

Pretty Lake
LaGrange County
Supplemental Walleye Evaluation

Date of Survey: October 2, 2012

Biologist: Neil D. Ledet, District 2 Fisheries Biologist

Objective: The objective of this survey was to evaluate survival of walleyes that are stocked into Pretty Lake, especially survival of advanced walleye fingerlings in accordance with work plan 300FW1F10D42617.

Methods: Fish collection effort consisted of 1.67 hours of pulsed D.C. nighttime electrofishing. Only walleyes were collected. Two dip netters were used and approximately 95% of the shoreline was covered. Walleyes were measured to the nearest 0.1 in TL and weights were taken to the nearest 0.01 pound.

Summary: The Pretty Lake Conservation Club began stocking walleyes into Pretty Lake in the mid 1980's. The first Indiana Division of Fish and Wildlife (DFW) walleye stocking into Pretty Lake occurred in 1990 (Table 1). Walleyes were stocked again in 1993 by the DFW and stockings continued annually through 2007. These 1 to 2-in TL June walleye fingerlings were stocked at a rate of approximately 100 per acre according to state guidelines. To date, the DFW has stocked 312,070 June walleye fingerlings into Pretty Lake (Ledet 2009).

Pretty Lake was stocked with 2,280 advanced fall walleye fingerlings in October 2007 after the fall 2007 evaluation showed that the June stocking failed. These fish averaged 8.9 in TL and were stocked at a rate of 12.4 per acre. In 2009, 1,840 advanced walleyes (10 per acre) were stocked. These walleyes averaged 5.9 in TL. In 2011, 1,891 advanced walleyes that averaged 5.2 in TL were stocked. These fish were produced at the Fawn River State Fish Hatchery during an experimental rearing project. Considering the relatively poor survival from June fingerlings in recent years, including the failed 2007 stocking, the number of advanced fish available and the lake's zebra mussel status, Pretty Lake was selected to utilize these bonus fish.

Thirty-five walleyes were collected during the October 2, 2012 survey. Of these, 19 were age-1 and ten were age-3 walleye from the 2011 and 2009 stockings of fall walleyes respectively. Six age-5 or older walleyes were also collected. Age-1 walleyes were collected at a rate of 11.4 per electrofishing hour while 6.0 age-3 walleyes were collected per hour (Table 2). The catch rate for fall stocked age-1 walleyes at Pretty Lake has ranged from 30.7 per hour in 2008 to 11.3 in 2010 and averaged 17.8. The catch rate of age-1 fish from fall stocked walleyes in Pretty Lake has been considerably better than results from historic June stocked walleyes (Figure 1). On the night of the 2012 survey, the water temperature was 65.2° F.

Age-1 walleye ranged in length from 9.6 to 13.9 in TL and averaged 12.1 in TL (Table 3). Age-3 walleyes ranged in length from 15.4 to 18.2 in TL and averaged 16.4 in TL. While there has been a decline in the average lengths following the large, 2007 year class, lengths remain comparable to other northern Indiana lakes (Table 4).

The strong walleye year class established by the 2007 stocking continued into 2011. Age 1 through 4 walleyes from this year class were collected at rates of 30.7, 22.4, 6.7 and 2.7 per electrofishing hour respectively. By far, this is the strongest year class to date established in Pretty Lake. Age 1, 2 and 3 walleye from the 2009 stocking were collected at rates of 11.3, 9.3 and 5.4 per electrofishing hour respectively. The 2009 advanced walleyes stocked at 10 per acre averaged 3 in TL shorter than the walleyes stocked in 2007 at 12 per acre. The weight of stocked walleyes also dropped from 4.6 per pound in 2007 to 21.9 in 2009. The studies referenced by Kamp 2009 suggest that there is no difference in survival of June fingerlings and 4.0 in TL advanced fingerlings to age-1 and that advanced fingerlings may need to be greater than 7.0 in TL for there to be a benefit over June fingerlings. Although the stocking rate was slightly lower in 2009, size at stocking is considered a factor in the difference in year class strength.

