

DATE OF REPORT: 2/10/2023 FISHERIES MANAGER: Rob Hilsabeck
DISTRICT NO.: 4 LAKE NAME: Wheel Lake BMSFWA COUNTY: Peoria
WATER NO.: 4053 OWNERSHIP: State ACREAGE: 350

1. All Fish - 2 pole and line fishing only except carp may be taken by bow and arrow devices, gigs or spears during May through August.

White, Black, or Hybrid Crappie:

- 25 Fish Daily Harvest Limit with no more than 10 fish greater than or equal to 10 inches.

Large or Smallmouth Bass:

- Protected Slot Length Limit from 12 to 18 inches with 3 fish daily harvest limit.

Muskie:

- 42 inch minimum and 1 fish per day harvest limit.

Channel Catfish:

- 6 Fish Daily Harvest Limit

Walleye:

- 14 inch minimum and 6 fish daily Harvest Limit

Recreational Use Restrictions:

-All live bait > 8 inch must be rigged with a quick set rig

-Waterfowl refuge or hunting area

2. 1. Spring Trapnet Survey on 4/12 and 4/13 in 2022.
2. Little Grassy Hatchery stocked 700, 7.2 inch Channel Catfish-9/8/2022.
3. Conducted Fall Population Survey using D.C. electrofishing on 10/4 and 10/5 in 2022.
4. Site staff maintained a pavilion and kids fishing pond near the Wheel Lake boat ramp.
5. Registered 35 tournament fishing groups at Banner Marsh for 2022, with 8 events at the Wheel Lake Access.

**LAKE MANAGEMENT STATUS REPORT
WHEEL LAKE**

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Largemouth Bass												LMP Objective
Stock Number	374	239	135	209	207	161	187	148	231	212	203	100
PSD	63	67	75	47	46	54	51	64	56	73	73	40-60
RSD14	41	39	42	32	19	36	21	28	32	31	43	
RSD16	23	23	29	21	10	16	10	10	12	13	21	
RSD18	6	8	8	11	3	8	4	4	4	3	6	5-10
Wr > 8"	93	94	92	93	90	93	91	90	90	90	93	90-110
YAR	0.1	0.1	0.2	0.2	0.1	0.6	0.7	0.2	0.1	0.2	0.1	
CPUE Stock	2.4	1.6	0.88	1.1	1.4	1.4	1.5	1.2	2	1.8	2	1/Min
Effort	154	151	153	191	144	116	121	127	115	120	100	
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Bluegill												
Stock #	4	15	56	9	2	10	6	32	0	9	14	
PSD	25	53	68	67	100	60	67	6		88	93	
RSD7	0	0	0	0	0	0	0	0		0	14	
Wr > 5"	97	87	85	89	81	88	80	78		84	82	
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Black Crappie												LMP Obj
Stock#	41	101	86	72	85	62	32	35	21	37	57	
PSD	61	62	81	60	80	82	84	91	62	95	93	30-50
RSD9	32	29	28	6	34	29	16	66	19	65	67	
RSD10	12	22	12	3	19	15	9	40	19	46	49	20-40
RSD11	5	7	9	0	9	7	3	9	10	19	32	5-10
Wr > 8"	90	90	86	88	88	84	83	91	84	87	91	90-100
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
White Crappie												LMP Obj
Stock #	101		50	44	87	44	18	25	6	15	70	
PSD	100	97	90	91	99	86	50	96	100	93	96	30-50
RSD9	93	78	36	61	87	61	0	84	83	80	81	
RSD10	86	69	16	36	84	46	0	56	83	67	73	20-40
RSD11	64	55	6	18	61	36	0	40	83	60	54	5-10
Wr	99	104	88	97	96	88	77	89	96	93	99	90-100

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Channel Catfish												LMP Obj.
Stock#	43	38	76	9	46	25	7	25	8	21	16	
PSD	86	92	93	89	98	92	86	92	71	95	100	
RSD18	72	87	75	78	98	84	71	80	29	95	94	10-20
Wr	98	105	106	102	105	107	115	100	90	102	102	90-110
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Mue												
Stock#	38	43	42	17	26	36	23	6	0	6	4	
PSD	76	67	91	77	65	92	91	83		100	100	
RSD42	8	0	2	0	4	6	0	0		17	75	
Wr	91	100	99	87	118	91	89	101		98	91	90-110
CPUE												
NN	2.4	1.9	2.4	2.1	1.6	1.9	2.4	0.42		0.4	0.3	.3/netN

4. In 2022, the water level in the marsh was higher in the spring and lower in the fall. A perfect cycle will be the higher spring through early summer water levels to promote good spawning and recruitment. Then the natural summer/fall drawn down would allow the condensing of the prey fish with the predators.

