



2023 Fisheries Survey Report Kearney Community Lakes Buffalo County, NE

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Introduction & Survey Objectives

Fisheries biologists conducted spring surveys using trap nets and boat electrofishing to assess fish populations. Kearney community lakes include Archway Lakes, Bufflehead WMA, Cottonmill Park, Kea Lake WMA, Kea West WMA, North Kearney Rest Stop, and Yanney Park. Fish population dynamics including species composition, size structure, and relative abundance was compared. Kearney lakes are on a 5 year survey schedule and were previously sampled in 2018. The following report is a brief summary of survey results collected in 2023 and description of the general status of fish populations found in each lake.



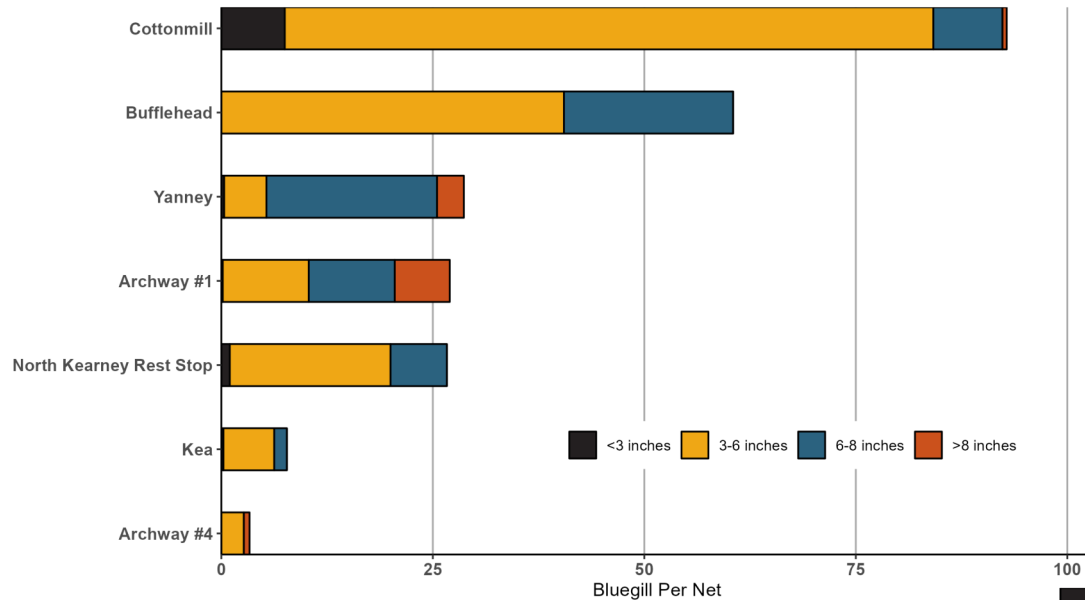
Survey Methods

All Kearney community lakes were sampled with trap nets and night electrofishing, with the exception of Yanney Park which was day shocked. All collected fish were identified and measured to the nearest 10 mm length group. Shocking effort ranged from 20 to 45 minutes. Trap nets are used to target panfish such as bluegill and crappie. Electroshocking is primarily used to target largemouth bass and common carp and is often done at night in lakes with clear water.





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Bluegill Summary

Bluegill anglers have plenty of lakes to choose from in the Kearney area. A total of 1,381 bluegill were caught in the spring of 2023 ranging from 1.5 to 9 inches. Average bluegill length was 5 inches.

Cottonmill and **Bufflehead** had the highest catch rates of bluegill however size structure was poor with most fish between 3 to 6 inches.

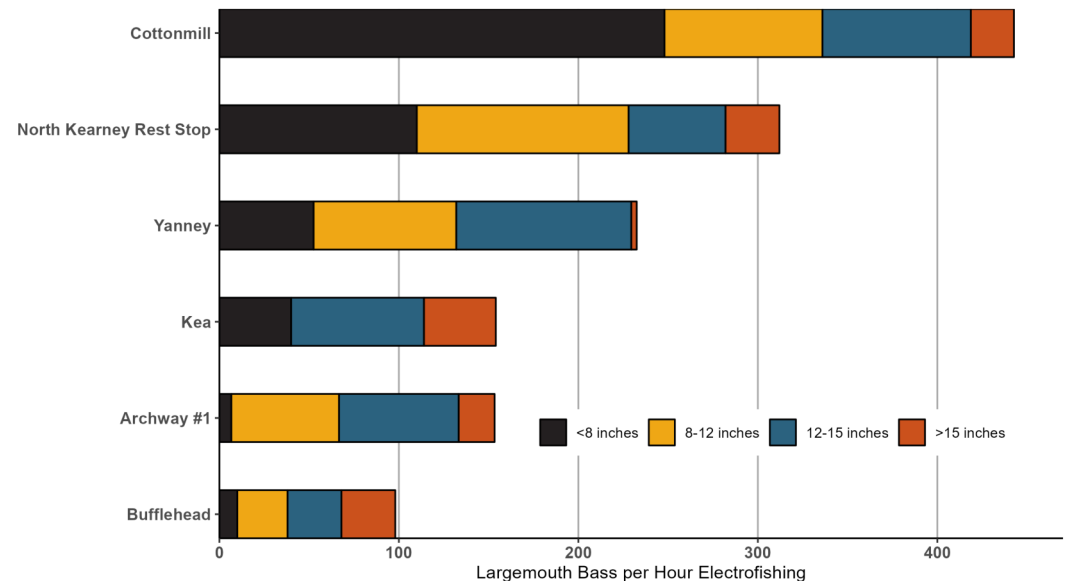
Bluegill are abundant in most Kearney lakes but are relatively small. Ninety-five percent of the sampled fish were less than 8 inches. Anglers that want to catch larger bluegills should try **Yanney Park** and **Archway #1**.

