

LAKE MANAGEMENT STATUS REPORT

Date of Report: 6/27/2024 **Fisheries Manager:** Rob Hilsabeck
District No.: 4 **LAKE NAME:** Johnson Lake BMSFWA **County:** Peoria **Water**
No.: 0037 **Ownership:** State **Acreage:** 600

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 completed on 4/11 and 4/12 in 2023.
2. Jake Wolf stocked 23,120, 1.9-inch Walleye - 6/1/23.
3. Little Grassy Hatchery stock 800, 8-inch channel catfish on 8/2/2023.
4. Conducted Fall Population Survey using D.C. electrofishing- 10/12/2023.
5. Site staff maintained a large, covered, handicap accessible fishing dock near the main boat ramp.
6. Registered tournament fishing groups at Banner Marsh for 2023.
7. Treated phragmites near the boat access with Aquaneat Herbicide on 8/22/2023.

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Channel Catfish													LMP Obj.
Stock#		3	7	4	18	6	7	2	2	8	24	2	
PSD		33	100	100	100	100	86	50	100	88	96	100	
RSD18		33	86	100	94	100	86	50	100	88	96	100	10-20
Wr		92	121	112	109	120	115	97	95	97	117	91	90-110
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Walleye													LMP Obj.
Stock#		39	7	2	3	9	4	11	0	3	7	3	
PSD		100	86	100	100	100	100	100		100	100	100	50-60
RSD18		97	86	0	100	100	100	100		100	100	100	20-40
CPUE NN		1.8	0.3	0.25	0.19	0.56	0.5	0.92		0.19	0.44	0.19	1/netN
Wr		98	86	92	100	100	115	102		102	102	107	90-110
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Northern Pike													
Stock#		1	3	1	1	2	1	0	0	1	1	2	
PSD		100	100	100	100	100	100	0		100	100	100	
RSD26		100	33	0	100	100	100	0		100	0	50	
CPUE NN		0.05	0.13	0.13	0.06	0.13	0.13	0		0.06	0.06	0.13	
Wr										93	103	87	
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Mue													
Stock#		57	52	27	59	54	35	43	1	17	17	21	
PSD		81	85	78	83	74	89	100	100	100	100	95	
RSD42		4	8	4	9	6	3	2	0	6	18	5	
Wr		93	96	94	93	92	85	93	76	94	101	103	90-110
CPUE NN		2.9	2.6	2.1	3.2	3.4	3.6	3.6		1.1	1.1	1.3	.3/netN

4. In 2023, 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 2023, 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 105 stock size bass from electrofishing with 123 minutes of effort.

The largemouth bass population appears to be defined by a high percentage of fish from 6 to 19 inches in length with good average Relative weights. 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 2023 electrofishing survey indicated a size structure that has maintained a consistent level since 2007. The PSD of 60, RSD14 of 54, RSD16 of 40 and the RSD18 of 18 are very good and consistent over the past four years. The average body condition was at a Wr of 97.

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 3,269 hours in 2016, 3,974 hours in 2017, 4,788 hours in 2018, and 6,072 hours in 2019, 4,706 hours in 2022 on Johnson Lake. They reported 554 legal fish in 2016 for .17 fish per angler hour. They reported 517 legal fish in 2017 for .13 fish per angler hour. They reported 529 legal fish in 2018 for .11 fish per angler hour. They reported 836 legal fish in 2019 for .14 fish per angler hour. They reported 608 legal fish in 2020 for .17 fish per angler hour. They reported 899 legal fish in 2022 for .19 fish per angler hour.

The bluegill and redear sunfish populations were not sampled in 2023. The current bluegill and redear condition is of a poor state with a poor

growth rate. The competition with the gizzard shad and carp have maintained this growth slowdown.

In 2023, the walleye population was sampled by 3 fish in 16 net nights of effort (.19 fish per net night). These fish ranged from 25.6 to 28 inches long. The body condition of these fish was very good at an average Wr of 107. At this time the stocking of 2 inch walleye may have variable recruitment to the lake's walleye population. Several factors have probably contributed to this variability. They include: the increased density and size structure of the bass population and the esocid population, and the small size of the walleye being stocked. The bass in particular, and maybe the esocids are probably out competing and also eating the small walleye being stocked. In 1997 and 1995, 4 inch walleye were stocked and in 2000, 316 walleye at an average size of 8 inches were stocked into Johnson Lake from the site rearing ponds. The survival of these fish should be very good, but the numbers are limited. No walleye stocking occurred in 2011 due to a shortage from the state hatchery system. In 2012, 2013, 2014 and 2015 over 19,000 walleye at 1.25 to 2 inches were stocked each year. In 2016 through 2022, over 24,000 walleye at 1.5 inches were stocked each year. In 2023, 23,120 fish at 1.9 inches long were stocked.

