

Summary Report

Results of Fyke Netting for Northern Pike in the Lawrence/Target Lake Unit, Navigation Pool 8 of the upper Mississippi River, Spring 2010.

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Purpose

The purpose of this work is to continue to monitor the spring population length frequency and catch per unit effort of northern pike in Navigation Pool 8 of the upper Mississippi River.

Methods

Standard Upper Mississippi River Conservation Committee (UMRCC) fyke nets were set by WDNR personnel. These fyke nets had a 50ft floating lead line, 3ft high and 6ft wide frame, and had a 0.75 inch bar mesh.

Nets were set at locations thought likely to catch northern pike on spawning runs from March 22, 2010 through April 7, 2010 (Figure 1). A total of 17 locations were chosen, with 1 fyke net at each, in the Target and Lawrence lakes area, Houston County, Minnesota. Nets were set approximately five days after winter ice melted.

Up to eleven nets fished for a total of 98.8 net-days and were emptied every day during which all northern pike (*Esox lucius*) and yellow perch (*Perca flavescens*) were counted, measured in total length, sexed and their reproductive status was determined. Sex and reproductive status were determined primarily by the type and ease of which gametes were pushed through the urogenital pore. Fish were either classified as male or female based on the expression of sperm or eggs after manual massage of the abdomen. Based on the ease of and amount of gamete release, both males and females were classified as either green, immature, partially spent, ripe, or spent. For those northern pike that did not express gametes, sex was determined by visual examination of the urogenital region (Casselman, 1974). Sampling ceased when no green, ripe or partially spent females were recorded for three dates in a row.

This 2010 data was compared to data similarly collected during 1976 in upper Pool 8 by the Wisconsin DNR (Unpublished) and 2008 data collected in the middle of Pool 8 (Heath, Bailey and Von Ruden, 2009).

Findings

Water Temperature and Elevation

The mean daily ambient water temperatures during 2010 sampling was 7.9°C and generally rose over the ten days of sampling (Table 5). During sampling, the water surface elevation at La Crosse peaked on March 30th and varied as much as 2.05ft (Table 5).

Sex Ratios

A total of 154 northern pike and 797 yellow perch were recorded. Of the 154 northern pike, 109 (70.8%) were females, 40 (26.0%) were males and 5 (3.2%) were unknown (Table 1). The sex ratio was 1 female to 0.37 males. This compares to 1 female to 2.0- 2.3 males in other studies (Becker, 1983), 1 to 3.24 in the 1976 study and 1 female to 1.15 males in the 2008 study. This suggests that in 2010, there were a substantially greater number of females relative to males when compared to other investigations.

TABLE 1. SEX AND REPRODUCTIVE CONDITION OF SPRING 2010 NORTHERN PIKE, LAWRENCE/TARGET LAKE UNIT.

SEX	REPRODUCTIVE CONDITION				
	Green	Immature	Partially Spent	Ripe	Spent
Female	30		10	41	28
Male	2		2	22	14
Unknown		5			

Of the 792 yellow perch that had sex recorded, 232 (29.7%) were females, 535 (67.6%) were males and 22 (2.8%) were unknown (Table 2). The sex ratio was 1 female to 2.3 males.

TABLE 2. SEX AND REPRODUCTIVE CONDITION OF SPRING 2010 YELLOW PERCH, LAWRENCE/TARGET LAKE UNIT.

SEX	REPRODUCTIVE CONDITION				
	Green	Immature	Partially Spent	Ripe	Spent
Female	189	3	1	19	23
Male	2	1	1	527	4
Unknown		22			

Northern Pike Male Size Structure

Mean total length for all 2010 males was 22.39 inches (n=40, minimum= 13.39, maximum=38.2) (Figure 2). A total of 60.0 percent were greater than 21 inches. During 1976, the mean total length for all males was 22.94 inches (n=847, minimum=10.5, maximum=32.9, standard deviation = 3.25) (Figure 6). A total of 72.56 percent were greater than 21 inches. During 2008, the mean total length for all males was 20.57 inches (n=152, minimum= 8.47, maximum=26.77, standard deviation=3.46) (Figure 4). A total of 43.42 percent were greater than 21 inches. The mean total length for 2010 males was significantly different from 2008 but not from 1976 (Table 5). The magnitude of this difference was 1.8 inches.

TABLE 3. MEAN LENGTH OF MALE NORTHERN PIKE, 2010, 2008 AND 1976.

Year & Location	Mean Length (inches)	Standard Deviation	Minimum	Maximum	n	Percent > 21 inches	Different (means with the same letter are not Sign. Different)
1976, Pool 8	22.94	3.25	10.50	32.9	847	72.56	A
2010, Pool 8	22.39	5.02	13.39	38.2	40	60.0	A
2008, Pool 8	20.57	3.46	8.47	26.77	152	43.42	B

There was no significant change in total length of males through the 2010 sampling period (n=40, $r^2=0.021$, $P=0.3764$) suggesting that the size of males during sampling did not change as others have observed (Priegel and Krohn, 1975).

In the present investigation, the smallest sexually mature male was 13.43 inches in total length. All of the males found were sexually mature. This compares to size at maturity of 16-18 inches reported by Becker (1983) for lakes and 11 inches for the Mississippi River, Pool 8.

Northern Pike Female Size Structure

In 2010, the mean total length for all females was 30.94 inches (n=109, minimum= 17.3, maximum=40.6, standard deviation= 5.17) (Figure 3) (Table 4). A total of 85.3 percent were greater than 25 inches. During 2008 in Pool 8, the mean total length for all females was 25.59 inches (n=131, minimum= 12.21, maximum=39.37, standard deviation= 5.325) (Figure 5). A total of 46.56 percent were greater than 25 inches. During 1976, the mean total length for all females was 26.36 inches (n=262, minimum=16.50, maximum=36.50, standard deviation=4.413) (Figure 7). A total of 58.40 percent were greater than 25 inches.

Pool 8 female size was larger than previous years. The 2010 mean total length for females was significantly different from both 1976 and 2008 (p<0.001) (Table 4). Means from 1976 and 2008 were the same.

TABLE 4. MEAN LENGTH OF FEMALE NORTHERN PIKE, 2010, 2008 AND 1976.

Year & Location	Mean Length (inches)	Standard Deviation	Minimum	Maximum	n	Percent > 25 inches	Different (means with the same letter are not Sign. Different)
2010, Pool 8	30.94	5.17	17.3	40.55	109	85.32	A
1976, Pool 8	26.36	4.413	16.50	36.50	262	58.40	B
2008, Pool 8	25.59	5.325	12.21	39.37	131	46.56	B

There was no significant change in total length of females through the 2010 sampling period (n=109, p=0.9644) suggesting that the size of females during sampling did not change as others have observed (Priegel and Krohn, 1975). From 1989 through 2007, no trend in female size was also documented during the spawning season in Navigation Pool 9 of the upper Mississippi River (WDNR, 2008).

In the present investigation, the smallest female found gravid was 17.3 inches in total length. All females found were gravid. This compares to size at maturity of 20-22 inches reported by Becker (1983) for lakes and 20-36 inches for the Mississippi River, Pool 8.