Largemouth Bass Summary

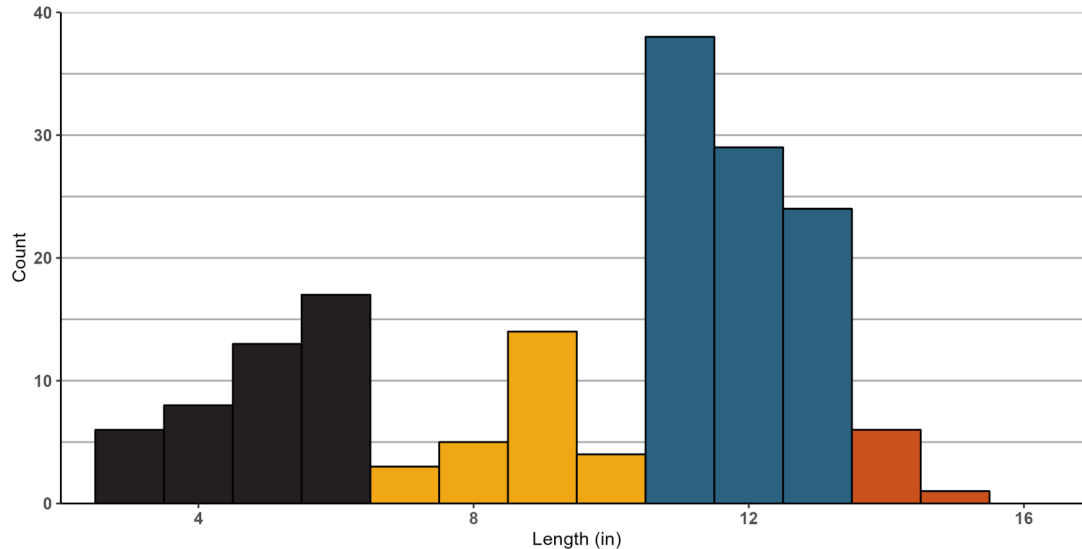
There are plenty of angling opportunities for largemouth bass in Kearney. Spring shocking surveys collected 884 largemouth bass, ranging from 2.8 to 22.4 inches and having an average length of 10 inches.

Cottonmill, **North Kearney Rest Stop**, and **Yanney** had the highest catch rates and most abundant bass populations. **Archway #1** had the most balanced bass population and would provide the best opportunity to catch 12 to 20 inch bass.

All the Kearney lakes have largemouth larger than 15 inches. Although catch rates were lower, **Kea**, **North Kearney Rest Stop**, and **Yanney** provide good opportunity to catch decent sized largemouth.



SMALLMOUTH BASS
KEA WEST



Smallmouth Summary

Four lakes in the Kearney area are actively managed for smallmouth bass; Kea West WMA, Archway #2, Archway #3, and Archway #4.

Smallmouth were sampled via boat mounted electrofishing at Kea West and trap nets in the Archway lakes. A total of 243 smallmouth bass were caught ranging from 2.8 to 19.3 inches with an average length of 9.7 inches.

