Summary Report

Results of Fyke Netting for Northern Pike in Navigation Pool 8 of the upper Mississippi River, Spring 2008.

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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 28, 2008 to April 4, 2008 (Figure 1). A total of 8 locations where chosen, with 1 fyke net at each, in the southern Goose Island area, La Crosse County, Wisconsin. Nets were set during the period when winter ice was melting in backwaters and sloughs and often nets were set on the edge of receding ice.

Up to eight nets fished for a total of 33.24 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).

The 2008 data was compared to data similarly collected during 1976 in upper Pool 8 by the Wisconsin DNR (Unpublished).

Findings

A total of 295 northern pike and 37 yellow perch were recorded. Of the 282 northern pike that had sex recorded, 131 (46%) were females, 150 (53%) were males and 1 (1%) was unknown (Table 1). The sex ratio was 1 female to 1.15 males. This compares to 1 female to 2.0- 2.3 males in other studies (Becker, 1983) and 1 to 3.24 in the 1976 study.

TABLE 1. SEX AND REPRODUCTIVE CONDITION OF SPRING 2008 NORTHERN PIKE.

	REPRODUCTIVE CONDITION			
	Green	Immature	Ripe	Spent
SEX				
Female	115	2	11	3
Male	40		109	1
Unknown		1		

Of the 34 yellow perch that had sex recorded, 16 (47.1%) were females, 16 (47.1%) were males and 2 (5.8%) were unknown (Table 2). The sex ratio was 1 female to 1 male.

TABLE 2. SEX AND REPRODUCTIVE CONDITION OF SPRING 2008 YELLOW PERCH.

	REPRODUCTIVE CONDITION			
	Green	Immature	Ripe	Spent
SEX				
Female	12		4	
Male	1		15	
Unknown		2		

The mean daily ambient water temperatures during 2008 sampling was 6.1°C and generally rose over the seven days of sampling from 3.8 to 7.0°C (Table 3). During sampling the water surface elevation at the Brownsville, Minnesota gage rose 0.39 feet (Table 3).

TABLE 3. PERCENT RIPE AND SPENT 2008 FEMALE NORTHERN PIKE BY DATE, TEMPERATURE AND WATER SURFACE ELEVATION.

DATE	ºC	Water Surface Elevation (ft), Brownsville Gage	% RIPE	% SPENT	Number of Northern Pike
03/29/08	3.8	630.78	0.0	0.0	8
03/30/08	4.6	630.77	0.0	0.0	7
03/31/08	4.3	630.79	0.0	0.0	4
04/01/08	3.7	630.90	0.0	0.0	7
04/02/08	5.5	631.11	10.0	0.0	20
04/03/08	6.5	631.18	5.2	1.7	58
04/04/08	7.0	631.17	22.2	7.4	27

Mean total length for all males was 20.57 inches (n=152, minimum= 8.47, maximum=26.77, standard deviation=3.460) (Figure 2). A total of 43.4 percent were greater than 21 inches. During 1976, the mean total length for all males was 22.94 inches (n=849, minimum=10.5, maximum=32.9, standard deviation = 3.254) (Figure 4). A total of 72.56 percent were greater than 21 inches. The mean total length for males was significantly different between 1976 and 2008 ($P<0.001$). The magnitude of this difference was 2.37 inches. A similar decrease (1.53 inches) in the size of males during the spawning season was seen from 1989 through 2007 in Navigation Pool 9 of the upper Mississippi River (WDNR, 2008).

There was no significant change in total length of males through the 2008 sampling period (n=152, $r^2=0.0000$, $P=0.9457$) 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 male found gravid was 8.5 inches in total length. Over 99 percent of all males 10 inches and greater were gravid. 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.

In 2008, the mean total length for all females was 25.59 inches (n=131, minimum= 12.21, maximum=39.37, standard deviation= 5.325) (Figure 3). 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 5). A total of 58.40 percent were greater than 25 inches. The mean total length for females was not significantly different between 1976 and 2008 ($P=0.1286$). This compares to no trend in female size during the spawning season from 1989 through 2007 in Navigation Pool 9 of the upper Mississippi River (WDNR, 2008).

There was no significant change in total length of females through the 2008 sampling period (n=131, r^2=0.0209, F=0.0995) suggesting that the size of females during sampling did not change.

Proportional Stock Density for northern pike 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 2004 (Figure 6). However, the slope of a linear regression was not significantly different from zero (P=0.0528) suggesting no real trend. This data contained both male and females since fish were not sexed. If a trend in males was present for these years in this data, any significant trend may have been obscured by the inclusion of females.