Proportional Size Structure

Proportional Size Structure for quality northern pike (PSS_Q) in Pool 8 as summarized by the Graphical Fish Data Browser (http://www.umesc.usgs.gov/data_library/fisheries/graphical/fish_front.html) of the Long Term Resource Monitoring Program suggests a downward trend from 1993 to 2009 (Figure 8). The slope of a linear regression was not significantly different from zero (p=0.1254) suggesting no real trend. This data contained both male and females since fish were not sexed. If a trend in either sex was present, any significant trend may have been obscured by the inclusion of the other sex.

Spawning Progression

In 2010, most northern pike females were recorded as ripe (37.6%), followed by green (27.5%), spent (25.7%), and partially spent (9.1%). Reproductive condition changed through time. A total of 26.5% of females were ripe 5.88% were spent during the first two days of sampling while no fish were ripe and 100% were spent during the last 3 days (Table 5). There was an increasing trend in water temperatures (Table 5) and evidence of spawning activity ceased when temperatures reached about 12.0 °C. Spawning runs have been recorded to occur at temperatures between 1.1 and 4.4°C (Becker, 1983).

TABLE 5. PERCENT RIPE AND SPENT 2010 FEMALE NORTHERN PIKE BY DATE, TEMPERATURE AND WATER SURFACE ELEVATION.

DATE	°C	Water Surface Elevation (ft), La Crosse	% RIPE	% SPENT	Number of Females
3/23/2010	5.1	636.46	22.2	0.0	18
3/24/2010	5.0	636.68	31.3	12.5	16
3/25/2010	4.6	636.91	44.4	11.1	18
3/26/2010	4.3	637.24	66.7	20.0	15
3/30/2010	7.4	637.38	23.5	52.9	17
3/31/2010	9.0	637.28	60.0	0.0	5
4/1/2010	11.1	636.93	53.8	38.5	13
4/2/2010	12.3	636.71	0.0	100.0	4
4/3/2010	12.6	635.69	0.0	100.0	2
4/4/2010	10.4	635.33	0.0	100.0	1
MEAN	7.9	636.78			109

In 2010, most yellow perch females were recorded as green (80.4%), followed by spent (9.8%), ripe (8.1%), immature (1.3%) and partially spent (0.4%). Reproductive condition changed through time. A total of 9.2% of females were ripe 0% were spent during the first two days of sampling while 30% of were ripe and 30% were spent during the last 2 days (Table 6). There was an increasing trend in water temperatures (Table 6) but we did not sample to the end of the spawning period. It appears that spawning started when the temperature was about 5°C and was ongoing when temperatures reached about 13°C. Spawning runs have been recorded to occur at temperatures between 7.2 and 11.1°C (Becker, 1983).

TABLE 6. PERCENT RIPE AND SPENT 2010 FEMALE YELLOW PERCH BY DATE, TEMPERATURE AND WATER SURFACE ELEVATION.

DATE	°C	Water Surface Elevation (ft), La Crosse	% RIPE	% SPENT	Number of Females
3/23/2010	5.1	636.46	17.1	0.0	35
3/24/2010	5	636.68	0.0	0.0	30
3/25/2010	4.6	636.91	8.9	2.2	45
3/26/2010	4.3	637.24	0.0	0.0	6
3/30/2010	7.4	637.38	11.1	0.0	18
3/31/2010	9	637.28	8.3	8.3	12
4/1/2010	11.1	636.93	0.0	18.4	49
4/2/2010	12.3	636.71	11.1	33.3	27
4/3/2010	12.6	635.69	0.0	20.0	5
4/4/2010	10.4	635.33	60.0	40.0	5
MEAN	7.9	636.78			232

Catch per Effort

Mean catch per net-day for 2010 northern pike was 1.57 (Table 8). This was significantly lower than the 2008 Pool 8 catch per net-day (8.73) and the 1976 catch rate (7.40). During hatchery netting near Guttenberg, Iowa from 1995 to 2000, the catch rate was 2.2 fish per net set (Pitlo and Rasmussen, 2004), substantially lower than the 2008 and 1976 rates but about the same as the 2010 rate.

TABLE 8. NORTHERN PIKE MEAN CATCH PER NET-DAY, SPRING 2010, 2008 AND 1976.

Year & Location	Mean	Standard Dev.	Min.	Max.	Net-Days	Different (means with the same letter are not Sign. Different)
2008, Pool 8	8.73	7.690	0	23.84	33.2	A
1976, Pool 8	7.40	9.096	0	47.00	199.0	A
2010, Pool 8	1.57	2.73	0	17.71	98.9	B

Mean catch per net-day for 2010 yellow perch was 8.01. This was significantly higher than both the 2008 (1.12) and 1976 (0.29) rates (Table 8). Similar increases in Pool 8 yellow perch catch rates were found in recent WDNR Lakes sampling as well as the Long Term Resource Monitoring Program (http://www.umesc.usgs.gov/data_library/fisheries/graphical/randcpue.shtml).

TABLE 8. YELLOW PERCH MEAN CATCH PER NET-DAY SPRING 2010, 2008 AND 1976.

Year & Location	Mean	Standard Dev	Min.	Max.	Net-Days	Different (means with the same letter are not Sign. Different)
2010, Pool 8	8.01	14.98	0	94.0	98.91	A
2008, Pool 8	1.12	2.429	0	11.91	33.24	B
1976, Pool 8	0.29	0.76	0	6.0	199.00	B

Conclusions

Northern pike continue to comprise an important part of the sport fish community in Navigation Pool 8 of the upper Mississippi River although catch rates in 2010 were one-fifth of rates from 2008 and 1976.

In 2010, mean total length of Pool 8 northern pike females was significantly larger by over four inches than two previous studies in Pool 8. In a 2008 Pool 8 study, we observed a 2.37 inch decrease in the mean size of males compared to a similar study in 1976. A similar decrease was observed in Pool 9 (WDNR, 2008). However, in this 2010 investigation, no long term trend in male size was discerned.

Female northern pike minimum size at sexual maturity in the 2010 investigation was less than found in other studies and males were about the same.

In the Mississippi River bordering Minnesota, the northern pike bag and size limits are more liberal than the general inland regulations. The river is open all year, with no size limit and a bag limit of five fish. Inland, the general season extends from May 6 through March 4. In the northern zone the bag limit is five fish; there is no minimum size limit. In the southern zone the bag limit is two fish, with a 26 inch minimum size limit.

Yellow perch continue to comprise an important part of the sport fish community in Navigation Pool 8 of the upper Mississippi River. Perch catch rates were about eight times higher than rates from 2008 and 1976.

In the Mississippi River bordering Minnesota, the yellow perch bag limit is slightly more liberal than the general inland regulations. The river is open all year, and has a bag limit of 25 perch. Inland, the season extends all year as well, but the bag limit is a total of 25 panfish combined.

