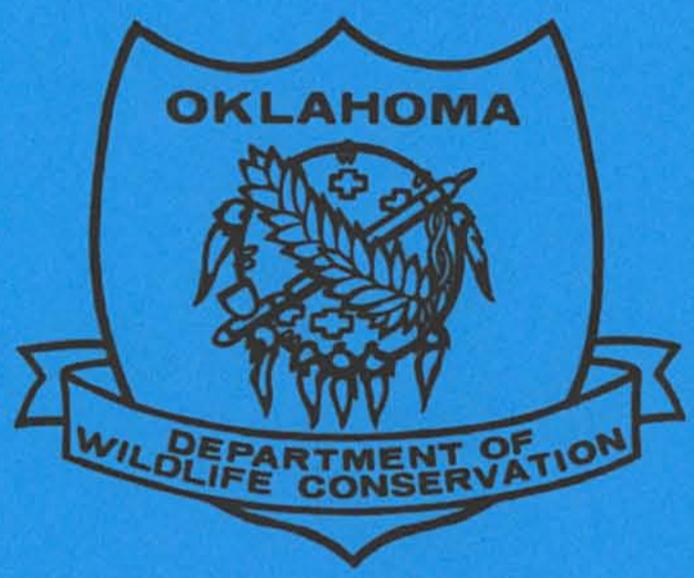


1.4
1.51
1.6
33.0
42.6
47.3

SURVEY REPORT

OKLAHOMA FISHERIES MANAGEMENT REPORT



FISH MANAGEMENT SURVEYS AND RECOMMENDATIONS

FOR

Wewoka Lake

2005

Performance Report

State: Oklahoma

Project No. F 44-D-20

Project Title: Oklahoma Fisheries Management Program

Study Title: Surveys and Recommendations - Wewoka Lake

Period Covered: 1 January 2005 - 31 December 2005

WEWOKA LAKE

ABSTRACT

Wewoka Lake was sampled by and fall electrofishing and gill netting in 2005 to monitor trends in fish populations and to evaluate saugeye stocking success. The crappie population was still in a "stunted" condition with high abundance, and an unsatisfactory size structure. Channel catfish were abundant, and good numbers were of quality size; however, few of trophy size were collected. Abundance and size structure of the blue catfish was adequate for a quality fishery. Saugeye abundance was satisfactory but had declined. It is recommended that saugeye fingerlings be stocked in 2006, and that the 356 mm minimum length limit on bass be maintained.

INTRODUCTION

Wewoka Lake impounds Coon Creek, 8 km northwest of Wewoka, in Seminole County, Oklahoma (Fig. 1). Wewoka Lake covers 170.0 surface hectares and was constructed in 1925 by the City of Wewoka. Wewoka Lake has a mean depth of 3.6 m and a secchi disc visibility of around 28.0 cm in the main pool in August; turbidity is primarily from suspended clay. Fish habitat consists primarily of water willow around the shoreline and some hardwood stickups.

Fish management problems include a stunted crappie population and low recruitment rates for largemouth bass. Past surveys have generally indicated low to moderate abundance of most fish species.

Recent fish management activities have included annual stockings of saugeye (Table 1). In 1989, the City of Wewoka imposed a 356-mm (14-inch) minimum length limit on black bass in order to increase survival rates of smaller bass. Wewoka Lake was sampled in 2005 by fall electrofishing and fall gill netting to monitor trends in fish populations and to evaluate the success of saugeye stockings.

RESULTS

Crappie

1. Crappie abundance from 2005 gill netting ($C/f=4.75$) was greatly above the minimum acceptable value ($C/f \geq 0.20$) for a quality fishery and had increased from the previous survey (Table 2).
2. In 2005 gill netting, abundance of crappie < 200 mm in length was far above the recommended range, while abundances of those ≥ 200 mm and ≥ 250 mm were below minimum acceptable values (Table 2). These findings are similar to those of previous surveys. The largest crappie collected weighed 1.3 kg (2.5 lbs.).
3. Body condition values (W_r) were good for all size classes (Table 2).
4. Crappie were very abundant, but as in past years, too few were of quality size for a quality fishery to be present.

Saugeye

1. Saugeye abundance from 2005 fall, night electrofishing ($C/f=23.3$) was above the minimum acceptable value for a quality fishery ($C/f \geq 15.0$). Their abundance had decreased since the previous (Table 3).
2. In fall electrofishing, abundance of saugeye < 300 mm in length was satisfactory, while abundances of those 300-399

mm and ≥ 400 mm in length were lower than desired (Table 3). Abundances of all size classes had decreased from the previous survey. The largest saugeye collected weighed 0.9 kg (1.9 lbs.).