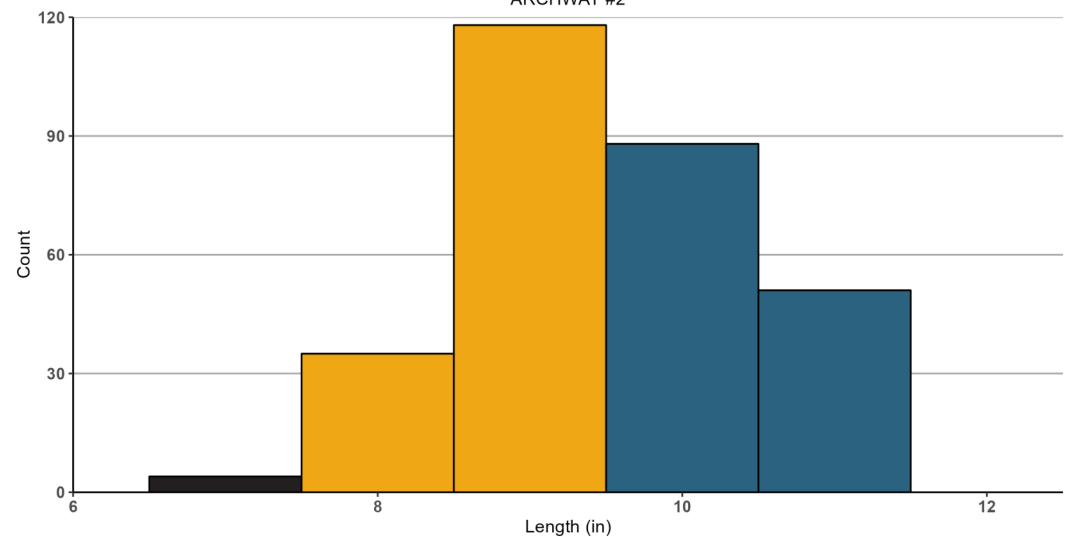
Kea West had the highest catch rate of smallmouth, followed by **Archway #2**. Kea West had 555 smallmouth per hour and good size structure with 54% over 11 inches. Thirteen percent of the smallmouth sampled at Archway #2 were 14 inches or larger.

Yellow Perch Summary

There are three angling opportunities for yellow perch in Kearney; Archway #1, Archway #2, and Kea West. However, perch can be found in low densities at Bufflehead WMA, Kea, and Yanney. Spring surveys collected 309 yellow perch, ranging from 3.5 to 11.4 inches and having an average length of 9.4 inches.

Archway #2 had the highest catch rate and most abundant perch population followed by **Kea West**. Perch had excellent size structure in Archway #2, ranging from 7.4 to 11.0 inches. Perch at Kea West averaged 6 inches, ranging from 3.5 to 11.4 inches.

YELLOW PERCH
ARCHWAY #2





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Please don't dump pets in public waters.

Fish Metric Description

Proportional Stock Density (PSD) is an index used to describe the size structure of a fish population. PSD is calculated by dividing the number of quality sized fish and larger by the number of stock sized fish and larger for a given species. Stock size fish are the minimum length frequency effectively sampled by a sampling gear. Quality size is the minimum size that most anglers want to catch. The number of preferred, memorable, and trophy sized fish can be divided by the number of stock fish to calculate PSD-P, PSD-M, and PSD-T. Generally accepted PSD ranges for balanced fish populations are Bluegill 20-60, Crappie 30-60, Largemouth Bass 40-70, and Northern Pike 30-60.

Catch per unit effort (CPUE) is an index used to measure fish population relative abundance which is the number of fish captured per unit effort. CPUE indexes are comparable to statewide data. CPUE for panfish are # caught/net, for bass # caught/hour.

Length Frequency Distribution (LFD) is a graphical representation of the percentage of fish captured at one inch intervals. Small fish (or young age-classes) may not always be represented in the length frequency due to different habitat usage and gear sampling limitations.

Archway #1

Lake #1 is 25 acres and is the largest of the four lakes at the Archway. Lake #1 has good shoreline access, a gravel boat ramp, and walking paths which connect to the Kearney Hike/Bike Trail. This lake contains a variety of species including largemouth bass, bluegill, crappie, yellow perch, white bass, rock bass, channel catfish, common carp, and tiger muskie. Density and size structure of bluegill in Archway#1 was good. Bass catch was decent with average size of bass 12 inches.

Archway #2

This two-acre lake was restocked in 2020 with smallmouth bass and yellow perch. Yellow perch are abundant and have excellent size structure. Average size of perch was over 10 inches.

Archway #3

Lake #3 is two acres and contains smallmouth bass, black crappie, and channel catfish. Catfish will continue to be stocked on alternate years. No catfish were sampled during spring sampling.

Archway #4

Lake #4 is one surface acre and is the smallest of the fishing lakes on the Archway property. This lake contains smallmouth bass and rock bass. Rock bass abundance was extremely high with 257 rock bass per net. However, size structure was less than ideal with an average size less than 5 inches.