In 2022, a spring trap net survey and a fall D.C. electrofishing survey was used to evaluate the fish population. The largemouth bass population was evaluated by 203 stock size bass from electrofishing with 100 minutes of effort.

The largemouth bass population indices showed a high percentage of fish from 4 to 20 inches with good relative weight values. In 2000, the bass regulation for the Marsh was changed from a 14-inch minimum size limit and 1 fish per day - to a 12 to 18 inch protected slot length with a harvest of 3 fish under or over the slot per day.

The 2022 electrofishing survey indicated a size structure that is continuing to maintain a good level and stability since 2001. The PSD of 73, RSD14 of 43, RSD16 of 21 and the RSD18 of 6 have been consistent since 2012. The average body condition was a little low at 93.

The goal of the protected slot length limit was to create a high density bass population that is composed of fish large enough to be efficient predators upon the high density of slow growing panfish and the rough fish population. The benefit to bass anglers will be more fish surviving past 14 inches to catch, and for the anglers wanting to harvest bass will be the opportunity to harvest more fish.

The online IFISH tournament registration and result system was started in 2015. The tournament results showed these anglers spent 2,843 hours in 2016, 1,604 hours in 2017, 1,514 hours in 2018, 1,220 hours in 2019, and 982 hours in 2022 on Wheel Lake. They reported 392 legal fish in 2016 for .14 fish per angler hour. They reported 307 legal fish in 2017 for .19 fish per angler hour. They reported 260 legal fish in 2018 for .17 fish per angler hour. They reported 202 legal fish in 2019 for .17 fish per angler hour. They reported 302 legal fish in 2020 for .19 fish per angler hour. They reported 290 legal fish in 2022 for .3 fish per angler hour.

The bluegill and redear sunfish population were sampled in low numbers in 2022. The bluegill and redear populations continue to have poor size structure and body condition. The food and space competition with gizzard shad and common carp have continued the slow growth of the panfish.

In 2022, 57 black crappies were sampled with a PSD of 93, RSD9 of 67, RSD10 of 49, and an RSD11 of 32. 70 white crappies were sampled with a PSD of 96, RSD9 of 81, RSD10 of 73 and a RSD11 of 54. The body condition ratings were 91 and 99. Both crappie populations have seen a dramatic improvement in size indices since 2018. In 2018, the crappie harvest regulation changes to a harvest limit of 25 fish per day with only 10 fish over 10 inches allowed. Anglers should be able to concentrate on crappie with the flooded brush providing excellent habitat.

The channel catfish population was represented by 16 fish in the spring trap nets in 2022. These fish were in good body condition with an average Wr of 102. The PSD of 100 and RSD18 of 94 indicates a population of large fish is present. 700 channel catfish were stocked in 2022.

A brood stock introduction of Flathead catfish was completed in 2000. 126 fish were stocked at an average weight of 4.9 pounds each. These fish should reproduce and maintain a low-density population in the Marsh. Their diet has been shown to consist mainly of gizzard shad, bullheads, crawfish, carp, bluegill and crappie. 10 flathead catfish were collected by DC electrofishing in 2010, 1 in 2011, 4 in 2012, 9 in 2013, 1 in 2014, 8 in 2015 and 10 in 2016. In 2017, 6 fish from 20 to 46 inches were collected. In 2018, 3 fish from 22 to 32 inches were collected. In 2019, 6 fish from 18 to 37 inches were collected. And in 2020, 1 fish was collected at 19 inches in length. In 2022, 3 fish were collected from 26.3 to 40.6 inches in length. Natural reproduction and recruitment have been occurring in Wheel Lake.

