

**SURVEY REPORT**

**OKLAHOMA FISHERIES MANAGEMENT PROGRAM**



**FISH MANAGEMENT SURVEY AND RECOMMENDATIONS**

**FOR**

**Pauls Valley City Lake**

**2006**

## **Performance Report**

**State: Oklahoma**

**Grant. F-67-D-1**

**Project Title: Oklahoma Fisheries Management Program**

**Study Title: Surveys and Recommendations - Pauls Valley City**

**Period Covered: 1 January 2006 - 31 December 2006**

### **LAKE Pauls Valley City**

#### **ABSTRACT**

**Pauls Valley City Lake was sampled by spring electrofishing in 2006 to determine trends in the largemouth bass, saugeye and bluegill populations. The overall abundance of largemouth bass in Pauls Valley City is low and the overall size structure is low. Numbers of bass 200-299 mm in length have increased from the last sample, while quality  $\geq 356$  mm size bass decreased. Saugeye abundance in the lake is good with numbers of quality  $\geq 400$  mm size saugeye above acceptable values. Bluegill abundance in the lake is low, but has improved from the last sample.**

**Recommendations include: supplemental stocking 37,500 saugeye as a management tool to control the stunted crappie population.**

**Changing the eighteen inch length limit on saugeye to a twenty four inch length limit, this would give the saugeye a longer time to help control the stunted crappie population before they are harvested from the lake. The lake should be surveyed by fall trap netting in 2008 to evaluate the crappie population.**

## **INTRODUCTION**

**Pauls Valley City Lake impounds the Washington Creek, 8.0 Km Northeast of Pauls Valley in Garvin county, Oklahoma (Fig.1). Pauls Valley City Lake covers 303.6 surface hectares and was constructed in 1954 by the City of Pauls Valley. Pauls Valley City Lake has a mean depth of 3.1 m and a maximum of 9.8 m and a secchi disc visibility of around 0.3 m in the main pool in August; turbidity is primarily from suspended clay. Fish habitat consists primarily of aquatic vegetation, rock and some flooded timber. The low secchi readings are primarily caused by runoff from reddish clay soils and continuous wave action on mud substrates and shorelines. These abiotic factors keep the lake turbid most of the year.**

**The last recorded fish species stocked were saugeye (Table 1). Boating and fishing access development projects; a covered fishing dock, was completed in 1988; and two boat ramps were completed in 1996. Pauls Valley City Lake was sampled in 2006 by spring electrofishing.**

## **RESULTS**

### **Largemouth Bass**

- 1. Largemouth bass abundance from 2006 spring electrofishing (C/f=20.7) was below the minimum acceptable value for a quality fishery (C/f= 40). The total bass C/f has decreased the most recent sample (Table 2).**
- 2. In 2006 spring electrofishing, the abundance of bass in all size groups was unsatisfactory. The abundance of bass in 200-299 mm size group increased from the most recent sample.**
- 3. Body condition values (W<sub>t</sub>) were satisfactory for all size groups. Condition values for all size groups have decreased from the most recent sample.**
- 4. Abundance of bass in Pauls Valley City lake is low and the overall size structure is low. Abundance of bass 200-299 mm size group increased from the last sample, while numbers of quality  $\geq 356$  mm size bass decreased. The numbers of bass below  $<200$  mm decreased from the last sample, indicating low survival of young of the year bass is occurring. All of the coves in the lake have a high silt deposit and has contributed to the loss of good spawning areas for the bass, which will have a negative impact on the population.**

## **Saugeye**

- 1. Saugeye abundance from 2006 spring electrofishing (C/f= 16.0) was above the minimum acceptable value for a quality fishery (C/f= $\geq$ 15). The total saugeye C/f has increased from the last sample (Table 3).**
- 2. The abundance of saugeye <300 mm and 300-399 mm size groups were unsatisfactory, while those  $\geq$ 400 mm size group was above acceptable values. The abundance of saugeye <300 mm and  $\geq$ 400 mm size groups increased from the last sample.**
- 3. Body condition values ( $W_c$ ) were satisfactory for all size groups.**
- 4. Abundance of saugeye in Pauls Valley City Lake is slightly above recommended values. Numbers of saugeye  $\geq$ 400 mm in length were above acceptable values. Numbers of <300 mm size saugeye were primarily a result of fewer stocked fish in 2005. The number one reason that saugeye were stocked in Pauls Valley City Lake was to be used as a tool to help control the stunted crappie population. At this time they are having a slow but positive effect on the crappie, so it is recommended that the 18 inch minimum length limit be changed to a 24 inch minimum length limit to give the saugeye several more years to help control the stunted crappie population before they are harvested from the lake.**

