These fish should provide angling opportunities over the next several years. Dewey Lake had the next highest catch rate of 7.48 crappie per net and also had the largest crappie sampled during the 2021 surveys.



Anglers should target black crappie with jigs that represent small baitfish such as bluegill, which is a primary prey item for these fish.

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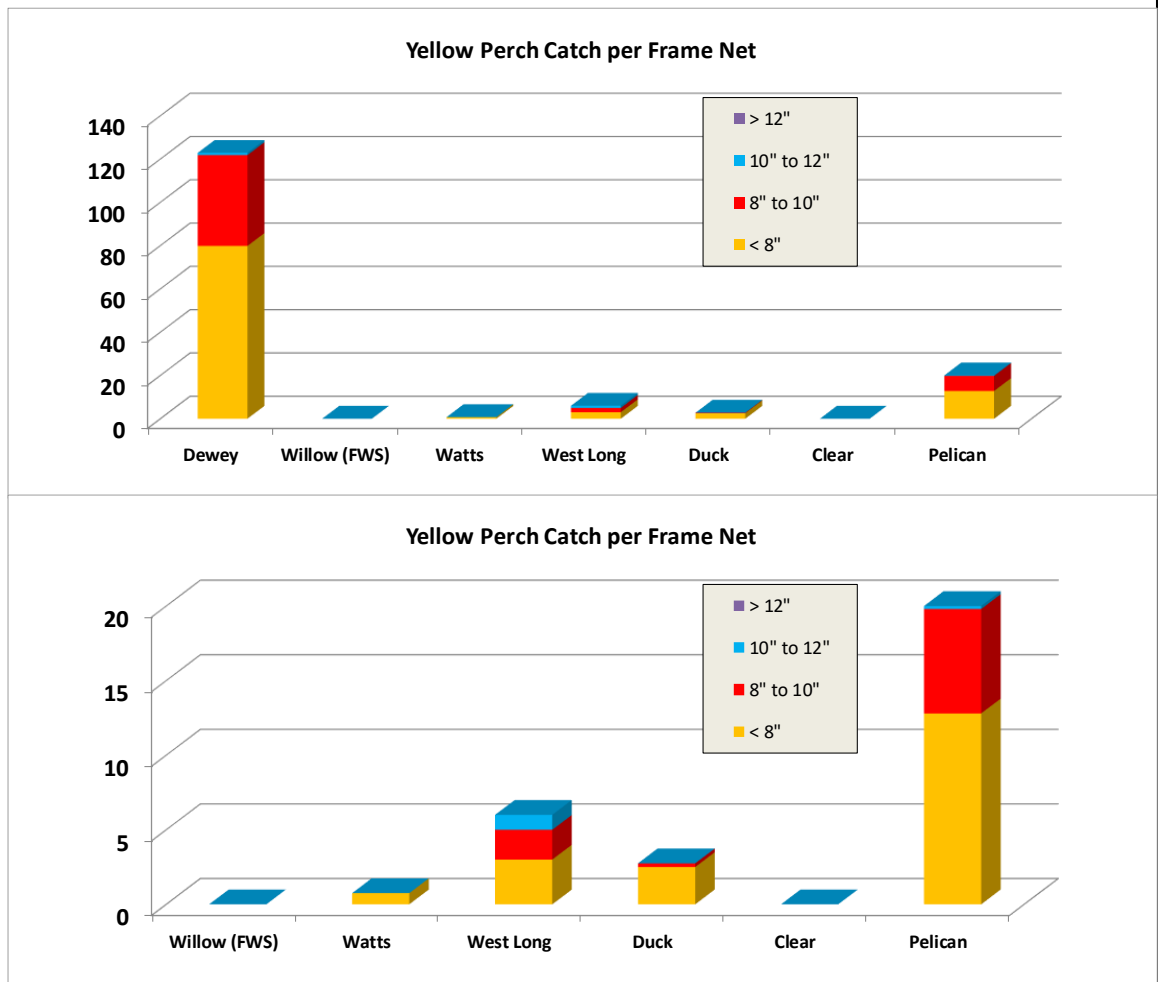
Yellow Perch

Yellow perch are probably the most sought after fish species during the winter months across the sandhills due to the fact that they are easily cleanable and great table fare. Perch populations exist in all 9 lakes open to fishing and these populations do fluctuate a lot mostly dependent on fishing pressure. The greatest abundance of perch in 2021 was at

Dewey Lake with a

catch rate of 122.83 perch per net. As can be seen in the graph most of these fish are around 5 inches and 99 percent of the catch was under 8 inches in length. Another graph is displayed excluding Dewey Lake to show the size structure of the other lakes. West Long has a decent size structure and is where the largest perch was sampled a 11.2 inch fish.