The muskie population was sampled by a total of 4 stock size muskie by the spring of 2022 trap net survey (.3 fish per net night). These fish ranged from 37 to 47.2 inches long. The body condition of these fish was good with an average Wr of 91. Muskie had been stocked annually in Wheel Lake since the fall of 1996 at a rate of 1/acre. No muskie were stocked in 2015 or 2016. In 2017, 352 fish at 12.4 inches were stocked. No muskie stocking occurred in 2020 due to COVID production issues at Jake Wolf Hatchery. In 2021, 2,787 fish at 3 inches were stocked in June, and 423 fish at 13 inches were stocked in September. A triennial stocking is now scheduled to maintain a moderate density of healthy muskie. Illinois (Jake Wolf) muskie strain appear to be doing very good in this lake.

White bass have been collected since 2010 in IDNR surveys. They were probably an introduction by anglers from the Illinois River. In 2020, a total of 1 white bass was collected at 17 inches. In 2019, a total of 13 white bass were collected from 12.6 to 17.7 inches. In 2022, a total of 6 white bass were collected from 16.6 to 18.1 inches. The body condition was okay at a Wr of 87. A low-density population will probably be maintained through natural reproduction and recruitment.

A brood stock introduction of redb spotted sunfish was completed in 2010. A total of 850 redb spotted sunfish were introduced on 10/27/2010. These fish were propagated at the Fish Preserve Lake at Emiquon. The fish were released into several sections of Wheel Lake in groups of approximately 100 fish each. No redspots were sampled in 2011 to 2019 surveys. In 2020, 5 Red spotted sunfish were sampled from 1.9 to 3.4 inches. In 2021, 1 red spotted sunfish was sampled at 4.8 inches. And in 2022, 4 red spotted sunfish were sampled from 3 to 4.1 inches. These fish were found in several locations near thick coontail beds or dense woody vegetation. Future fish surveys will continue to document survival and recruitment.

A brood stock introduction of 70 starhead topminnows was completed on 9/12/2011 from the site rearing ponds. Starhead topminnows have established a self-sustaining population in Johnson Lake and Shovel Lake at Banner Marsh. No Starhead topminnows were observed in Wheel Lake in 2012 or 2013. In 2014 thru 2022, adult and YOY starhead topminnows were observed throughout Wheel Lake with the vegetation survey and fall electrofishing surveys.

Glass shrimp were observed in the main lake during the fall 2010 and 2014 electro fishing survey.

In 2016, a stocking of 44 adult bowfin was completed on 3/30/2016 from the Emiquon Preserve. These fish were all floy tagged and part of the INHS study on ancient fish in Illinois. A very low population of bowfin (2 fish) had been sampled in Johnson Lake over the last 25 years. This stocking is an effort to establish a self-sustaining population at a site that has excellent habitat for their survival and recruitment. In the 2019, spring trapnet surveys, 1 large bowfin was collected in Wheel Lake section. No bowfin were collected in 2020-2022.

Recommended Lake Management Activities with Rationale for Implementation:

Fish Stocking - Channel catfish 700/year, 2.0/acre, 8 in.
- Muskie 350 every 3rd year, 1/acre, 10 in.

Supplemental stocking is required for all the above species due to no natural recruitment currently occurring in Wheel Lake.

Evaluate the reintroduction of Spotted gar back into the marsh to enhance the diversity of the current food chain.

Biological Surveys - Conduct annual surveys to measure trends in fishery population dynamics, angling regulations and progress toward management goals. In the fall, utilize by standardized methods, D.C. electrofishing to sample a target number of at least 100 stock-size largemouth bass. In the spring, assess the black and white crappie, bluegill, muskie and channel catfish populations by a trap net survey. In the summer, complete an aquatic vegetation and topminnow survey.

Toxicant Fish Control - limited application may be necessary to rehabilitate seasonally isolated ponds which contain severely imbalanced fish populations.

Aquatic Vegetation Control - limited need or application due to management goal of providing diverse, significant habitat for fish and wildlife. In 2020, the kids' pond was treated with fluridone to maintain aquatic vegetation at less than 20% coverage.

In 2017, 2018, and 2020, a late summer application of Rodeo herbicide was applied to the very vigorous stand of phragmites that has developed at the main access boat ramp. The results have been very good. This phragmites control will continue for the future to maintain the access. An annual mid-summer vegetation survey will be completed as time permits to document trends and exotic species (i.e. Eurasian Milfoil). A vegetation survey was completed in 2020.

