LAKE MANAGEMENT STATUS REPORT

DATE OF REPORT: 6/28/2024 **FISHERIES MANAGER:** Rob Hilsabeck
DISTRICT No.: 4 **LAKE NAME:** Duck Island and Big Lake
COUNTY: Fulton **WATER No.:** 15048 and 4059 **OWNERSHIP:** State
ACREAGE: 166 and 1400

D.F.M. **DATE** **R.F.M.** **DATE**

1. Fishery regulations - sport fishing seasons and limits are uniform with statewide rules. However, boat fishing is not allowed during the waterfowl hunting season and the week preceding it.

Effective 4/1/2000, Largemouth and Smallmouth Bass will have a 12 inch minimum size limit on the Illinois river and all backwaters.

2.

1. D.C. electrofishing survey was completed on Duck Island stations and the Big Lake station 6/1/2023.

2. A severe, low D.O. fish kill was documented in adjacent Rice Lake on August 30, 2023.

3. IDNR Fisheries stocked 1,000 alligator gar at an average length of 10.5 inches on 8/30/2023 from the Jake Wolf Fish Hatchery.

3.

	2004	2005	2008	2009	2010	2011	2012	2013	2016	2017	2018	2019	2020	2021	2022	2023
Sample Tme	30	20	35	33	27	32	23	75	40	60	60	63	X	60	60	60
# Species	17	15	27	29	24	24	18	28	23	32	24	37		26	26	27
Largemouth Bass																
# Fish	22	5	93	59	49	31	9	13	21	14	7	21		7	1	4
CPUE	0.7	0.3	2.7	1.8	1.8	1	0.4	0.2	0.5	0.2	0.1	0.3		0.1	0.02	0.07
Size range	4-18	2-16	3-17	5-16	8-18	3-17	4-17	3-20	7-16	6-14	9-14	4-15		5-15	7	5-10
Wr > 8"	122	89	114	104	119	105	110	117	106	100	105	107		107	115	112
Bluegill																
# Fish	4	11	112	149	54	49	14	39	135	162	49	315		117	61	46
CPUE	1.4	0.6	3.2	4.5	2	1.5	0.6	0.5	3.4	2.7	0.8	5		2	1	0.8
Size Range	2-7	2-6	2-8	2-8	2-10	2-7	2-7	2-7	2-7	2-8	2-8	2-8		2-8	2-8	2-7
Wr > 5"	131	126	115	105	112	112		121	107	122	112	113		118	104	116
White Crappie																
# Fish	0	2	2	2	2	0	2	1	1	4	2	23		2	0	3
CPUE		0.1	0.06	0.06	0.07		0.09	0.01	0.03	0.07	0.03	0.37		0.03	0	0.05
Size Range		8-9	8-10	2-11	10-11		11-12	2	11	7-12	9-10	3-13		6-11	0	3-7
Black Crappie																
# Fish	0	0	16	8	28	10	2	0	6	1	2	39		0	3	2
CPUE			0.5	0.2	1	0.3	0.1		0.2	0.02	0.03	0.6			0.05	0.03
Size Range			8-11	6-11	6-10	8-11	11-12		5-10	9	8-10	2-11			9-11	8

4. Currently, Duck Island Main Lake is connected directly to Big Lake. Due to the annual inundation of Big Lake and then Rice Lake by the Illinois River and summer water level drawdown for moist soil plant management, fish species management on this small scale is a difficult objective. The associated sedimentation, loss of lake water volume, annual introduction of carp species and the loss of aquatic plants have all negatively impacted the sportfish habitat present in the Rice Lake SFWA Complex. However annual documentation of the fish populations is very important in our understanding of how these backwater lakes function with the Illinois River. The water quality of the Illinois River has drastically improved over the last twenty years, and with this improvement, the fish community has also drastically improved. The key for the future will be the restoration of habitat. In the Illinois River valley, Rice Lake and Anderson Lake are two of the deepest lakes that remain and are predicted to have the longest "half-life" of the remaining bottomland lakes.