## **Bluegill**

- 1. Bluegill abundance from 2006 spring electrofishing (C/f=31.3) was below the minimum acceptable value for a quality forage supply. The total bluegill C/f has increased in recent samples (Table 4).**
- 2. In 2006 spring electrofishing, the abundance of bluegill in 75-149 mm size group was satisfactory, while those <75 mm and  $\geq 150$  mm size groups were below acceptable values. The abundance of bluegill 75-149 mm and  $\geq 150$  mm size groups increased from the most recent sample.**
- 3. Body condition values ( $W_t$ ) were satisfactory for all size groups. Condition values for all size groups have improved from the most recent sample.**
- 4. Abundance of bluegill in Pauls Valley City Lake was low, but has improved from the most recent sample. Numbers of bluegill 75-149 mm and  $\geq 150$  mm in length increased from the last sample, but numbers of bluegill <75 mm in length decreased. The bluegill population in the lake is low and this should be expected for a turbid lake.**

## **RECOMMENDATIONS**

### **Fish Stockings**

- 1. A total of 37,500 three inch saugeye should be stocked in the lake in 2007 as a management tool to control the stunted crappie.**

### **Fish Surveys**

- 1. Oklahoma Department of Wildlife Conservation Southcentral personnel should survey the lake by fall trap netting in 2008 to evaluate the effects the saugeye are having on the crappie population.**

### **Fishing Regulations**

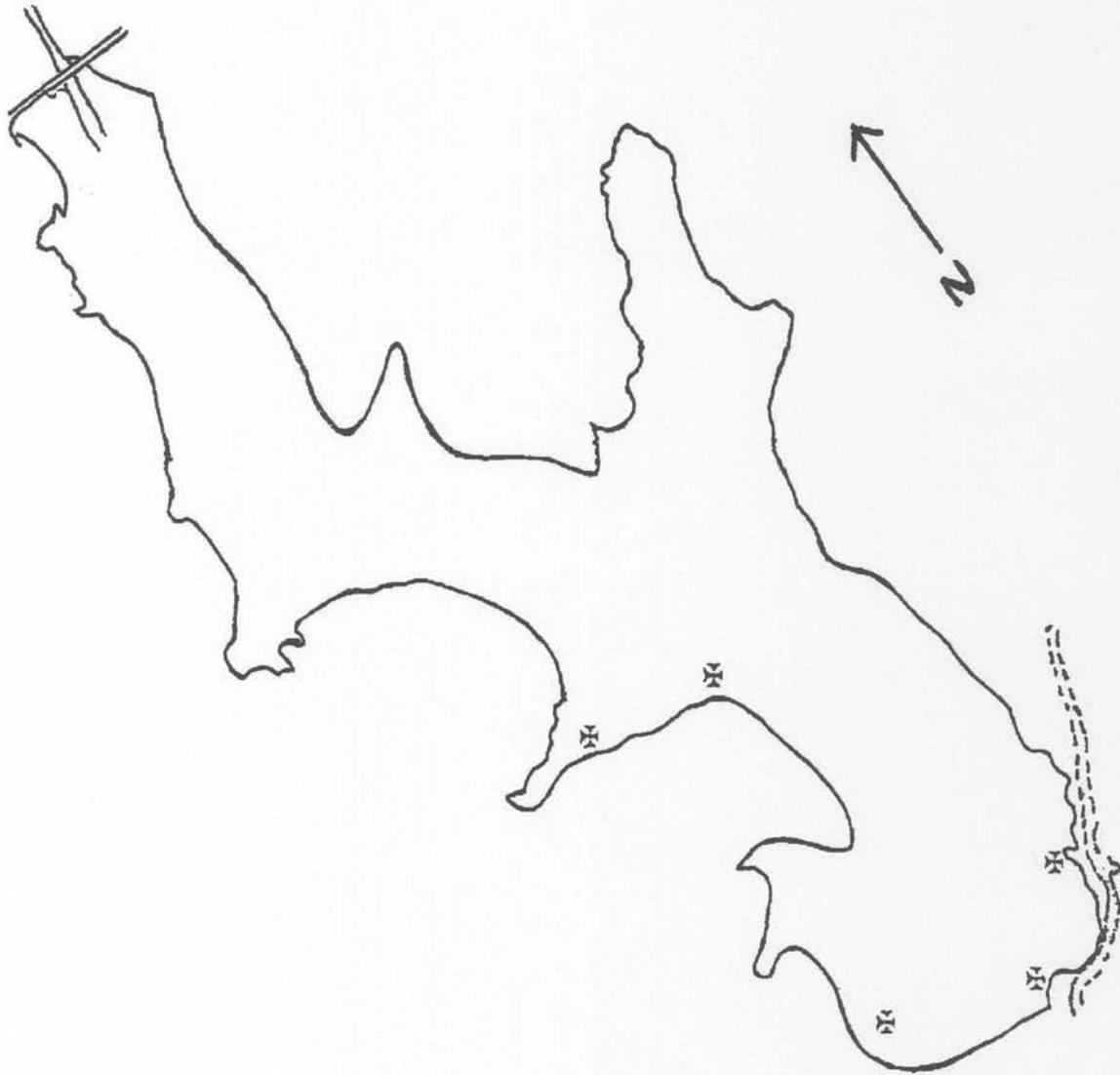
- 1. Oklahoma Department of Wildlife Conservation (O.D.W.C.) recommends changing the eighteen inch length limit on saugeye to a twenty four inch minimum length limit, this would give the saugeye several more years to help control the stunted crappie population before they are harvested from the lake.**