Archway #1

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Bluegill	162	6.3	2.8—9.0	185 /net	62	24
Largemouth Bass	117	12	3.9—18.9	156 / hour	59	14
Crappie	8	7.1	4.3-10.6	1.3 /net	—	75

Archway #2

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Yellow Perch	296	9.4	7.4—11.0	99 /net	98	47
Smallmouth	29	10.2	7.9—15.4	9.7 /net	31	14

Archway #3

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Smallmouth	17	9.5	7.9—12.6	5.6 /net	18	0

Archway #4

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Rock Bass	773	4.5	3.1—8.3	257 /net	3	0

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Bufflehead WMA

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Bluegill	242	5.1	3.1 — 7.5	60.5 /net	33	0
Largemouth	50	12.5	5.5 — 20.9	98 /hour	68	34

Cottonmill

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Bluegill	664	4.4	2.4—8.7	92.8 /net	16	1
Largemouth Bass	348	8.5	2.7—17.7	442.7 /hour	55	12
Channel Catfish	28	16.1	9.1—33.5	5.6 /net	40	12
Walleye	24	14.2	7.9—23.2	—	93	22
Crappie	20	9.4	6.7—13.8	2.8 /net	70	40

Kea

Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Largemouth Bass	79	12.0	4.3—19.7	154 /hour	100	35
Bluegill	31	4.8	2.8—7.5	7.8 /net	25	0
Channel	10	26.4	20.1—32.3	20 /hour	100	80

Bufflehead WMA

This 11-acre lake on the east side of Kearney allows boats and kayaks. Bufflehead has a concrete boat ramp and restricts boats to 5 mph (no wake). The fish community consists of bluegill, largemouth bass, and channel catfish but also low densities of yellow perch. The fishery at Bufflehead has been in steady decline since flooding in 2019. Carp and gizzard shad were discovered in the lake post flood and 2023 had poor catch rates of largemouth bass and bluegill. A renovation is planned for Bufflehead in 2024. Bufflehead has a 21" minimum length limit on largemouth bass.

Cottonmill

Cottonmill is a 43-acre lake located just west of Kearney. This lake has good shoreline access as well as numerous walking trails and a disc golf course. Fish species present include bluegill, black crappie, walleye, channel catfish, largemouth bass, and northern pike. Cottonmill had high catch rates of largemouth bass and while most bass were less than 8 inches, there were good numbers of bass >12 inches or more. Cottonmill also has large channel catfish with an average size of 16 inches. There is a 34 inch minimum size limit on northern pike.



Kea

Kea lake is located just south of the I-80 interchange in Kearney. This lake has good shoreline access and offers bluegill, channel catfish, and largemouth bass fishing. Low densities of redear sunfish, smallmouth bass, walleye and yellow perch can also be found. Kea lake had a decent catch of 154 bass/hour in 2023. Bluegill abundance was low and the size structure was poor with only a few fish larger than 7 inches. However, channel catfish size was excellent with an average size of 26 inches and the largest caught was 32.3 inches. Redear sunfish can be found in low abundance but all redears sampled were over 9 inches. Anglers are reminded that they can only keep one catfish over 30 inches.



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North Kearney Rest Stop

This 10-acre sandpit has good shoreline access and contains bluegill, channel catfish, largemouth bass, rock bass, and a few crappie. Bass densities were good with 312 caught per hour and size structure was good with the largest bass measuring 22 inches. Rock bass size structure was excellent with the largest over 10 inches.

North Kearney Rest Stop						
Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Largemouth	162	9.7	3.1—22.4	312 /hour	42	15
Bluegill	80	4.5	2.8—6.7	26.7 /net	26	0
Rock Bass	19	6.6	3.1—10.6	6.3 /net	63	25



Kea West

Kea West is a 7-acre sandpit located south of Yanney park. This lake has excellent shoreline access, a concrete ramp, and a mowed trail around the lake. Fish species present include bluegill, smallmouth bass, yellow perch, and triploid crappie. Smallmouth bass are abundant with 336 per hour sampled. Bass size structure was good and body condition excellent.

Kea West						
Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Smallmouth Bass	185	9.6	2.8—14.6	336 /hour	75	6
Crappie	16	5	3.5—11.8	4 /net	—	—
Yellow Perch	7	6.0	3.5—11.4	2 /net	—	—



Yanney

Yanney park is a 10-acre lake with good shoreline access, a fishing pier, and a paved trail. Species present are bluegill, channel catfish, crappie, freshwater drum, largemouth bass and yellow perch. Additionally, rainbow trout are stocked seasonally. Bluegill and largemouth bass populations were abundant and had good size structure. Crappie are found in low densities but excellent size with the average over 11 inches.

Yanney						
Species	Total Fish	Average Length (inches)	Length Range (inches)	CPUE	PSD	PSD-P
Bluegill	172	6.5	2.4—7.9	28.7 /net	82	11
Largemouth Bass	158	10.2	3.5—18.9	232.5 /net	56	2
Black Crappie	21	11.4	8.7—16.5	3.5 /net	100	76
Channel	13	17.9	11.8—26.0	2.1 /net	62	15