The northern pike population was represented by 1 fish in both 2021 and 2022. In 2023, 3 northern pike were sampled. In 2001 the northern pike stocking was discontinued and switched to stocking pure muskie. The CPUE for 2023 was .13 fish per trap net night and reflects the low-density northern pike population. The northern pike had done fine, but currently the muskie is a more desired trophy fish and can obtain a much larger size.

The muskie population was sampled by a total of 21 stock size muskie by the spring of 2023 trap net survey (1.3 fish per net night) and 4 fish in the fall electrofishing survey. These fish ranged from 25.9 to 48 inches long. The body condition of these fish was good with an average Wr of 103. In 2001, a total of 2,174 muskie at an average size of 11.4 inches were stocked, in 2002, 725 muskie at an average size of 10.9 inches were stocked and in 2003, 1333 muskie at an average size of 10 inches were stocked into Johnson Lake. No muskie were stocked in 2004, but 600 at 10 inches long were annually from 2005 through 2014. No muskie were stocked in 2015 or 2016. In 2017, 602 fish at 12.4 inches were stocked. No muskie were stocked in 2020 due to COVID-19 hatchery production and brood fish collection. In 2021, a stocking of 5,570 fish at 3 inches long occurred on

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6/3/2021 and a stocking of 738 fish at 13 inches occurred on 9/7/2021. A triennial stocking is now scheduled to maintain a moderate density of healthy muskie.

In 2023, 5 stock size black crappie were sampled with a PSD of 100, RSD9 of 100, RSD 10 of 80, and RSD 11 of 40. No white crappie were sampled in 2023. Black crappie had poor average WR value of 82. The body condition of both populations had decreased over the last 6 years. In 2018 the crappie harvest regulation changed 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 sampled by 3 fish in 2023. These fish ranged in size from 13.1 to 24.7 inches and were in good body condition with a Wr average at 91. A low density population is present and an annual stocking of 800 fish is scheduled. In 2012, 684 fish were stocked at 8 to 10 inches long. 527 in 2013 and 800 in 2014, 2015 and 2016. 513 fish were stocked in 2017. 657 fish were stocked in 2018. 560 fish were stocked in 2019. 1003 fish were stocked in 2020. 1596 fish were stocked in 2021. And 800 fish were stocked in 2022 and 2023.

A brood stock introduction of Flathead catfish was completed in 2000. 158 fish were stocked at an average weight of 4.7 pounds each. These fish should reproduce and maintain a low density population in the Marsh. The diet has been shown to consist mainly of gizzard shad, bullheads, crawfish, carp, bluegill and crappie. 3 fish were sampled in 2016 and ranged from 34.3 to 42.5 inches long. 1 fish at 32.5 inches was sampled in 2017. No fish were sampled in 2018. And 1 flathead at 31 inches was sampled in 2019. No fish were sampled in 2020. 1 fish at 36.2 inches in 2021, and no fish were sampled in 2022 or 2023.

A brood stock introduction of redspotted sunfish was completed in 2010. A total of 407 redspotted sunfish were introduced on 5/7/1010 and 750 fish on 10/27/2010. These fish were propagated at the Fish Preserve Lake at Emiquon. The fish were released into several sections of Johnson Lake in groups of approximately 100 fish each. No redspots had been sampled in the 2011 to 2018 surveys. But in 2019, 2 redspots were sampled from 3.1 to 3.9 inches long from a beaver house in the final cut section, east of the handicap dock. And in 2020, 5 redspots were sampled from 2.9 to 3.7 inches in multiple locations along the dense coontail beds. In 2021, 3 redspots were sampled and none were sampled in 2022 or 2023. Future fish surveys will attempt to document survival and recruitment.

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In 2008 a brood stock introduction of starhead topminnows was completed into two small ponds that are connected to the main Johnson Lake with high water. These ponds were being used as rearing ponds for the Emiquon restoration. In 2009 and 2010 starhead topminnows were raised in the site rearing ponds with pumpkinseed sunfish and alligator gars. Starhead topminnows have been allowed to colonize the main lake from these rearing ponds.

Starhead topminnows have established a self-sustaining population in Banner Marsh. The very clear water and dense submerged rooted aquatic plants appear to be key habitat requirements for their success.