The current emphasis on habitat restoration in the Illinois River valley is a strong reason to continue and maintain the fish population documentation in these two lakes. Restoration projects need baseline data, and data that shows the historical potential of the resource, if a good comprehensive project is to be completed. Future backwater lake restoration projects should continue to complement the function of the Illinois River ecosystem and not be focused on single-minded management goals. The data collected now will be needed to evaluate and improve the design for future restoration projects.

The current fishery in Rice Lake is definitely hindered by the lack of deep water habitat for the winter and the summer stress periods. An accessible deep water refuge of 7 to 10 feet of water in approximately 20% of the Rice lake/Big lake complex would be a goal for a future restoration project at this site. The current function of the site is not always beneficial for the fishery of the Illinois River and often may be a death trap.

The Duck Island Main Lake contains a deep water gravel pit that could be utilized now that this 1200 acre land parcel has been obtained by the State of Illinois. This 166 acre lake has a maximum depth of 23.5 feet and an average depth of 10.2 feet at the drawdown level in Big lake. The EMP HREP project plans

with the U.S. Army Corps of Engineers was undertaken after the state's land acquisition of Duck Island was been completed. The 2008-2011, and 2013 fish surveys of the Duck Island Main Lake showed a much higher diversity and sportfish density compared to the surveys in 2003-2005 and 2012. The density of silver carp has remained very high since 2005.

The largemouth bass, bluegill and black crappie populations had been collected at good densities with good body condition ratings until 2012 and then decreased through 2013. In 2016 thru 2019, their levels have increased and reflected an improvement. From 2021 thru 2023 the black crappie and largemouth bass numbers have decreased, while the bluegill have remained rather consistent.

The buffalo, common carp and Asian carp populations continued to be present at high densities and selectively sampled due to the high biomass that was present for sampling.

In 2005, 2008, 2009, 2011, 2013, and 2016 thru 2023 both grass carp and silver carp were sampled.

In 2019, 37 species were sampled and represent a backwater/riverine fish community. This level is the highest in the past 20 years. Since the 2003 survey, over 40 different species have been collected in the annual surveys.

In early July 2003, a severe fish kill occurred in the drawdown water basin of Rice Lake. A conservative estimate of 38,044 fish were killed due to low dissolved oxygen and high-water temperatures. The main fish species in the kill were common carp, bighead carp, brown bullhead, black bullhead, bigmouth buffalo, gizzard shad, freshwater drum, mosquito fish, white crappie, channel catfish and shortnose gar.
No fish kill was observed in 2004.

In late July and early August 2005, repeated low dissolved oxygen fish kills occurred on Rice Lake. Most of the fish killed were large Asian and common carp. The estimated total number killed was 50,000.

And a low D.O. fish kill was noted in Rice Lake in late May

2018. Fish kills have now been documented on almost an annual occurrence in mid-summer in Rice Lake from 2018 thru 2023.

No fish kill occurred in Big Lake or the attached gravel pits during these same time frames. These fish kills indicate that once again, that without a deepwater refuge and/or escapement and with the current water level management, Rice lake will serve as very poor habitat for aquatic life. **The proposed HREP project was supposed to alleviate this problem, however all the project features were not completed as designed!**

The high-water levels have historically been a positive for the sportfish and the overall fish communities in the backwaters along the Illinois River. However, 2017 and 2018 had very low late summer water levels after very high spring levels, and the trend was not so positive for the Rice Lake section of the complex.

Recommended Lake Management Activities with Rationale for Implementation:

Fishery surveys - An annual spring fish population analysis survey utilizing D.C. electrofishing will be used to monitor the fishery and evaluate its quality. The major parameters to be used in measuring the species quality will include the following:

1. Catch per unit of effort values (density using fish/min.).
2. Index of condition (average relative weight Wr).
3. Overall species composition.

Fish Stocking – Utilize Duck Island Large Lake and the attached Big Lake as a reintroduction stocking location for Alligator Gar by the Illinois Department of Natural Resources as part of the approved IDNR Alligator Gar Management Plan.

Future plans – Complete a project that will provide the addition of deep-water habitat for a fish refuge in the Rice Lake and adjacent Big Lake area.