While fall nighttime electrofishing has proven to be a reliable sampling tool to evaluate survival of age-0, age-1 and to a lesser degree age-2 walleyes, it is less effective in collecting older walleyes in lakes like Pretty. Many of our natural lakes have shallow, sandy flats with little near shore cover. While some adult walleyes will use these sandy flats in the fall months, the time they spend there appears short, especially when near shore vegetation, which walleye use for cover, is lacking. At Wall Lake for example, age-3 walleyes were collected at the very high rate of 15.3 per electrofishing hour during the 2010 survey. This

was over three times higher than the 4.7 per hour catch rate in 2008 when this year class was age-1. Native aquatic vegetation expanded significantly in 2010 which provided more near shore habitat and likely increased vulnerability and the electrofishing catch of these older walleye. Biologists should not draw major conclusion on the adult walleye population based solely on fall electrofishing.

Recommendations:

1. The DFW should continue to pursue the production of advanced fall walleye fingerlings for stocking as addressed in previous Walleye Management Committee reports and the statewide percid plan.
2. Advance walleyes should be stocked into Pretty Lake in alternate years at a rate of 10 per acre with a minimum size of 7 in TL.
3. The DFW should continue to annually evaluate survival of fall stocked walleyes.

Literature Cited:

Andrews, S., Committee Chairman 1994. Walleye management in Indiana. Committee Report. Indiana Division of Fish and Wildlife. Indianapolis, Indiana. 39 pp.

Kamp, Jeffrey M. and Gene R. Hatzenbeler 2009. Survival and growth of walleye fingerlings stocked at two sizes in 24 Wisconsin Lakes. North American Journal of Fisheries Management, pages 966-1000.

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Approved by: Jeremy Price, North Region Fisheries Supervisor
Date:

Table 1. Division of Fish and Wildlife walleye stocking, sampling effort and catch at Pretty Lake, LaGrange County, 1990 through 2012.

Date Stocked	Number per Pound	Ave. Length	Number Stocked	Stocking Density	Gear	Effort hrs/lifts	Date Sampled	Number Collected	Walleye Collected Per Electrofishing Hour or Net Lift				Total
									Age-0	Age-1	Age-2	Age-3+	
6/90	766	1.9	18388	100	DC	2.00	10/90	6	0	0	0	3.0	3.0
6/93	625	2	17350	94	DC	2.00	10/93	41	20.5	0	0	0	20.5
6/94	1028	1.6	19354	105	DC	2.00	10/94	45	9.5	12.0	0	1.0	22.5
6/95	640	1.9	20970	114	DC	2.00	10/95	27	5.0	3.0	4.5	1.0	13.5
6/96	711	1.7	19900	108	DC	8.00	5/96	80	0	1.1	4.5	4.4	10.0
6/96					GN	9	6/96	25	0	0.1	1.2	1.4	2.8
6/96					DC	1.00	6/96	6	0	2.0	2.0	2	6.0
6/96					DC	2.00	9/96	14	2.0	2.0	2.5	0.5	7.0
6/97	832	1.7	19136	104	DC	1.50	10/97	5	0	1.3	1.3	0.7	3.3
6/98	1131	1.5	18427	100	DC	1.50	10/98	32	16.0	0	2.7	2.7	21.3
6/99	824	1.8	20595	112	DC	1.50	10/99	26	6.7	6.7	1.3	2.7	17.3
5/00	2685	1	18795	102	DC	1.75	10/00	15	0	4.6	2.9	29	8.6
5/01	747	1.7	18675	101	DC	1.75	10/01	20	7.4	0	1.1	2.9	11.4
5/02	1520	1.4	17900	97	DC	1.50	10/02	8	0.7	1.3	2.0	1.3	5.3
5/03	794	1.7	18641	101	DC	1.75	10/03	13	5.1	0.6	0.6	1.1	7.4
5/04	1006	1.5	18400	100	DC	1.66	10/04	19	0.6	4.8	1.8	4.2	11.4
6/05	947	1.6	21781	118	DC	1.58	10/05	7	0	0	0	4.4	4.4
6/06	1,142	1.5	22,948	125	DC	1.25	9/06	9	5.6	0	0	1.6	7.2
6/07	1,479	1.4	20,810	113	DC	1.50	9/07	4	0	1.3	0	1.3	2.7
10/07	4.6	8.9	2,280*	12.4	DC	1.50	9/08	47	0	30.7	0.7	0	31.4
2008			None										
10/09	21.9	5.9	1,840*	10.0	DC	1.25	9/09	29	0	0	22.4	0.8	23.2
2010			None		DC	1.50	9/10	32	0	11.3	0	7.5	21.3
10/11	6.2	8.2	866	4.7	DC	1.5	9/11	22	0	0	9.3	5.3	14.7
10/11	11.7	6.7	1,025	5.6									
2012			None		DC	1.67	10/12	35	0	11.4	0	9.6	21.0

*Advanced fall fingerlings: DC-nighttime electrofishing; GN-standard experimental gill net

Table 2. Fall nighttime DC electrofishing catch rates by age for walleyes collected from Pretty Lake, LaGrange County 1990 through 2012.