In 2016, a stocking of 35 adult bowfin was completed on 3/29/2016 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) have 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 fall 2018 surveys, 1 tagged bowfin was collected in both the Johnson and Shovel Lake sections. One bowfin was collected in Wheel Lake in the 2019 trapnet survey. No bowfin were collected in 2020 or 2021, but in 2022 a 12.4 inch fish was collected in the fall electrofishing survey. And in 2023, 2 fish were collected. It appears recruitment may have been documented.

Recommended Lake Management Activities with Rationale for Implementation:

Fish Stocking - Walleye 24,000/year, 40/acre, 2 in.
 - Muskie 600 every 3rd year, 1.0/acre, 10 in.
 - Channel Catfish 800/year, 1.3/acre, 8 in.

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

- bowfin, spotted gar, starhead topminnow and redspotted sunfish. Evaluate the reintroduction of these historically native species back into the marsh in an effort 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 walleye, northern pike, muskie, black and white crappie, bluegill, redear 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 - overall there has been a limited need or application for submerged rooted aquatic plant control due to management goal of providing diverse, significant habitat for fish and wildlife. Will continue vegetation survey to document trends and exotic species (i.e. Eurasian milfoil) occurrence. In 2017, 2018, 2019, 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. These treatments have been very successful. This phragmites control will continue for the future to maintain the access. A vegetation survey was completed in 2020.

Lake Access - Coordinate with the site staff on the development of shoreline fishing areas. The handicap accessible fishing dock at the main access has been an excellent addition. 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.

BANNER MARSH STAFF GAUGE READINGS ON JOHNSON LAKE

2/5/2002	436.9		
7/16/2002	436.1		
3/27/2003	436.0		
6/11/2003	436.5		
7/8/2003	436.5		
7/16/2003	436.8		
9/24/2003	436.2		
10/31/2003	436.2		
3/30/2004	436.9		
4/8/2004	436.85		
5/19/2004	436.8		
7/7/2004	436.6		
10/6/2004	435.8		
7/14/2005	435.95		
1/31/2006	435.20		
7/12/2006	434.80		
8/2/2006	434.50		
10/17/2006	434.0		
1/11/2007	434.80		
3/27/2007	436.10		
4/15/2007	436.20		
8/1/2007	436.20		
10/17/2007	435.00		
1/11/2008	435.70		
3/31/2008	436.60		
7/11/2008	436.25		
8/29/2008	435.80		
10/23/2008	436.80		
2/23/2009	437.50		
8/7/2009	437.20		
7/7/2010	437.00		
7/15/2011	437.2		
8/24/2011	436.4		
10/20/2011	435.6		
5/9/2012	436.2		
9/13/2012	435.0		
1/11/2013	435.0		
5/30/2013	est. 437.0		
7/18/2013	436.1		
3/31/2014	435.9		
7/9/2014	436.2		
7/9/2015	437.8		
6/17/2016	436.2		
8/17/2018	435.6	8/14/2019	435.5
		8/25/2020	435.9

Johnson Lake Largemouth Bass Index Table

Year	Stock #	PSD	RSD14	RSD15	RSD16	RSD17	RSD18	RSD19
1996	161	70.8	24.2	13.7	8.7	4.3	1.9	
1997	247	64.4	12.6	8.1	4.9	3.6	2.8	
1998	142	71.1	29.6	16.9	4.2	1.4	1.4	
1999	89	75.3	34.8	25.8	7.9	3.4	0.0	
--- New regulation 12-18" protected slot, 3 fish daily creel---								
2000	102	72.5	49.0	33.3	17.6	11.8	4.9	
2001	117	76.9	52.1	37.6	15.4	8.5	1.7	
2002	172	84.3	50.6	36.6	16.9	8.1	1.2	
2003	124	86.3	56.5	37.1	12.9	7.3	1.6	
2004	122	83.6	67.2	49.2	22.1	10.7	4.9	
2005	121	80.2	59.5	51.2	25.6	9.1	.8	
2006	110	89	63	40	16	5.5	1.8	
2007	94	81.9	59.6	44.7	24.5	12.8	0.0	
2008	89	58.4	44.9	42.7	23.6	12.4	4.5	
2009	110	90	55.5	46.4	30.9	21.8	10.9	
2010	106	79.2	67.9	55.7	27.4	17.9	4.7	1.9
2011	104	66.3	56.7	51.9	34.6	19.2	6.7	3.8
2012	102	76.5	36.3	28.4	21.6	15.7	7.8	5.9
2013	103	88.3	64.1	51.5	35.0	23.3	13.6	9.7
2014	132	75	63	57	48	34	18	9
2015	112	69	54	48	35	29	16	6
2016	97	62	34	28	23	12	5	1
2017	75	69	45	31	20	12	8	5
2018	140	79	54	48	36	25	15	6
2019	67	75	55	45	30	19	8	2
2020	89	65	55	49	28	20	7	2
2021	66	76	68	62	42	33	23	5
2022	93	65	51	42	29	20	16	3
2023	105	60	54		40		18	

