

## LAKE MANAGEMENT STATUS REPORT

**DATE OF REPORT:** 6/27/2024      **FISHERIES MANAGER:** Rob Hilsabeck  
**DISTRICT No.:** 4      **LAKE NAME:** Shovel Lake BMSFWA      **COUNTY:** Fulton  
**WATER No.:** 0505      **OWNERSHIP:** State      **ACREAGE:** 200

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 4/11 and 4/12 in 2023.
2. No fish stocking in 2020 in Shovel Lake.
3. Conducted Fall Population Survey using D.C. electrofishing - 10/10/2023.
4. Registered tournament fishing groups at Banner Marsh for 2023.
5. Treated phragmites near the boat access with Aquaneat Herbicide on 8/22/2023.

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		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
													LMP
Largemouth Bass													Objective
Stock Number		127	91	117	219	119	186	71	149	76	137	126	100
PSD		65	73	68	59	82	74	85	40	68	69	60	40-60
RSD14		42	41	45	29	52	60	72	29	53	45	44	
RSD16		27	24	21	12	26	37	44	21	41	31	29	
RSD18		10	10	8	4	9	11	18	12	15	18	12	5-10
Wr > 8"		91	93	98	97	95	97	96	92	91	94	93	90-110
YAR		0.1	0.1	0.1	0.1	0.7	0.3	0.2	0.2	0.1	0.2	0.1	
CPUE Stock		1.3	0.73	1.1	1.8	1.4	1.8	1.2	2.3	1.2	2.3	2.1	1/Min
Effort		98	124	103	120	87	101	60	66	64	60	60	
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Bluegill													
Stock #		38	17	6	19	73	1	29	0	13	25	14	
PSD		92	88	100	53	6	0	14		77	92	71	
RSD7		0	12	0	0	0	0	3		0	20	0	
Wr > 5"		87	92	82	76	94	1	73		88	86	83	
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Black Crappie													LMP Obj
Stock#		13	35	11	31	35	19	24	26	17	12	64	
PSD		92	100	91	94	94	95	96	73	47	92	77	30-50
RSD9		92	97	82	68	77	95	50	39	24	50	58	
RSD10		62	94	82	52	63	95	46	23	18	17	44	20-40
RSD11			63	73	32	37	74	33	4	12	8	36	5-10
Wr > 8"		94	92	92	90	94	97	99	97	100	86	98	90-100
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Channel Catfish													LMP Obj.
Stock#		3	4	3	13	6	0	0	0	1	0	3	
PSD		100	100	100	100	100				100		100	
RSD18		67	100	100	100	100				100		100	10-20
Wr		117	126	134	108	112				109		123	90-110

		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Mue													
Stock#		15	32	17	47	36	14	10	2	17	12	8	
PSD		100	94	65	85	83	86	80	100	100	100	88	
RSD42		7	10	0	9	3	0	0	0	12	8	13	
Wr		89	100	91	97	103	90	94	96	96	96	105	90-110
CPUE NN		1	1.6	0.88	2.5	2.3	1.1	0.5		1.1	0.8	0.5	.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 126 stock size bass from electrofishing with 60 minutes of effort.

The largemouth bass population appears to be defined by a high percentage of fish from 4.0 to 20 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 fall electrofishing survey indicated a size structure that is continuing to maintain a very good level and stability since 2004. The PSD of 60, the RSD14 of 44, the RSD16 of 29 and the RSD 18 of 12 were all very good.

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

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panfish and the rough fish population. The benefit to bass anglers will be more fish surviving past 14 inches to catch, and for 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 1,552 hours in 2016, 1,140 hours in 2017, 932 hours in 2018, 556 hours in 2019, and 718 hours in 2022 on Shovel Lake. They reported 141 legal fish in 2016 for .09 fish per angler hour. They reported 131 legal fish in 2017 for .11 fish per angler hour. They reported 133 legal fish in 2018 for .14 fish per angler hour. They reported 110 legal fish in 2019 for .20 fish per angler hour. They reported 129 legal fish in 2020 for .10 fish per angler hour. They reported 232 legal fish in 2022 for .32 fish per angler hour.

The muskie population was sampled by a total of 8 stock size muskie by the spring of 2023 trap net survey (.5 fish per net night). These fish ranged from 25.6 to 45 inches long. The body condition of these fish was good with an average Wr of 105. The first stocking of 450 fish at 11 inches was in 1999. In 2000, a total of 200, 2001-600, 2002-200, 2003-200, 2004-0, and 200 annually from 2005 through 2014 at an average size of 11.2 inches were stocked. No muskie were stocked in 2015 or 2016. In 2017, 200 fish at 12.4 inches long were stocked. In 2021, 2,788 fish at 3 inches were stocked in June, and 240 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 good in this lake. No muskie stocking occurred in 2020 due to COVID work restrictions effecting hatchery production.

14 stock size bluegill and 2 stock size redear sunfish were sampled in 2023. The population for both of these species has remained poor in size structure and body condition. The competition with the gizzard shad and carp have caused this growth slowdown.

4 channel catfish were sampled in 2023. No recent channel **LAKE**

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catfish stockings have occurred in Shovel Lake.

The black crappie population was surveyed by 64 stock size fish in 2023. The PSD was 77, the the RSD9 was 58, the RSD10 was 44, and the RSD11 was 36. The body condition was good with a Wr value at 99. This is a marked improvement for the larger size structure of the black crappie population. It had been on a downward trend since 2019 in Shovel Lake.

No white crappie were surveyed in 2023. This population is present in a very low density of quality fish.

In 2018 the crappie harvest regulation changed to a harvest limit of 25 fish per day with only 10 fish over 10 inches allowed.