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FIGURE No: 1. PAULS VALLEY CITY LAKE



SAMPLING SITES :

ELECTROGISHING = Majority of Lake

TRAP NETTING ⊕

**Table 1. Species, number and size of fish stocked in Lake Pauls Valley from 1985 to 2006.**

<b>DATE</b>	<b>SPECIES</b>	<b>NUMBER</b>	<b>SIZE</b>
1985	Blue catfish	15,012	Fingerlings
1990	C. Florida bass	6,000	Fingerlings
1994	Saugeye	100,000	Fry
1995	Saugeye	35,271	Fingerlings
1996	Saugeye	41,537	Fingerlings
1999	Saugeye	37,760	Fingerlings
2000	Saugeye	38,350	Fingerlings
2001	Saugeye	39,530	Fingerlings
2002	Saugeye	39,000	Fingerlings
2003	Saugeye	37,500	Fingerlings
2004	Saugeye	38,387	Fingerlings
2005	Saugeye	37,600	Fingerlings
2006	Saugeye	15,428	Fingerlings

**Table 2. Total number (No.), catch rates (C/f), and relative weights (W<sub>r</sub>) by size groups of largemouth bass collected by spring electrofishing and seining from Pauls Valley Lake . Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W<sub>r</sub> values are  $\geq 90$ .**

Year	No.	Total <sup>1</sup> ( $\geq 40$ )		<200 mm <sup>1</sup> (15-45)		200-299 mm <sup>1</sup> (15-30)		$\geq 300$ mm <sup>1</sup> ( $\geq 15$ )		$\geq 356$ mm <sup>1</sup> ( $\geq 10$ )		Age 0 <sup>2</sup> ( $\geq 1.0$ )
		C/f	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>	C/f	
1983	212	21.2	15.5	105	2.8	106	2.9	104	2.4	104	9.0	
1998	88	35.2	5.6	97	4.8	102	24.8	103	22.0	103	-	
2006	31	20.7	3.3	95	7.3	88	10.0	93	2.7	100	-	

**2006 started a new minimum of 1.5 hours of electrofishing on Pauls Valley City Lake.**

<sup>1</sup> Spring electrofishing

<sup>2</sup> Seining

**Table 3. Total number (No.), catch rates (C/f), and relative weights (W<sub>r</sub>) by size groups of saugeye collected by electrofishing from Pauls Valley City Lake . Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W<sub>r</sub> values are  $\geq 90$ .**

Year	Total ( $\geq 15$ )		<300 mm ( $\geq 10$ )		300-399 mm ( $\geq 3$ )		$\geq 400$ mm ( $\geq 2$ )	
	No.	C/f	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>
1997	29	14.5	2.5	-	2.0	-	10.0	-
1999	10	10.0	3.0	-	-	-	7.0	-
2000	21	21.0	3.0	-	2.0	-	16.0	-
2001	9	4.5	1.0	-	2.5	-	1.0	-
2002	14	14.0	1.0	-	4.0	-	9.0	-
2003	10	10.0	-	-	-	-	10.0	-
2006	24	16.0	2.7	92	1.3	93	12.0	90

**Table 4. Total number (No.), catch rates (C/f), and relative weights (W<sub>r</sub>) by size groups of bluegill collected by spring electrofishing and seining from Pauls Valley Lake . Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W<sub>r</sub> values are  $\geq 90$ .**

Year	Total <sup>1</sup> ( $\geq 45$ )		<75 mm <sup>1</sup> ( $\geq 10$ )		75-149 mm <sup>1</sup> (20-100)		$\geq 150$ mm <sup>1</sup> ( $\geq 15$ )		<100 mm <sup>2</sup> -	
	No.	C/f	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>	C/f	W <sub>r</sub>	No.	C/f
1983	214	21.4	3.0	-	17.8	101	0.6	115	9	0.89
1998	63	25.2	5.2	-	19.6	82	0.4	72	-	-
2006	47	31.3	4.7	-	25.3	105	1.3	112	-	-

**2006 started a new minimum of 1.5 hours of electrofishing on Pauls Valley City Lake.**

<sup>1</sup> Spring electrofishing

<sup>2</sup> Seining