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Northern Pike

Northern pike are another very sought after fish on the VNWR and are found in 6 lakes although abundance is very low in West Long and Watts. Northern pike are managed on the VNWR as an additional

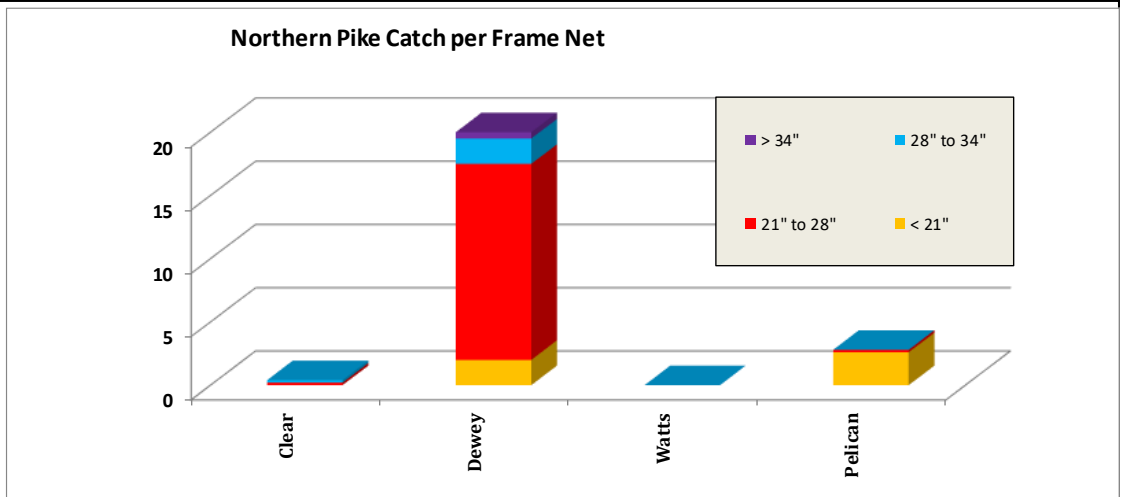
sport fish and also as a management tool for common carp. Common carp control is a high priority on the VNWR as carp can be detrimental to aquatic habitats. Anglers targeting these fish are usually found on open water during the spring or during the ice fishing season using tip ups.

Pike are sampled in mid to late March as these fish venture into spawn in the shallow vegetated areas of these lakes. This spawning activity happens relatively fast and sometimes under the ice so survey results may be misrepresented. Dewey Lake had the highest catch rate of 20 pike per net. This catch rate is also the highest catch rate shown since the Nebraska Game and Parks took over surveys in 2014. Approximately 12 percent of the pike sampled were greater than 28 inches. Other lakes that have pike populations that shouldn't be overlooked are Clear and Willow. Northern pike were also sampled for the first time since the renovation in 2018 at Pelican Lake. Anglers are reminded it is illegal to move fish from one waterbody to another.

Pelican Lake was renovated in 2018 and common carp were not eliminated from the system. To aid in common carp control on the waterbody, tiger muskellunge (northern pike X muskellunge hybrid) were stocked to help control these unwanted invasive species and provide angling opportunities. Since pike were sampled in 2021 at Pelican Lake tiger musky stockings will no longer take place there.

Northern Pike Regulations: Daily bag limit of 3 fish with a possession limit of 10 fish. The daily bag limit shall include not more than one fish 34 inches or greater in length.

Tiger Muskellunge Regulations: Daily bag limit of 3 fish with a possession limit of 3 fish. The daily bag limit shall include not more than one fish 34 inches or greater in length.



Largemouth Bass

Largemouth bass populations were sampled on 5 lakes in 2021. The fish are sampled during the night-time hours with electrofishing gear as they venture into the shallow waters to feed.