Recommendations

1. Continue to monitoring northern pike populations in Pool 8 to verify or invalidate these findings.
2. Continue to monitoring northern pike catch by the Genoa National Fish Hatchery in Pool 9 to determine long-term trends in the upper Mississippi River outside of Pool 8.

References Used

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- Priegel, Gordon, R., Krohn, David C. 1975. Characteristics of a northern pike spawning population. *Tech. Bulletin 86 Wisc. Dept. Nat. Res.*, Madison, WI.
- Wisconsin Department of Natural Resources. 1976. Unpublished Northern Pike Data Collected in upper Pool 8 of the Mississippi River. WDNR, La Crosse, Wisconsin.
- Wisconsin Department of Natural Resources. 2008. A Summary of Northern Pike Data Collected in Pool 9 of the Mississippi River 1989-2007. WDNR, La Crosse, Wisconsin, 6 pp plus Figs and Tables.

FIGURE 1. LOCATION OF ELEVEN FYKE NET SETS, MISSISSIPPI RIVER, NAVIGATION POOL 8, SPRING 2010.
(2009 NAIP PHOTO).

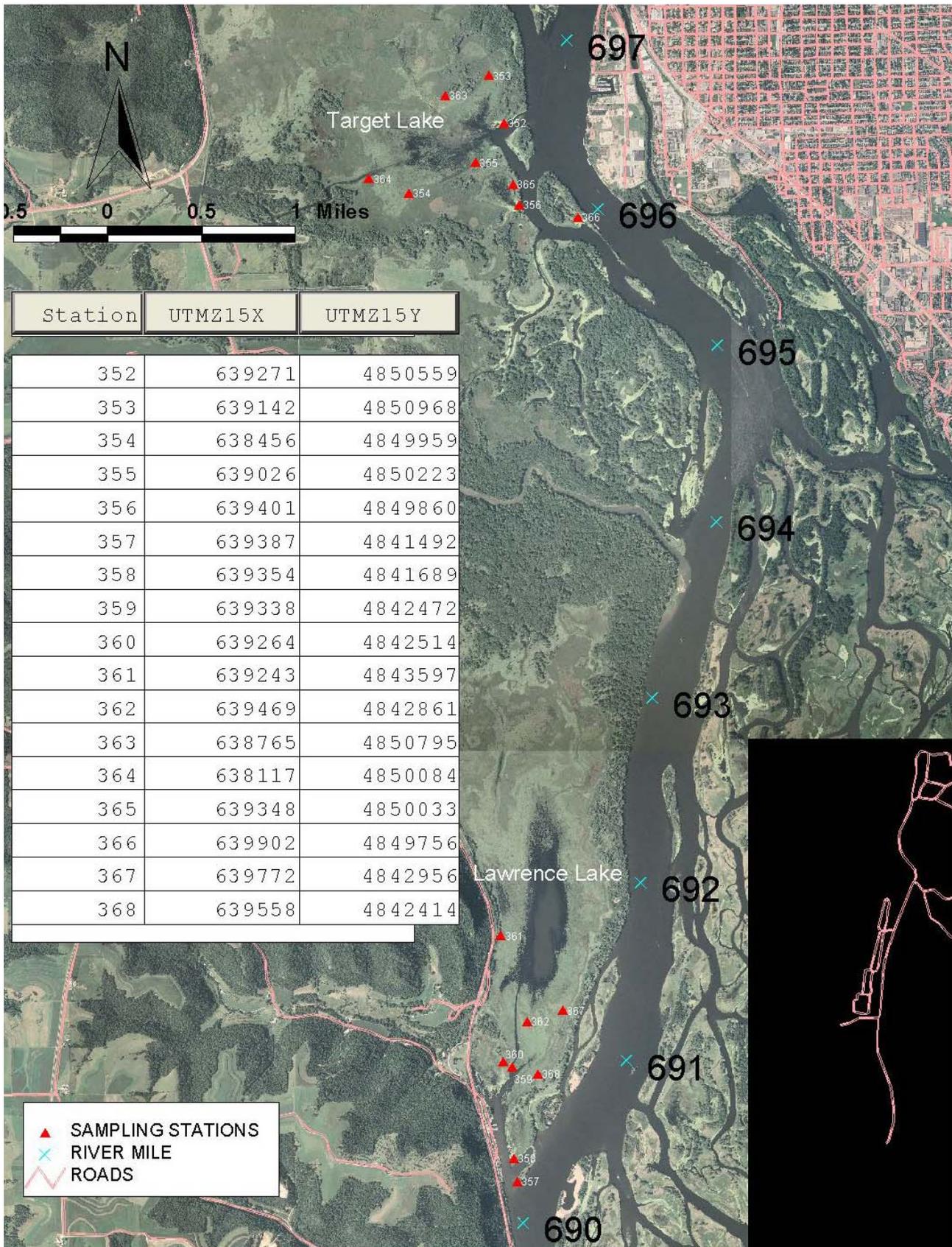
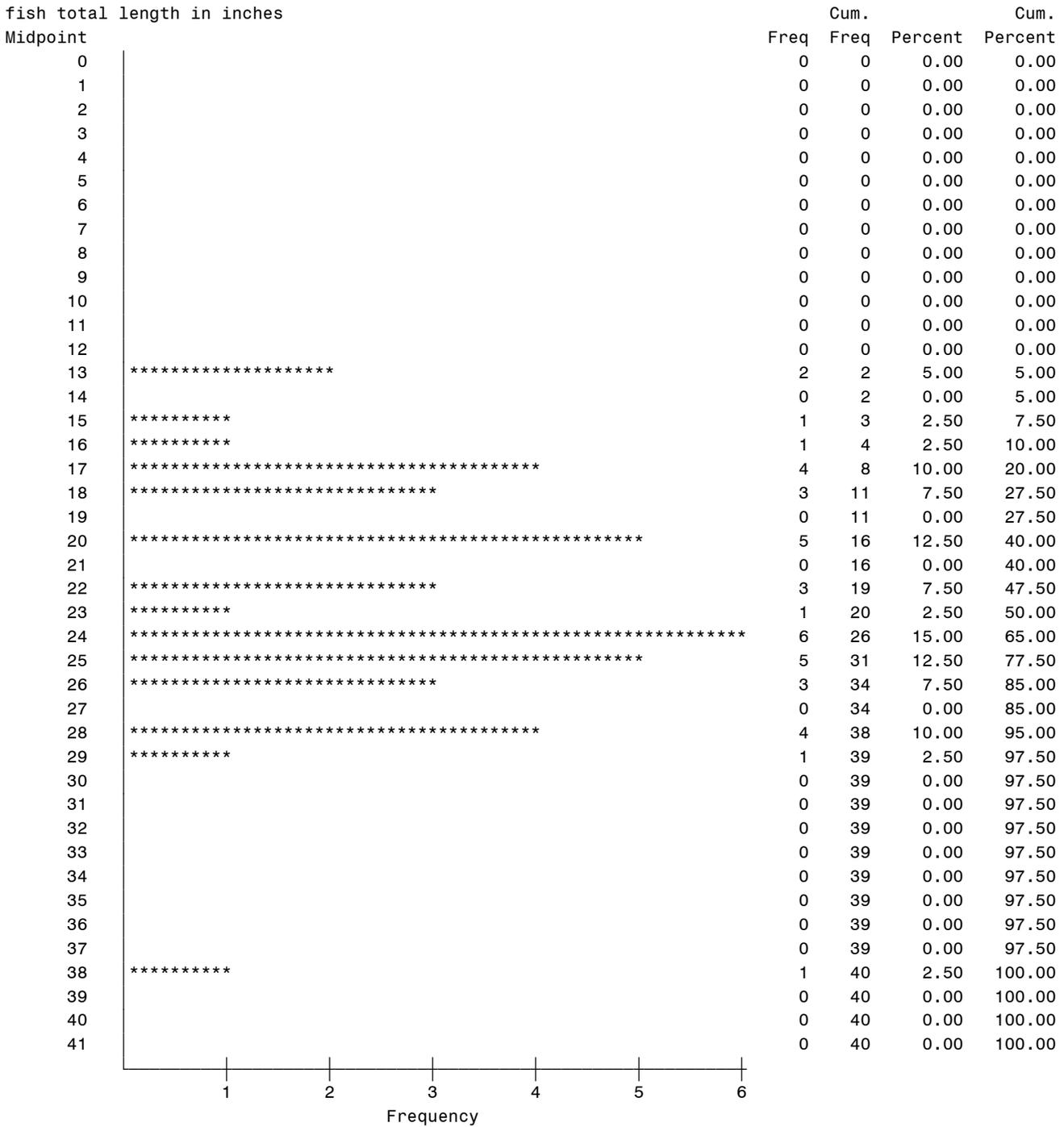
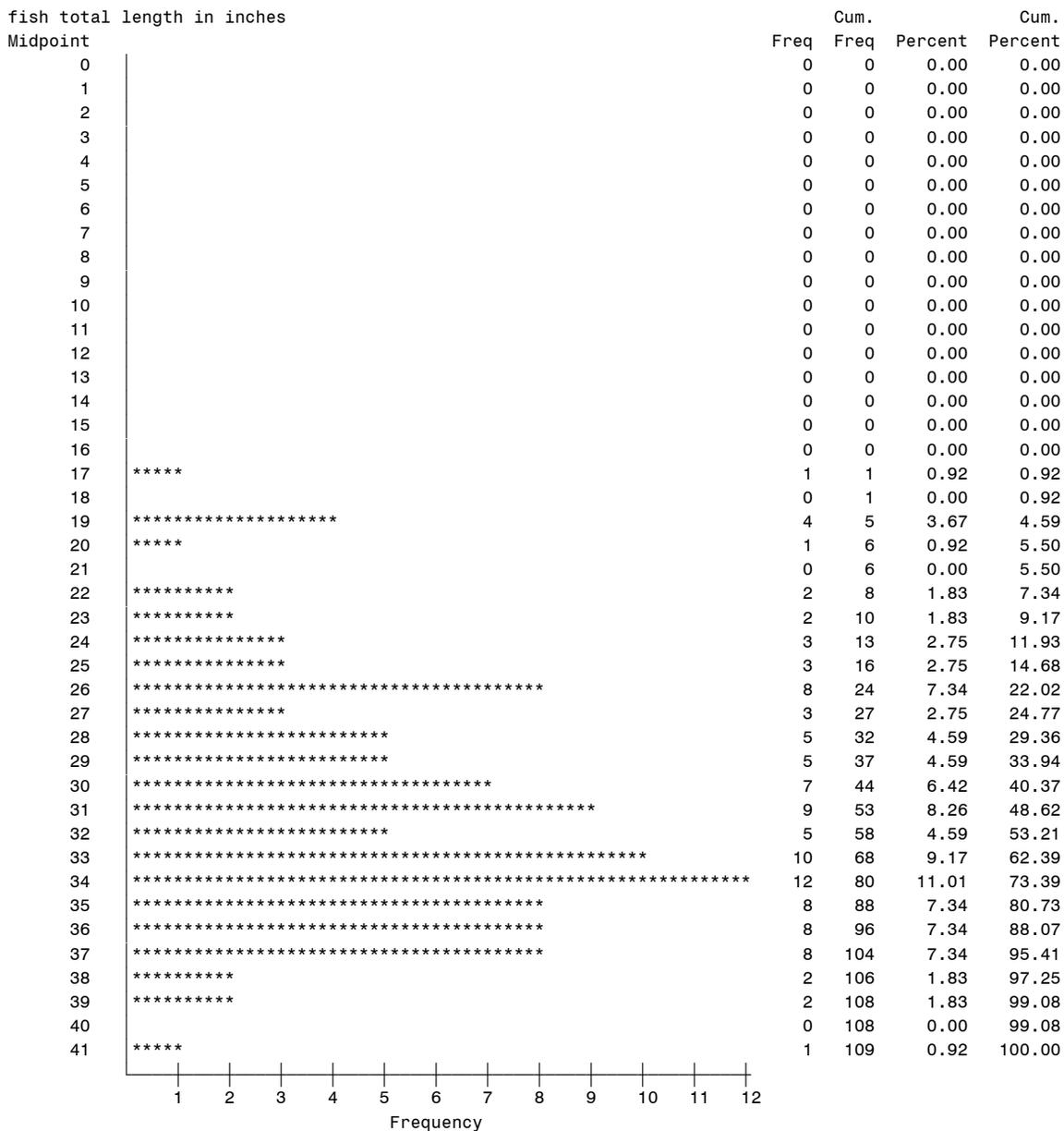