In 2000, the HREP project added a large amount of habitat to the Shovel lake section. The addition of large woody structure (downed trees and brush piles) was completed along the shoreline of the main lake and the connection to the canal, lotus lake, glove lake and goose mound lake was completed and has provided a major increase in littoral area when this section of the Marsh was refilled in 2001.

A brood stock introduction of redspotted sunfish was completed in 2010. A total of 100 redspotted sunfish were introduced on 5/7/2010. These fish were propagated at the Fish Preserve Lake at Emiquon. The fish were released into the new addition section of Shovel Lake. No red spots have been sampled since that introduction. Another stocking from the Banner Marsh Rearing Ponds should be attempted in the future. The redspotted Sunfish have survived and recruited in the same habitat in other lakes at Banner Marsh.

A brood stock introduction of 100 starhead topminnows was completed into the Shovel extension area on 8/31/11. These fish were propagated in the shower house pond at Jubilee State Park. Adult and YOY starhead topminnows have been observed throughout Shovel Lake.

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In 2016, a stocking of 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 fall 2018 surveys, 1 tagged bowfin was collected in both the Johnson and Shovel Lake sections. In 2019, a mature bowfin was collected in the Wheel Lake section. In 2022, A YOY bowfin was collected in the Johnson Lake section.

Recommended Lake Management Activities with Rationale for Implementation:

Fish Stocking - Muskie 200 fish every 3<sup>rd</sup> year, 1/acre, 12 in. Supplemental stocking is required for all the above species due to no natural recruitment at Shovel Lake.

- spotted gar. Consider and evaluate the potential of reintroducing these historically native species back into the marsh to enhance the diversity of the current fishery.

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, muskie, black crappie, bluegill, redbreast 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 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). In 2017,

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2018, 2019, 2020, and 2023 a late summer application of glyphosate herbicide was applied to the very vigorous stand of phragmites that had 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.

Habitat Enhancement - The major addition of woody habitat (downed trees and brush piles) along the final cut banks of Shovel Lake in 2000 added significant habitat. And the connection to the rest of the Shovel Lake section increased the littoral zone of Shovel Lake by over 100% with the addition of approximately 100 more surface acres of water.

Lake access - coordinate with the site staff on the development of shoreline fishing areas. The raising of the township road, powerline roadway has provided another easily accessible shoreline fishing area. And in 2018, the power company raised the roadway along the powerlines at the base of the levee. This has created another shoreline fishing area. 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.

Shovel Lake Largemouth Bass Index Table

Year	Stock #	PSD	RSD14	RSD15	RSD16	RSD17	RSD18	RSD19
1996	123	42.3	13.0	8.9	7.3	7.3	5.7	
1997	205	25.4	6.3	3.9	2.4	2.4	2.0	
1998	101	55.4	21.8	11.9	5.0	3.0	2.0	
1999	110	64.5	19.1	4.5	1.8	1.8	.9	
---- New regulation 12-18" protected slot, 3 fish daily creel----								
2000	154	62.3	30.5	14.9	5.2	3.9	1.9	
2001								
2002	134	62.7	45.5	38.1	21.6	12.7	3.7	
2003	159	64.2	45.3	34.6	20.1	10.1	3.1	
2004	167	56.3	33.5	26.3	16.2	8.4	1.2	
2005	113	63.7	38.9	31.0	20.4	11.5	4.4	
2006	84	54.8	40.5	29.8	20.2	19.0	8.3	
2007	93	63.4	45.2	36.6	28	16.1	10.8	
2008	81	53.1	40.7	30.9	27.2	19.8	7.4	
2009	113	56.6	32.7	25.7	19.5	15.9	8.0	
2010	103	62.1	45.6	42.7	29.1	23.3	10.7	5.7
2011	100	73.0	53.7	46.0	38.0	32.4	17.0	8.3
2012	120	59	43	38	21	16	12	6
2013	127	65.4	41.7	37	26.8	20.5	10.2	3.9
2014	91	73	41	36	24	19	10	9
2015	117	68	45	33	21	15	8	6
2016	219	59	29	24	12	8	4	2
2017	119	82	52	45	26	19	9	4
2018	186	74	60	52	37	26	11	7
2019	71	85	72	63	44	34	18	9
2020	149	40	29	25	21	17	12	9
2021	76	68	53	45	41	29	15	4
2022	137	69	45	37	31	26	18	5



Shovel Lake Fish Tournament Results 2022

Start Date	ID	Fish Hours	Total Boats	Total Anglers	Species 1	Total Fish	Total Pounds		
09-24-2022	<u>19707</u>	8	10	10	LMB	65	0.00		
09-10-2022	<u>20018</u>	6	12	16	LMB	21	32.95		
08-13-2022	<u>21011</u>	8	4	4	LMB	19	46.82		
08-06-2022	<u>20376</u>	3	7	14	LMB	2	8.81		
07-16-2022	<u>21008</u>	8	4	4	LMB	19	48.71		
07-10-2022	<u>20518</u>	6	11	22	LMB	38	68.50		
05-14-2022	<u>19916</u>	16	10	19	LMB	68	116.00		
04-02-2022	<u>21022</u>	7	12	24	CRP	38	39.56		

Totals: Bass Angler hours 718 # Bass 232

Shovel Lake Stocking record 2012-2022.

Waterbody	Species	Size (in)	Count	Delivery Date	Source
Shovel Lake - Banner Marsh (00505)	Muskellunge	13	240	9/7/2021	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	3	2788	6/3/2021	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	12.4	200	8/29/2017	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	11.8	202	9/3/2014	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	1	69443	4/28/2014	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	11	200	10/10/2013	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	11	200	8/21/2012	#2 Jake Wolf Hatchery (09000)
Shovel Lake - Banner Marsh (00505)	Muskellunge	0	62067	4/9/2012	#2 Jake Wolf Hatchery (09000)