Lake Access - coordinate with the site staff on the development of shoreline fishing areas. Maintain the highly accessible "Kids Only" fishing pond/area near the current boat ramp. The IFISH online fishing tournament registration has worked very well. Coordination on the site use has been good and conflicts have been minimal with the public.

Site Map - update the site map of the water bodies as needed.

Wheel Lake Largemouth Bass Index Table

Year	Stock #	PSD	RSD14	RSD15	RSD16	RSD17	RSD18	RSD19
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1996	140	25.7	11.4	11.4	7.1	5.7	2.9	
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1997	155	14.8	5.8	3.9	3.9	3.9	1.9	
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1998	186	40.9	10.2	7.5	5.9	4.8	4.3	
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1999	129	62.8	24.0	13.2	6.2	4.7	3.9	
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---New regulation 12-18" protected slot, 3 fish daily creel---

2000	115	41.7	23.5	13.9	6.1	3.5	2.6	
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2001	165	50.9	36.4	25.5	17.0	8.5	4.2	
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2002	98	53.1	29.6	26.5	15.3	9.2	4.1	
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2003	175	53.7	35.4	32.0	22.9	13.7	5.1	
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2004	127	44.1	29.1	24.4	15.0	9.4	6.3	
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2005	194	35.6	20.6	17.5	9.3	8.2	2.6	
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2006	267	53.2	36	30.7	21.7	16.9	10.5	
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2007	242	75.6	41.3	34.3	22.7	16.1	10.3	
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2008	125	75.2	47.2	36.8	28.0	20.8	7.2	
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2009	228	48.2	26.8	22.4	15.8	10.1	7.0	
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2010	249	66.7	39.4	31.7	20.9	15.3	7.2	
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2011	267	59.6	40.1	31.1	22.5		7.9	6.0
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2012	374	63	41	34	23	14	6	4
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2013	239	66.5	38.5	31.4	22.6	15.5	7.9	4.6
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2014	135	75	42	39	29	22	8	7
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2015	209	47	32	27	21	18	11	8
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2016	144	46	19	15	10	5	3	2
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2017	161	54	36	27	16	10	8	6
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2018	187	51	21	16	10	6	4	3
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2019	148	64	28	17	10	6	4	3
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2020	231	56	32	25	12	8	4	2
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2021	212	73	31	23	13	6	3	1
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2022	203	73	43	30	21	10	6	2
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Wheel Lake Fish Tournament Results for 2022

Start Date	ID	Fish Hours	Total Boats	Total Anglers	Species 1	Total Fish	Total Pounds
09-25-2022	<u>20011</u>	7	21	42	LMB	89	102.13
09-24-2022	<u>19718</u>	8	8	8	LMB	77	0.00
09-03-2022	<u>20176</u>	8	13	26	LMB	28	45.25
08-13-2022	<u>21012</u>	8	0	0	LMB	0	0.00
08-07-2022	<u>20873</u>	6	10	20	LMB	24	24.05
07-30-2022	<u>20246</u>	8	8	15	LMB	27	25.19
07-16-2022	<u>21009</u>	8	4	4	LMB	17	52.23
06-26-2022	<u>20517</u>	6	12	24	LMB	28	33.12
05-21-2022	<u>20420</u>	16	9	17	MUE	0	0.00

Totals: Bass angler hours 982 # Bass 290

Waterbody	Species	Size (in)	Count	Delivery Date	Source
Wheel Lake - Banner Marsh (04053)	Channel Catfish	7.2	700	9/8/2022	#1 Little Grassy Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	13	423	9/7/2021	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	8	1505	8/26/2021	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	3	2787	6/3/2021	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	8	904	8/19/2020	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	8.4	490	7/24/2019	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	8.4	490	7/24/2019	#1 Little Grassy Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	6.4	541	7/20/2018	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	9.3	451	9/7/2017	#1 Little Grassy Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	12.4	352	8/29/2017	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	8	700	7/26/2016	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	8	700	7/29/2015	#1 Little Grassy Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	11.8	350	9/3/2014	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Channel Catfish	6	700	8/11/2014	#1 Little Grassy Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	1	48384	4/28/2014	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	11	350	10/10/2013	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	11	25	8/21/2012	#2 Jake Wolf Hatchery (09000)
Wheel Lake - Banner Marsh (04053)	Muskellunge	11	329	8/16/2012	#2 Jake Wolf Hatchery (09000)