In 2008, most females were recorded as green (88%), followed by ripe (8%), spent (2%) and immature (2%). Reproductive condition changed through time as ambient water temperatures rose. No ripe females were recorded during the first four days of sampling while 14.7% were ripe the last 3 days. Ambient water temperatures generally rose during sampling, from a minimum of 3.0 to 7.0ºC (Table 3). Spawning runs have been recorded to occur at temperatures between 1.1 and 4.4ºC (Becker, 1983).

In the present investigation, the smallest female found gravid was 14.9 inches in total length. All females 15 inches and greater 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.

Mean catch per net-day for 2008 northern pike was 8.73 (n=34, minimum=0, maximum=28.84, standard deviation =7.69) (Table 4). This was not significantly different from the 1976 mean catch per net-day (P=0.4259) which was 7.4 (n=166, minimum=0, maximum=47.00, standard deviation= 9.1, net-days=199) (Table 5). During hatchery netting near Guttenburg, Iowa from 1995 to 2000, the catch rate was 2.2 fish per net set, substantially lower than in the 2008 or 1976 investigations (Pitlo and Rasmussen, 2004).

TABLE 4. MEAN CATCH PER NET-DAY SPRING 2008 FYKE NETTING, POOL 8.

SPECIES	MEAN	STANDARD DEV.	MIN	MAX	NET-DAYS
northern pike	8.729	7.694	0	28.836	33.236
yellow perch	1.116	2.429	0	11.905	33.236

TABLE 5. MEAN CATCH PER NET-DAY SPRING 1976 FYKE NETTING, POOL 8.

SPECIES	MEAN	STANDARD DEV.	MIN	MAX	NET-DAYS
northern pike	7.396	9.096	0	47.0	199
yellow perch	0.291	0.761	0	6.0	199

Mean catch per net-day for 2008 yellow perch was 1.12 (n=34, minimum=0, maximum=11.91, standard deviation =2.43). This was significantly different from the 1976 mean catch per net-day (P=0.004) which was 0.291 (n=166, minimum=0, maximum=6.00, standard deviation= 0.760, net-days=199).

Conclusions

Northern pike continue to comprise an important part of the sport fish community in Navigation Pool 8 of the upper Mississippi River. Catch rates in 2008 were the same as 1976 rates in Pool 8.

In 2008, total length of females was the same as 1976. However, the size of males appears to have decreased 2.37 inches. A similar decrease was seen in Pool 9 in another study. This decrease in male size is of concern, and needs further verification and investigation.

Length frequency distributions for both males and females have changed since 1976. During 1976, there was a greater proportion of males over 21 inches (72.56 percent *vs*. 43.4 percent in 2008). Similarly, for females, 58.40 percent were greater than 25 inches while only 46.56 percent were in 2008. This suggests a decrease in the size “quality” of fish, at least between these two years.

Northern pike minimum size at sexual maturity in the 2008 investigation was less than found in other studies. Validation and causes for this observation have yet to be done.

In the Mississippi River bordering Minnesota, the 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.

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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Casselman, J. M., 1974. External sex determination of northern pike, Esox lucius Linnaeus. Transactions of the American Fisheries Society 103: 343–347.

Pitlo, John and Jerry Rasmussen. 2004. UMRCC Fisheries Compendium. 3rd Edition. Upper Mississippi River Conservation Committee, Rock Island, IL. 265 pp.

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 EIGHT FYKE NET SETS, MISSISSIPPI RIVER, NAVIGATION POOL 8, SPRING 2008.
(2000 Long Term Resource Monitoring Program Land/Water Coverage, 2000).