Year	Number Stocked	EF Effort (hours)	Number of Age-0/hour	Number of Age-1/hour	Number of Age-2/hour	Number Age-3 & older/ hour
1990	18,388	2.00	0	0	0	3.0
1993	17,350	2.00	20.5	0	0	0
1994	19,354	2.00	9.5	12.0	0	1.0
1995	20,970	2.00	5.0	3.0	4.5	1.0
1996	19,900	2.00	2.0	2.0	2.5	0.5
1997	19,136	1.50	0	1.3	1.3	0.7
1998	18,427	1.50	16.0	0	2.7	2.7
1999	20,595	1.50	6.7	6.7	1.3	2.7
2000	18,795	1.75	0	4.6	1.1	2.9
2001	18,675	1.75	7.4	0	1.1	2.9
2002	17,900	1.50	0.7	1.3	2.0	1.3
2003	18,641	1.75	5.1	0.6	0.6	1.1
2004	18,400	1.66	0.6	4.8	1.8	4.2
2005	21,781	1.58	0	0	0	4.4
2006	22,948	1.25	5.6	0	0	1.6
2007	20,810	1.50	0	1.3	0	1.3
2007	2,280*					
2008	None	1.50	N/A	30.7	0.7	0
2009	1,840*	1.25	N/A	N/A	22.4	0.8
2010	None	1.50	N/A	11.3	0	6.7
2011	866*	1.50	N/A	N/A	9.3	5.3
2011	1,025*					
2012	None	1.67	N/A	11.4	N/A	9.6