Bass are the

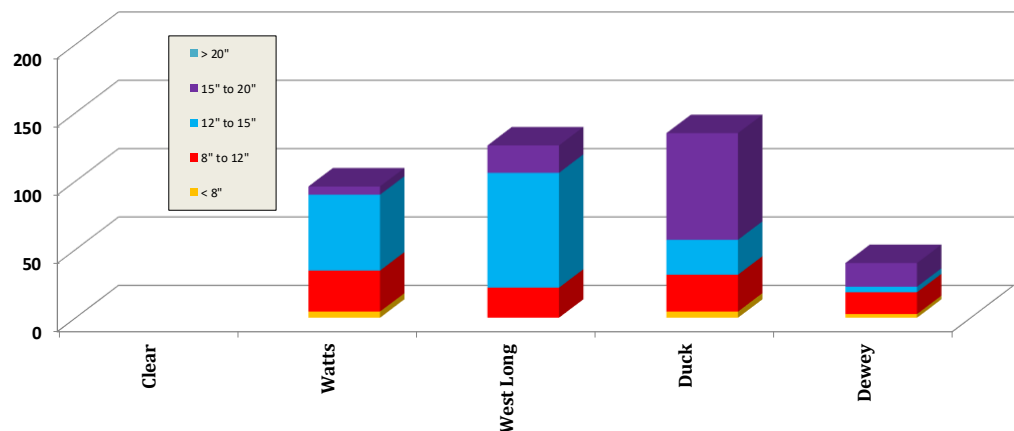
primary predator at these lakes and help control unwanted species such as common carp. Largemouth bass also control panfish recruitment which allow the remaining fish to grow extremely fast without competition for available food.

Bass densities ranged from 40 bass per hour at Dewey Lake with the lowest abundance to 135 bass per hour at Duck Lake with the highest abundance. Size structure looked great at Duck Lake catching all size categories expect fish over 20 inches. 57 percent of the bass population at Duck Lake was over the statewide minimum of 15 inches. The largest Bass sampled came from Dewey Lake and measured 19.6 inches and weighed 6.4 pounds. Clear lake was sampled although no largemouth bass were collected in 2021.

Largemouth bass are usually targeted during the spawning period in mid to late May or can be targeted with weedless topwater baits during the summer months when these lakes become heavily vegetated.

Largemouth Bass regulations: Daily bag limit of 5 with a possession limit of 10. The daily bag limit shall include no more than one black bass 21 inches or greater.

Largemouth Bass Catch per Hour Electrofishing



Aquatic Habitat Plan Phase II

Over the past several years there has been a lot of work completed on the portion of the refuge that contains the nine public fishing waters. Area users have seen many improvements to the refuge including: roads, angler/boater access, dredging of channels to improve movement of water between lakes, and the installation of carp barriers. Of the nine fishing lakes, four are currently free of common carp (Duck, Rice, West Long and Watts). The overall goal of this large interagency project is to eliminate common carp from this segment of the refuge working from the upper part of the watershed and proceeding downstream.



Over the next several years, plans are to systematically treat the remaining lakes in the system to eliminate carp while still providing some fishing opportunity to anglers during this period. In 2015, Watts Lake was renovated and now provides a fishery for anglers while Pelican, School, and Whitewater lakes were renovated in 2018. Hackberry lake was scheduled for 2019 but due to high water levels was not completed until the fall of 2021. Fish have since been stocked in Hackberry and should be providing fishing opportunities in a few years. Dewey Lake is scheduled next but may be put on hold for a year or two. After Dewey the final renovations will occur at Clear, Willow, and McKeel lakes. Some of the listed lakes are not open to fishing but connect during high water events and contain carp populations so renovations are necessary to prevent carp from being reintroduced. Several months prior to the renovations, length limits on largemouth bass and northern pike will be rescinded to allow anglers to harvest them using normal methods. Fisheries staff will also conduct a salvage operation and transfer collected sportfish to other public waters.

The removal of common carp from the system will allow for more management options than available in the past. Current plans are to manage the upper lakes (Duck, Rice, Watts, West Long, Pelican, and Hackberry) for quality panfishing and largemouth bass with an emphasis on bluegill, black crappie, and yellow perch. The proposed fishing regulations for largemouth bass and panfish will follow the statewide regulations except on Pelican Lake. Pelican Lake will be managed for a trophy bluegill fishery returning it to its historical prominence by limiting bluegill harvest to a daily bag limit of 5 of which only one can be over 10 inches. The lower lakes (Dewey, Clear and Willow) will be stocked with bluegill, yellow perch, black crappie, largemouth bass, and northern pike to provide anglers pike fishing opportunities.

Pelican Lake was stocked with tiger muskellunge in 2019 to help with control of common carp numbers. Northern pike were also sampled in 2021 at Pelican Lake.



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 in 2010 (mussels eliminated via a winter drawdown that successfully froze them out), Lewis and Clark Lake (2015), Lake Yankton (2017), Glenn Cunningham Lake (2018; mussels eliminated with drawdown) and below Gavins Point Dam in the Missouri River. Zebra mussels and quagga mussels are small fingernail-sized mussels and adults are usually $\frac{1}{4}$ to $\frac{1}{2}$ inch 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 veligers occurs statewide from 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. 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!** **Note: Curly leaf pondweed is established at Merritt Reservoir in Cherry County.**

CLEAN- Remove plants, animals, and mud by thoroughly washing 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