FIGURE 2. SPRING 2010 MALE NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), LAWRENCE/TARGET LAKE UNIT.



N	Mean	Std Dev	Minimum	Maximum
40	22.3947000	5.0227031	13.3860000	38.1890000

FIGURE 3. SPRING 2010 FEMALE NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), LAWRENCE/TARGET LAKE UNIT.



N	Mean	Std Dev	Minimum	Maximum
109	30.9387890	5.1687331	17.2830000	40.5510000

FIGURE 4. SPRING 2008 MALE NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8.

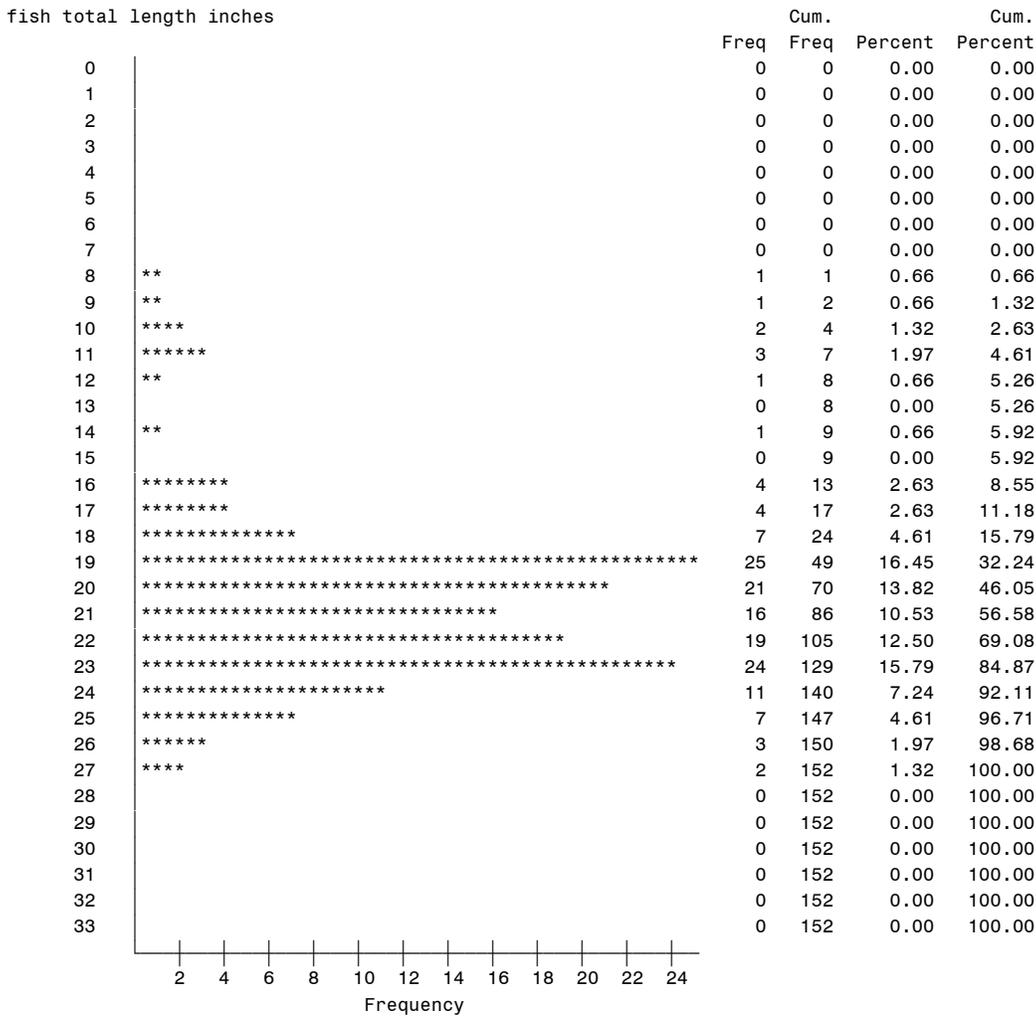


FIGURE 5. SPRING 2008 FEMALE NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8.

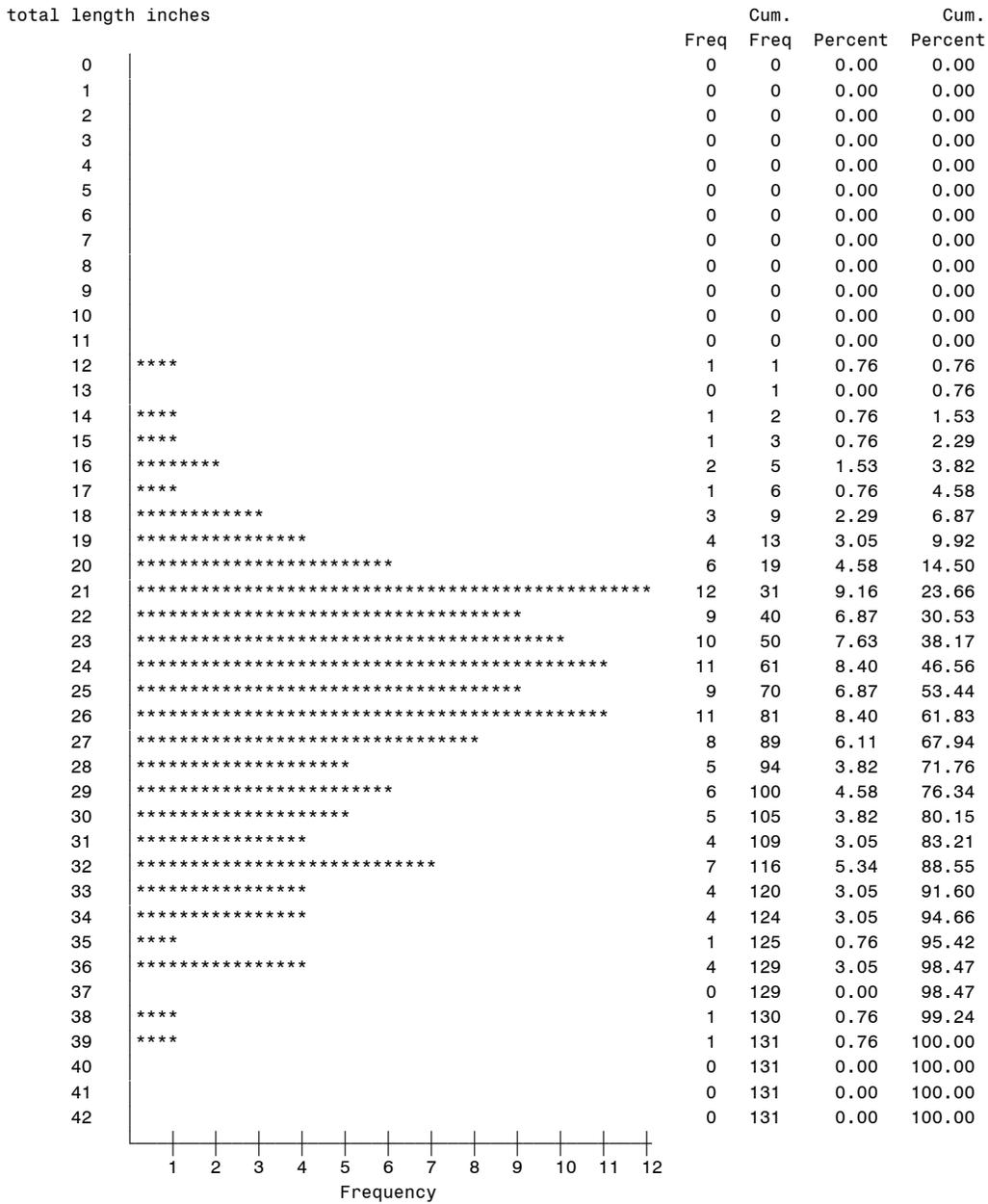


FIGURE 6. SPRING 1976 MALE NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8.