*Advanced fall fingerlings

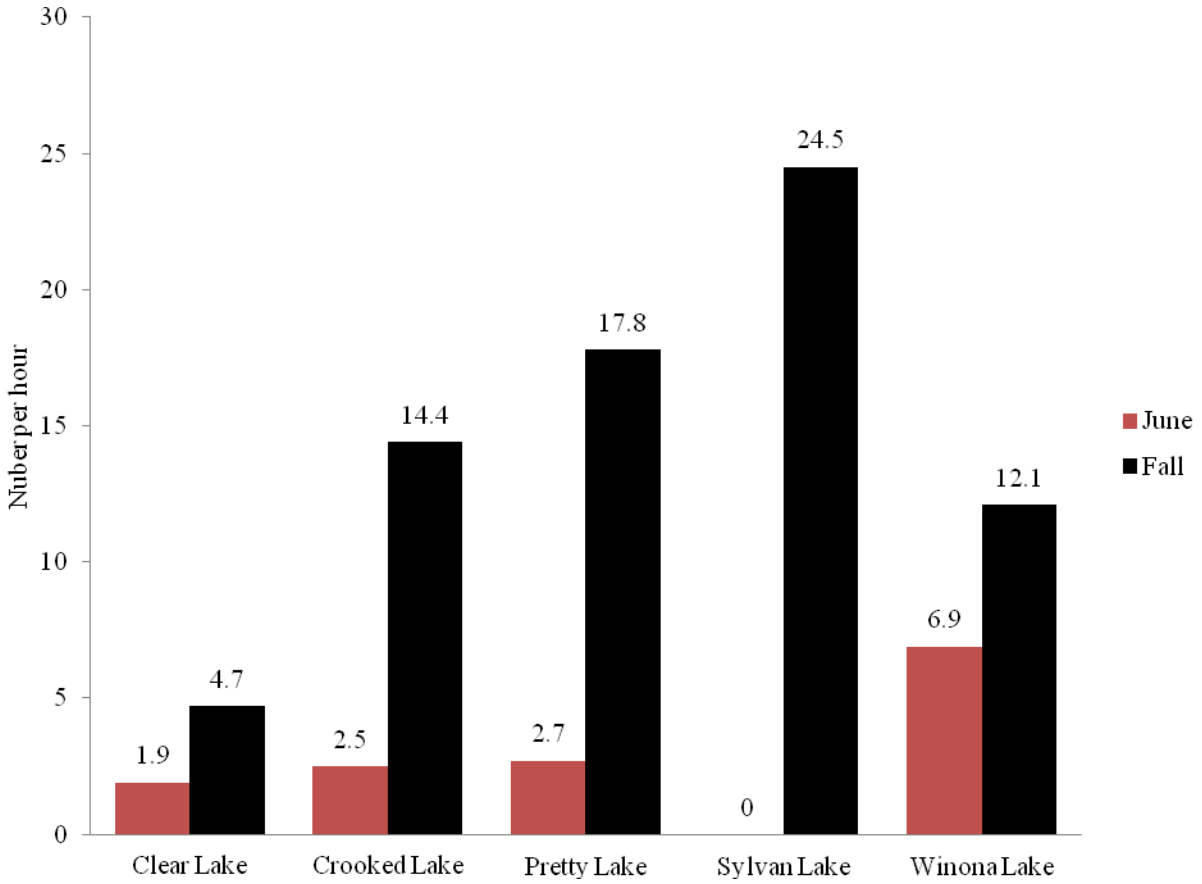


Figure 1. Average number of age-1 walleyes collected per fall DC electrofishing hour, June versus fall stocked advanced walleye fingerlings at five northern Indiana lakes.

Table 3. Number, length range and average length in inches of walleyes collected during fall nighttime D.C. electrofishing from Pretty Lake, LaGrange County, 1990 through 2012.

Year	Age-0			Age-1			Age-2		
	Number Collected	Length Range	Average Length	Number Collected	Length Range	Average Length	Number Collected	Length Range	Average Length
1990	0			0			0		
1993	41	7.2 - 9.1	8.2	0			0		
1994	19	7.0 - 9.5	8.9	24	12.4 - 14.5	13.8	0		
1995	10	7.5 - 8.5	8.1	6	11.5 - 12.5	12.1	9	14.8 - 15.9	15.4
1996	4	8.2 - 9.2	8.8	4	12.9 - 14.2	13.6	5	16.2 - 17.8	17.2
1997	0			2	12.9 - 13.1	13.0	2	15.0 - 16.9	16.0
1998	24	8.5 - 10.5	8.3	0			4	15.5 - 16.5	16.1
1999	10	8.6 - 10.6	9.5	10	13.4 - 15.4	14.2	2	16.2 - 16.3	16.3
2000	0			8	12.0 - 14.5	13.8	2	16.6 - 16.7	16.7
2001	13	8.9 - 10.8	9.6	0			2	16.2 - 16.3	16.3
2002	1		10.4	2	13.3 - 13.5	13.4	3	14.0 - 15.0	14.7
2003	9	8.7 - 10.3	9.6	1		12.2	1		16.3
2004	1		9.4	8	11.6 - 14.9	13.8	3	16.2 - 17.1	16.5
2005	0			0			0		
2006	9	8.1 - 9.5	8.7	0			0		
2007	0			2	14.7 - 14.9	14.8	0		
2008	0			46	10.1 - 14.0	11.1	1	15.9	15.9
2009	0			0			28	12.4 - 15.6	14.1
2010	0			17	8.9 - 12.3	11.3	0		
2011	0						14	14.6 - 16.2	15.2
2012	0			19	9.6 - 13.9	12.1	0		
Totals	141		8.7	149	8.9 - 15.4	12.4	75	12.4 - 17.8	15.2

Table 4. Number and average length in inches of age-0 through age-2 walleyes collected during fall gill netting and or nighttime DC electrofishing surveys from seven northern Indiana lakes 1977 – 2012.

Lake	Age-0		Age-1		Age-2	
	Number Collected	Average Length	Number Collected	Average Length	Number Collected	Average Length
Bass		6.5		11.3		
B. Turkey	0		80	12.8	27	15.9
L. Turkey	0		17	12.5	24	15.8
Clear	500	7.7	258	11.7	54	15.4
Max	660	7.7	190	11.9	73	14.7
Pretty	141	8.7	149	12.4	75	15.2*
Wall	0		152	11.6	40	14.0

*Average was 16.1 in TL prior to the 2009 sample of 28 age-2 fish from the strong 2007 year class.