Waterbody	Species	Size (in)	Count Or Weight	Delivery Date	Source
Johnson Lake - Banner Marsh (00037)	Channel Catfish	7.2	800	9/8/2022	#1 Little Grassy Hatchery (09050)
Johnson Lake - Banner Marsh (00037)	Walleye	1.5	26724	5/31/2022	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Muskellunge	13	738	9/7/2021	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	8	1596	8/26/2021	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Muskellunge	3	5570	6/3/2021	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1.5	35000	5/24/2021	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	8	1003	8/19/2020	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1.4	13833	5/28/2020	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1.5	10272	5/28/2020	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	8.4	560	7/24/2019	#1 Little Grassy Hatchery (09050)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	5.5	560	7/24/2019	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	2	24000	6/1/2019	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	6.4	657	7/20/2018	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1.8	24352	6/1/2018	#3 LaSalle Fish Hatchery (09010)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	9.3	513	9/7/2017	#1 Little Grassy Hatchery (09050)
Johnson Lake - Banner Marsh (00037)	Muskellunge	12.4	602	8/29/2017	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1.8	24180	6/1/2017	#3 LaSalle Fish Hatchery (09010)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	8	800	7/26/2016	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1.5	24118	5/24/2016	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	8	800	7/29/2015	#1 Little Grassy Hatchery (09050)
Johnson Lake - Banner Marsh (00037)	Walleye	1.5	19732	5/19/2015	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Muskellunge	11.8	603	9/3/2014	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Channel Catfish	6	800	8/11/2014	#1 Little Grassy Hatchery (09050)
Johnson Lake - Banner Marsh (00037)	Walleye	1.25	24541	5/22/2014	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Muskellunge	1	36084	4/28/2014	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	24	24	3/28/2014	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Muskellunge	11	600	10/10/2013	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	2	5520	6/6/2013	#3 LaSalle Fish Hatchery (09010)
Johnson Lake - Banner Marsh (00037)	Walleye	1	15498	5/21/2013	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Muskellunge	11	600	8/21/2012	#2 Jake Wolf Hatchery (09000)
Johnson Lake - Banner Marsh (00037)	Walleye	1	21600	5/11/2012	#2 Jake Wolf Hatchery (09000)

Johnson Lake Fish Tournament Results 2022

Start Date	ID	Fish Hours	Total Boats	Total Anglers	Species 1	Total Fish	Total Pounds		
09-24-2022	<u>19999</u>	7	21	42	LMB	96	136.44		
09-24-2022	<u>19697</u>	8	30	30	LMB	90	0.00		
09-17-2022	<u>20430</u>	8	43	86	LMB	100	365.50		
09-15-2022	<u>22299</u>	7	15	17	LMB	23	59.88		
08-28-2022	<u>20870</u>	6	10	20	LMB	21	22.83		
08-14-2022	<u>19945</u>	8	22	44	LMB	53	149.93		
08-13-2022	<u>21010</u>	8	4	4	LMB	18	44.96		
08-07-2022	<u>19923</u>	8	40	80	LMB	36	136.80		
07-31-2022	<u>20360</u>	5	10	20	LMB	4	15.50		
07-17-2022	<u>20428</u>	8	46	92	LMB	124	446.50		
07-16-2022	<u>21007</u>	8	1	2	LMB	10	20.35		
07-10-2022	<u>19936</u>	7	20	40	LMB	98	184.38		
07-03-2022	<u>20550</u>	8	8	16	LMB	22	34.52		
06-23-2022	<u>21401</u>	7	16	16	LMB	34	107.90		
06-22-2022	<u>20326</u>	3	10	20	LMB	2	9.38		
06-05-2022	<u>20513</u>	6	13	26	LMB	21	35.19		
06-04-2022	<u>20493</u>	8	8	13	LMB	9	30.35		
05-21-2022	<u>20419</u>	16	9	17	MUE	0	0.00		
05-15-2022	<u>20074</u>	7	23	46	LMB	42	69.38		
05-14-2022	<u>19907</u>	6	12	16	LMB	25	60.59		
04-16-2022	<u>21370</u>	8	24	57	LMB	66	192.21		
04-09-2022	<u>20380</u>	5	24	12	LMB	5	19.31		

Totals: Angler hours 4,706

899