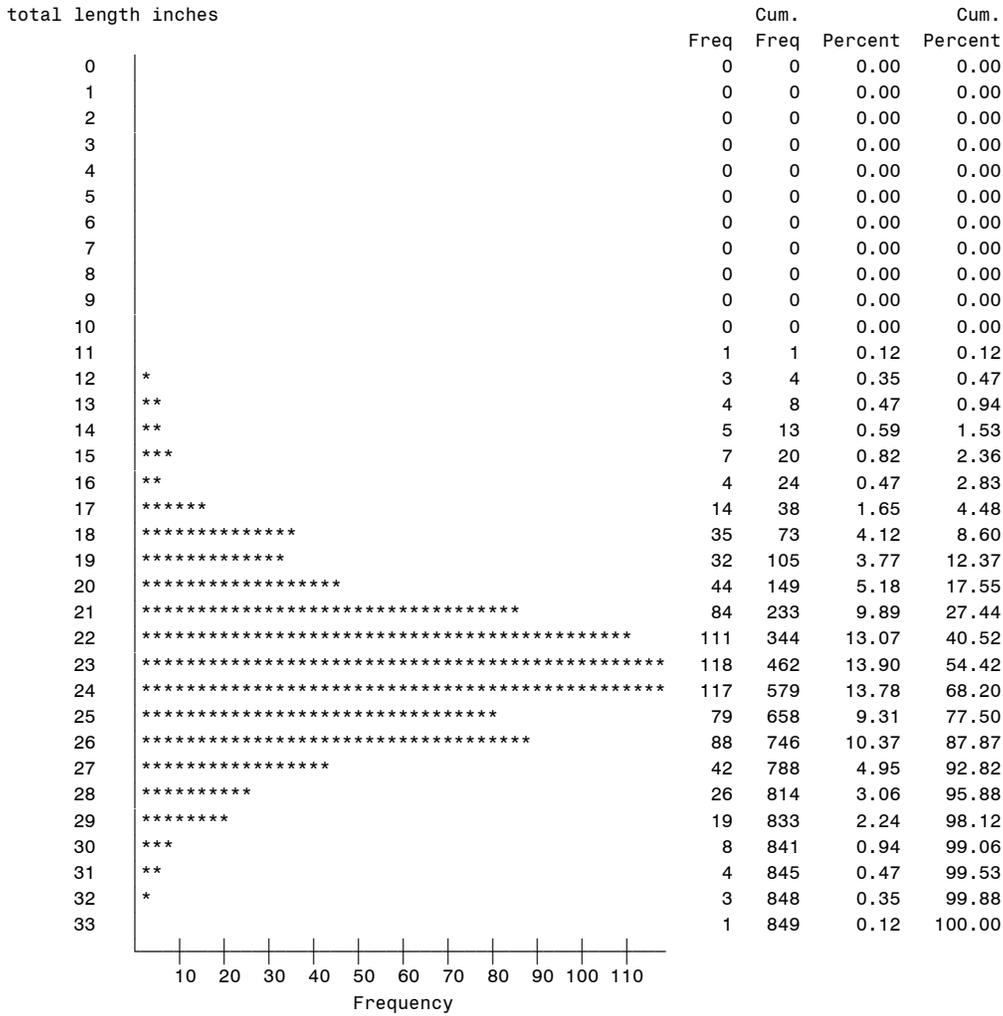


FIGURE 7. SPRING 1976 FEMALE NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8.

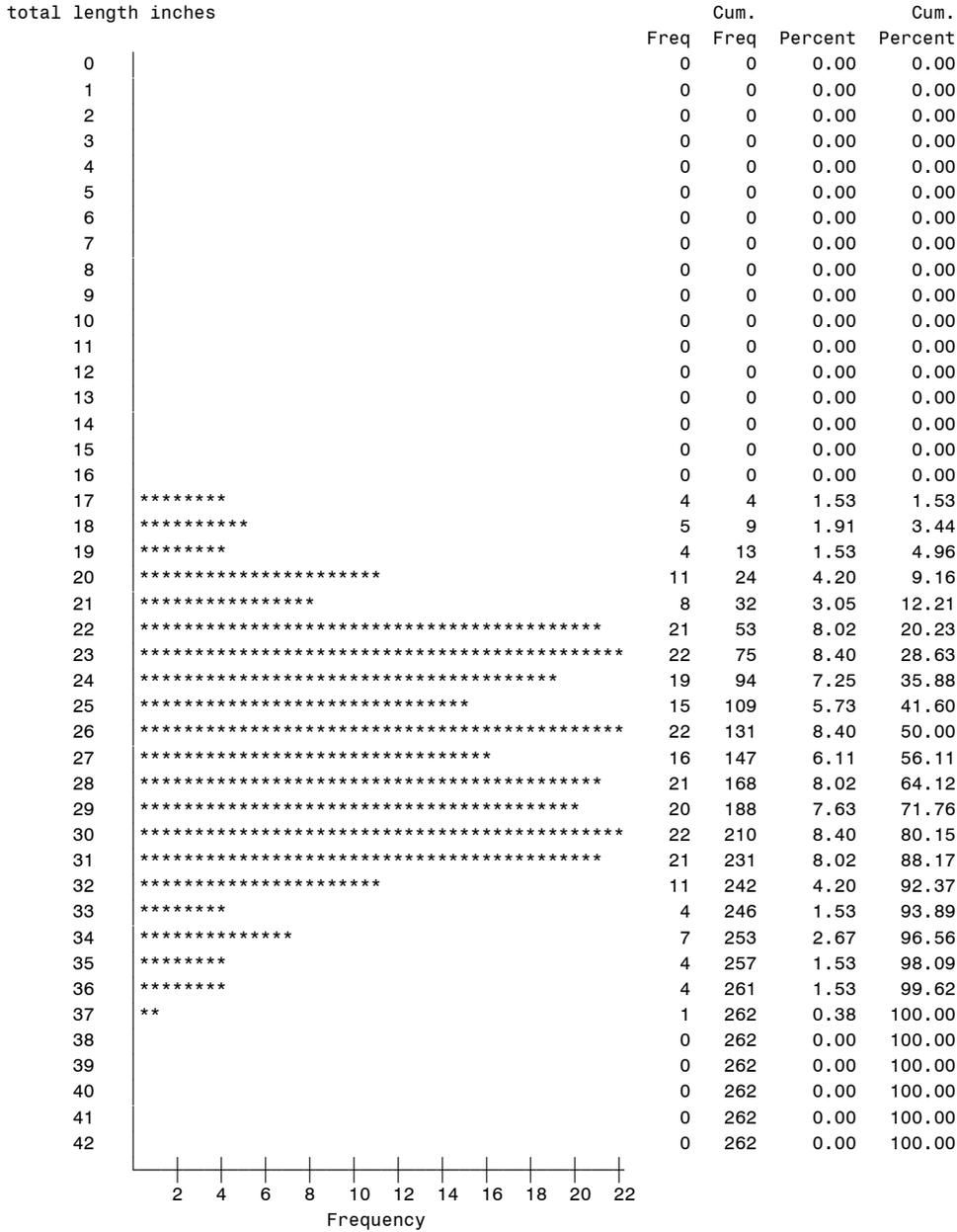
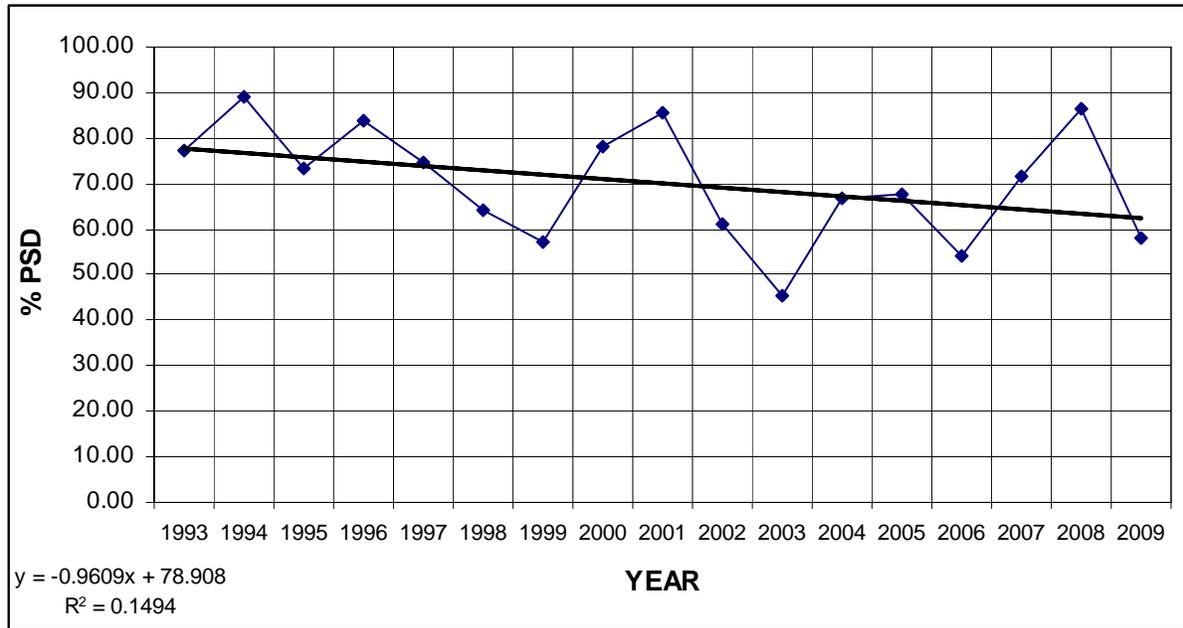