3. Body condition values (W_r) were below desired values for all size classes (Table 3). Body condition values were similar to those from the previous surveys.
4. A fairly good saugeye fishery has developed in this lake. However, their abundance is dependant on continued stockings.

Channel catfish

1. Channel catfish abundance in 2005 gill netting ($C/f=0.32$) was above the minimum acceptable value ($C/f=0.20$) for a quality fishery. Their abundance had increased from the previous survey (Table 4).
2. Abundances of channel catfish < 300 mm and ≥ 300 mm in length were satisfactory, while abundance of those ≥ 400 mm was lower than desired (Table 4). The largest channel catfish collected weighed 0.7 kg (1.5 lbs.).
3. Body condition values (W_r) for channel catfish were below desired values as in past surveys (Table 4).
4. Although channel catfish were abundant, too few were of trophy size (≥ 400 mm).

Blue catfish

1. Blue catfish from 2005 gill netting ($C/f=0.10$) met the minimum acceptable value for a quality fishery. Their abundance was the same as seen in the previous survey (Table 5).
2. In 2005 gill netting, no blue catfish <300 mm were collected. Abundances of those ≥ 300 mm and ≥ 400 mm were satisfactory (Table 5). The largest blue catfish collected weighed 0.9 kg (2.0 lbs.).
3. Body condition values (W_r) for blue catfish were generally satisfactory as in previous surveys (Table 5).
4. Abundance and size structure of the blue catfish population was adequate for a quality fishery to be present. Blue catfish reproduction was not noted in this survey as it had been in previous years.

Flathead catfish

1. In 2005 gill netting, abundance of flathead catfish ($C/f=0.04$) was increased over that seen in previous surveys (Table 6). The largest one collected weighed 2.6 kg (5.7 lbs.)
2. Body condition values (W_r) were generally satisfactory for flathead catfish collected in this survey (Table 6).

Gizzard shad

1. Gizzard shad abundance in 2005 gill netting (C/f=3.21) was high and exceeded the minimum acceptable value for a quality forage base (Table 7).
2. Abundance of gizzard shad <200 mm in length (C/f=2.69) indicated a good proportion of their population was of a size to be available to most predator species.

RECOMMENDATIONS

Fish Stockings

1. Saugeye have been stocked in recent years in an effort to control the stunted crappie population and to establish another fishery in Wewoka Lake. Surveys indicate good survival of these stockings, and a quality fishery has been established. To maintain this fishery, it is recommended that 8,500 fingerling saugeye (20/a) be stocked in 2006.

Fish Surveys

1. Fall night electrofishing will be conducted in 2006 to evaluate saugeye stocking success.
2. Periodic electrofishing, gill netting and trap netting surveys will be conducted to monitor trends in other fish populations.

Fish Regulations

1. The 356 mm (14 inch) minimum length limit on bass should be maintained.

Prepared by Garland Wright
Fish Supervisor

Table 1. Species, number and size of fish stocked in Wewoka Lake, 1978 - 2005.

DATE	SPECIES	NUMBER	SIZE
1978	Blue catfish	4,335	fingerlings
1980	Spotted bass	52	adults
1982	Inland silversides	9,591	adults
	Threadfin shad	1,069	adults
1985	Florida LMB	14,475	fingerlings
	Flathead catfish	16	adults
1986	Inland silversides	3,000	adults
1988	Florida LMB	6,855	fingerlings
	Channel catfish	20,000	fingerlings
1989	Northern LMB	829	fingerlings
1993	Saugeye	8,625	fingerlings
1994	Saugeye	21,600	fingerlings
1995	Saugeye	21,600	fingerlings
1996	Saugeye	9,150	fingerlings
1997	Saugeye	8,500	fingerlings
1998	Saugeye	8,700	fingerlings
1999	Saugeye	8,500	fingerlings
2000	Saugeye	9,000	fingerlings
2001	Saugeye	9,100	fingerlings
2002	Saugeye	9,500	fingerlings
2003	Saugeye	11,700	fingerlings
2004	Saugeye	9,500	fingerlings
2005	Saugeye	8,550	fingerlings

Table 2. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **crappie** collected by gill netting from Wewoka Lake. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥ 90 .

Year	Total ($\geq .20$)		<200 mm (.05-.30)		≥ 200 mm ($\geq .08$)		≥ 250 mm ($\geq .04$)	
	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r
1977	33	0.28						
1984	117	1.03	1.02	98	0.01	103	0.01	103
1988	30	0.31	0.29	102	0.02	101	0.02	101
1991	192	1.88	1.87	85	0.01	98	0.00	--
1999	188	1.62	1.62	88	0.00	--	0.00	--
2005	540	4.75	4.72	94	0.03	105	0.03	105

Table 3. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **saugeye** collected by night electrofishing from Wewoka Lake. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥ 90 .