FIGURE 8. POOL 8, 1993-2009 NORTHERN PIKE PROPORTIONAL STOCK DENSITY FROM LONG TERM RESOURCE MONITORING DATA.



APPENDIX 1. 2010 NORTHERN PIKE DATA.

DATE	STATION	HRS	TEMP_C	DEPTH	SEX	GRAVID	REPR_CON	LENGTHIN	SP_CODE
03/23/2010	357	22.717	4.3	0.8	F	Y	G	29.961	L02
03/23/2010	357	22.717	4.3	0.8	F	Y	G	24.606	L02
03/23/2010	357	22.717	4.3	0.8	M	Y	R	21.85	L02
03/23/2010	358	22.867	4.8	0.6	F	Y	G	35.866	L02
03/23/2010	358	22.867	4.8	0.6	F	Y	G	34.488	L02
03/23/2010	358	22.867	4.8	0.6	M	Y	R	17.323	L02
03/23/2010	359	22.967	5.9	1.1	F	Y	G	30.394	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	G	26.772	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	R	37.205	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	G	23.661	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	G	32.126	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	R	29.213	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	R	32.362	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	G	19.291	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	G	31.378	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	G	28.031	L02
03/23/2010	360	23.033	6.3	0.7	F	Y	PS	30.906	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	25.118	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	23.701	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	15.394	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	16.772	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	23.858	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	16.575	L02
03/23/2010	360	23.033	6.3	0.7	M	Y	R	28.346	L02
03/23/2010	361	23.533	5.8	1	F	Y	R	40.551	L02
03/23/2010	361	23.533	5.8	1	F	Y	PS	37.008	L02
03/23/2010	361	23.533	5.8	1	F	Y	G	18.543	L02
03/23/2010	361	23.533	5.8	1	M	Y	R	19.646	L02
03/24/2010	353	24.25	4.9	1.4	M	Y	G	18.307	L02
03/24/2010	354	24.2	4.1	1.2	F	Y	R	33.268	L02
03/24/2010	354	24.2	4.1	1.2	F	Y	S	33.307	L02
03/24/2010	354	24.2	4.1	1.2	F	Y	R	29.921	L02
03/24/2010	354	24.2	4.1	1.2	M	Y	R	24.213	L02
03/24/2010	355	25.15	3.9	1.3	U	N	I	4.764	L02
03/24/2010	357	24.2	4.8	0.8	F	Y	G	30	L02
03/24/2010	357	24.2	4.8	0.8	M	Y	R	18.15	L02
03/24/2010	358	24.1	5.3	0.6	F	Y	R	33.071	L02
03/24/2010	358	24.1	5.3	0.6	F	Y	G	34.291	L02
03/24/2010	358	24.1	5.3	0.6	F	Y	G	35.866	L02
03/24/2010	358	24.1	5.3	0.6	F	Y	G	27.992	L02
03/24/2010	360	23.767	5.3	0.7	F	Y	R	29.016	L02
03/24/2010	360	23.767	5.3	0.7	F	Y	R	34.685	L02
03/24/2010	360	23.767	5.3	0.7	F	Y	G	33.701	L02
03/24/2010	360	23.767	5.3	0.7	F	Y	PS	36.693	L02
03/24/2010	360	23.767	5.3	0.7	F	Y	G	31.22	L02
03/24/2010	360	23.767	5.3	0.7	F	Y	G	25.669	L02
03/24/2010	360	23.767	5.3	0.7	M	Y	R	24.882	L02

03/24/2010	360	23.767	5.3	0.7	M	Y	R	23.858	L02
03/24/2010	360	23.767	5.3	0.7	M	Y	R	26.417	L02
03/24/2010	361	23.533	6.5	1	F	Y	PS	27.244	L02
03/24/2010	361	23.533	6.5	1	F	Y	S	30.197	L02
03/24/2010	361	23.533	6.5	1	M	Y	R	28.425	L02
03/24/2010	361	23.533	6.5	1	M	Y	R	24.409	L02
03/25/2010	354	23.783	3.9	1.2	F	Y	S	24.646	L02
03/25/2010	357	23.8	4.5	0.8	F	Y	R	26.575	L02
03/25/2010	357	23.8	4.5	0.8	F	Y	G	31.89	L02
03/25/2010	357	23.8	4.5	0.8	F	Y	G	34.252	L02
03/25/2010	357	23.8	4.5	0.8	F	Y	R	19.016	L02
03/25/2010	357	23.8	4.5	0.8	F	Y	R	33.858	L02
03/25/2010	358	23.817	5.3	0.6	F	Y	R	37.126	L02
03/25/2010	358	23.817	5.3	0.6	F	Y	R	33.504	L02
03/25/2010	358	23.817	5.3	0.6	F	Y	PS	36.654	L02
03/25/2010	358	23.817	5.3	0.6	F	Y	G	37.913	L02
03/25/2010	358	23.817	5.3	0.6	F	Y	S	31.378	L02
03/25/2010	360	24.017	5	0.7	F	Y	R	30.906	L02
03/25/2010	360	24.017	5	0.7	F	Y	G	35.591	L02
03/25/2010	360	24.017	5	0.7	M	Y	R	17.638	L02
03/25/2010	361	23.767	5.9	1	F	Y	R	35.039	L02
03/25/2010	361	23.767	5.9	1	F	Y	PS	37.441	L02
03/25/2010	361	23.767	5.9	1	F	Y	G	29.921	L02
03/25/2010	361	23.767	5.9	1	F	Y	R	23.898	L02
03/25/2010	361	23.767	5.9	1	F	Y	PS	26.063	L02
03/25/2010	361	23.767	5.9	1	M	Y	R	16.299	L02
03/26/2010	354	26.383	4.2	1.2	F	Y	G	36.22	L02
03/26/2010	354	26.383	4.2	1.2	F	Y	S	32.362	L02
03/26/2010	357	23.183	4	0.8	F	Y	S	32.677	L02
03/26/2010	357	23.183	4	0.8	F	Y	R	29.921	L02
03/26/2010	357	23.183	4	0.8	F	Y	R	39.37	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	R	27.953	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	R	25.906	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	R	29.134	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	G	25	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	R	33.78	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	R	35.236	L02
03/26/2010	358	23.15	4.2	0.6	F	Y	R	39.37	L02
03/26/2010	358	23.15	4.2	0.6	M	Y	R	21.772	L02
03/26/2010	359	23.783	4.5	1.1	U	N	I	8.386	L02
03/26/2010	361	22.883	4.7	1	F	Y	S	23.228	L02
03/26/2010	362	22.683	4.6	0.8	F	Y	R	18.898	L02
03/26/2010	362	22.683	4.6	0.8	F	Y	R	20.079	L02
03/30/2010	357	25.817	7.4	1.1	F	Y	S	37.795	L02
03/30/2010	357	25.817	7.4	1.1	F	Y	S	35.236	L02
03/30/2010	358	23.917	6.9	1	F	Y	S	34.252	L02
03/30/2010	358	23.917	6.9	1	F	Y	G	35.827	L02
03/30/2010	358	23.917	6.9	1	F	Y	R	37.402	L02
03/30/2010	358	23.917	6.9	1	F	Y	R	27.953	L02
03/30/2010	358	23.917	6.9	1	F	Y	G	37.402	L02
03/30/2010	358	23.917	6.9	1	F	Y	G	30.787	L02
03/30/2010	361	26.333	8.7	1	F	Y	R	35.039	L02

03/30/2010	361	26.333	8.7	1	F	Y	S	17.283	L02
03/30/2010	361	26.333	8.7	1	M	Y	R	19.685	L02
03/30/2010	361	26.333	8.7	1	U	N	I	10.827	L02
03/30/2010	363	24.383	6.6	1.7	M	Y	G	13.425	L02
03/30/2010	364	24.5	8	1.7	F	Y	S	33.071	L02
03/30/2010	364	24.5	8	1.7	F	Y	S	31.89	L02
03/30/2010	364	24.5	8	1.7	F	Y	S	30.512	L02
03/30/2010	364	24.5	8	1.7	F	Y	S	34.331	L02
03/30/2010	367	26.133	7.7	1.1	F	Y	S	34.646	L02
03/30/2010	367	26.133	7.7	1.1	F	Y	R	26.181	L02
03/30/2010	367	26.133	7.7	1.1	F	Y	PS	23.15	L02
03/30/2010	367	26.133	7.7	1.1	M	Y	R	21.654	L02
03/30/2010	367	26.133	7.7	1.1	U	N	I	16.575	L02
03/31/2010	358	25.25	9	1	F	Y	R	21.85	L02
03/31/2010	358	25.25	9	1	F	Y	PS	33.465	L02
03/31/2010	358	25.25	9	1	M	Y	S	38.189	L02
03/31/2010	367	22.65	9.6	1.1	F	Y	R	33.937	L02
03/31/2010	367	22.65	9.6	1.1	F	Y	PS	35.827	L02
03/31/2010	367	22.65	9.6	1.1	F	Y	R	34.252	L02
03/31/2010	367	22.65	9.6	1.1	M	Y	S	23.937	L02
03/31/2010	367	22.65	9.6	1.1	M	Y	S	20.472	L02
03/31/2010	367	22.65	9.6	1.1	M	Y	S	20.472	L02
04/01/2010	354	22.85	11.2	1.7	F	N	S	28.78	L02
04/01/2010	358	22.683	11.1	1	F	Y	R	29.134	L02
04/01/2010	358	22.683	11.1	1	F	Y	R	33.071	L02
04/01/2010	358	22.683	11.1	1	F	Y	S	35.433	L02
04/01/2010	358	22.683	11.1	1	F	Y	R	36.142	L02
04/01/2010	364	23.167	11.2	1.7	F	N	S	33.465	L02
04/01/2010	367	23.533	12.6	1.1	F	N	S	25.512	L02
04/01/2010	367	23.533	12.6	1.1	M	N	S	19.843	L02
04/01/2010	367	23.533	12.6	1.1	M	N	S	16.614	L02
04/01/2010	367	23.533	12.6	1.1	M	N	S	28.465	L02
04/01/2010	368	23.733	12.4	1	F	Y	R	26.378	L02
04/01/2010	368	23.733	12.4	1	F	Y	R	31.496	L02
04/01/2010	368	23.733	12.4	1	F	Y	R	34.843	L02
04/01/2010	368	23.733	12.4	1	F	N	S	32.677	L02
04/01/2010	368	23.733	12.4	1	F	Y	G	28.425	L02
04/01/2010	368	23.733	12.4	1	F	Y	R	21.654	L02
04/01/2010	368	23.733	12.4	1	M	N	S	25.197	L02
04/01/2010	368	23.733	12.4	1	M	Y	PS	28.74	L02
04/01/2010	368	23.733	12.4	1	M	N	S	25.984	L02
04/01/2010	368	23.733	12.4	1	M	N	S	25.197	L02
04/02/2010	357	23.167	11.8	1.1	F	Y	S	23.819	L02
04/02/2010	361	22.65	13.3	1	F	Y	S	30.709	L02
04/02/2010	361	22.65	13.3	1	M	Y	PS	28.346	L02
04/02/2010	364	26.15	13.1	1.7	F	Y	S	34.37	L02
04/02/2010	364	26.15	13.1	1.7	F	Y	S	35.63	L02
04/02/2010	364	26.15	13.1	1.7	M	Y	S	25.591	L02
04/02/2010	365	26.417	10.8	1.8	U	N	I	8.071	L02
04/06/2010	358	23.767	12.6	1	F	N	S	32.756	L02
04/06/2010	361	24.283	13.4	1	F	N	S	26.378	L02
04/06/2010	367	24.017	12.5	1.1	M	N	S	13.386	L02

04/07/2010	358	24.517	10.6	1	F	N	S	26.26	L02
04/07/2010	367	23.067	10.1	1.1	M	N	S	24.803	L02
04/07/2010	368	23.533	10	1	M	N	S	22.835	L02