Year	Total (≥ 15)		<300 mm (≥ 10)		300-399 mm (≥ 3)		≥ 400 mm (≥ 2)	
	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r
1993	68	34.0	34.0	86	0.0	-	0.0	-
1994	50	33.3	31.3	92	1.3	90	0.7	86
1995 ¹	69	34.5	16.5	93	12.0	104	6.0	107
1995 ²	108	86.4	81.6	86	3.2	81	1.6	88
1996 ¹	83	41.5	37.5	91	0.5	105	3.5	101
1996 ²	125	62.5	60.0	90	0.0	--	2.5	96
1997 ²	78	52.0	48.0	85	0.7	96	3.3	88
1998 ²	95	47.5	46.5	98	0.5	94	0.5	88
1999 ²	43	28.7	25.3	85	1.33	91	2.0	86
2000 ²	135	90.0	84.0	93	1.3	74	4.7	86
2001 ²	48	32.0	20.7	88	5.3	86	6.0	82
2003 ²	32	21.3	9.3	91	2.0	84	9.3	81
2004 ²	134	89.3	83.3	85	0.7	84	5.3	84
2005 ²	35	23.3	22.0	85	0.0	--	1.3	87

¹ Spring

² Fall

Table 4. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **channel catfish** collected by gill netting from Wewoka Lake. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥ 90 .

Year	Total ($\geq .20$)		<300 mm ($\geq .10$)		≥ 300 mm ($\geq .10$)		≥ 400 mm ($\geq .05$)	
	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r
1977	30	0.25						
1984	30	0.26	0.18	79	0.08	82	0.04	91
1988	26	0.27	0.27	89	0.00	--	0.00	--
1991	32	0.31	0.24	81	0.08	65	0.03	55
1999	22	0.19	0.11	80	0.08	76	0.01	91
2005	36	0.32	0.11	86	0.20	81	0.01	86

Table 5. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **blue catfish** collected by gill netting from Wewoka Lake. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥ 90 .

Year	Total ($\geq .10$)		<300 mm ($\geq .05$)		≥ 300 mm ($\geq .05$)		≥ 400 mm ($\geq .03$)	
	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r
1977	0	0.00	0.00	--	0.00	--	0.00	--
1984	7	0.06	0.00	--	0.06	96	0.06	96
1988	29	0.30	0.24	96	0.06	97	0.05	98
1991	29	0.28	0.27	92	0.02	93	0.01	104
1999	12	0.10	0.02	90	0.09	88	0.00	--
2005	11	0.10	0.00	--	0.10	88	0.05	90

Table 6. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **flathead catfish** collected by gill netting from Wewoka Lake . Acceptable W_r values are ≥ 90 .

Year	Total		<300 mm		≥ 300 mm		≥ 500 mm		≥ 600 mm		≥ 700 mm	
	No.	C/f	C/f	W_r	C/f	W_r	C/f	W_r	C/f	W_r	C/f	W_r
1977	0	0.00	0.00	--	0.00	--	0.00	--	0.00	--	0.00	--
1984	0	0.00	0.00	--	0.00	--	0.00	--	0.00	--	0.00	--
1988	1	0.01	0.00	--	0.01	100	0.01	100	0.01	100	0.01	100
1991	1	0.01	0.00	--	0.01	99	0.00	--	0.00	--	0.00	--
1999	1	0.01	0.00	--	0.01	77	0.01	77	0.00	--	0.00	--
2005	4	0.04	0.00	--	0.04	92	0.03	91	0.02	88	0.00	--

Table 7. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **gizzard shad** collected by spring electrofishing (VVP 1980-1988; GPP 1989-1991), gill netting, and seining from Wewoka Lake. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥ 90 .

Year	Spring Electrofishing				Fall Gillnetting				Seining	
	Total (≥ 40)	< 200 mm (≥ 20)	< 200 mm (≥ 20)	W_r	Total ($\geq .20$)	< 200 mm ($\geq .10$)	< 200 mm ($\geq .10$)	W_r	Age 0 -	C/f
1977					3	0.03				
1981	80	20.0	18.0	--						
1982									143	12.3
1984	45	8.2	8.0	130	78	0.68	0.66	99		
1985									8	0.7
1986									22	1.9
1987									15	1.3
1988	117	15.1	12.3	91	7	0.07	0.05	81	7	0.6
1991	172	86.0	85.5	--	63	0.62	0.55	--	409	35.3
1999	153	87.4	74.3	79	20	0.17	0.15	74		
2005					365	3.21	2.69	--		