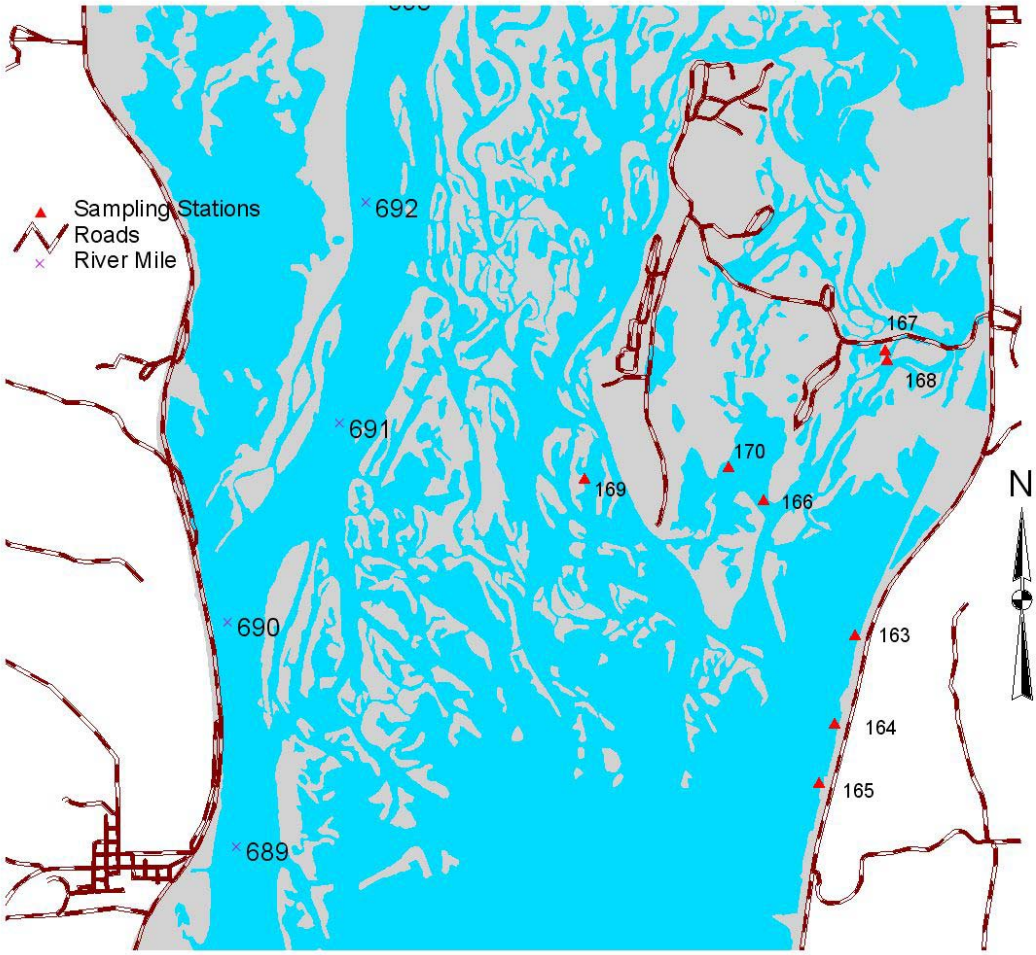
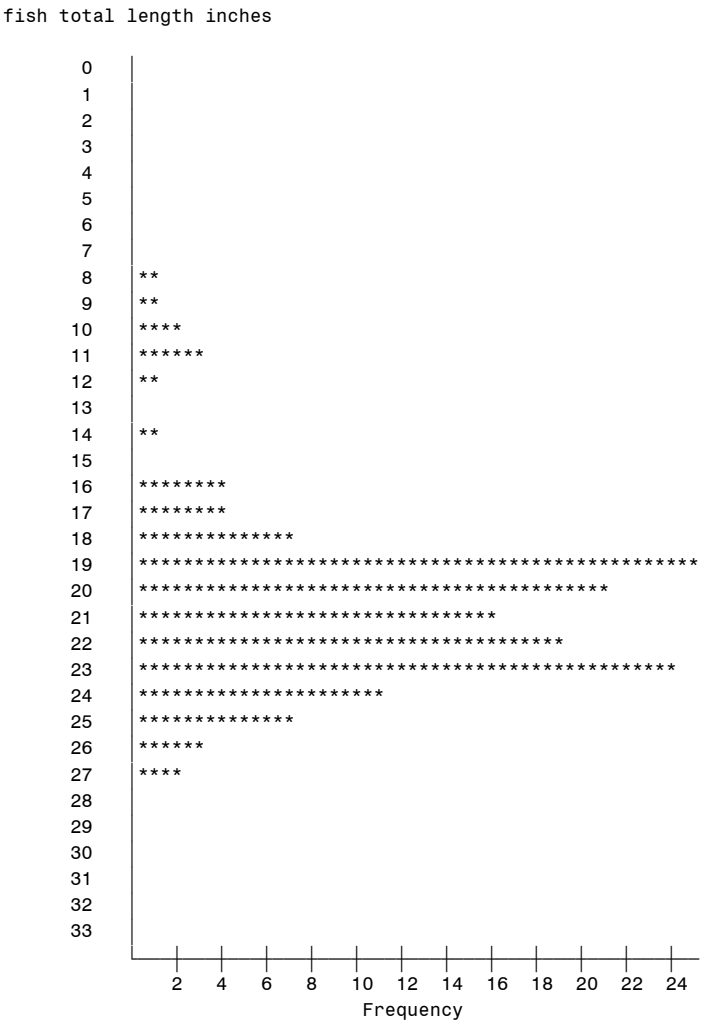
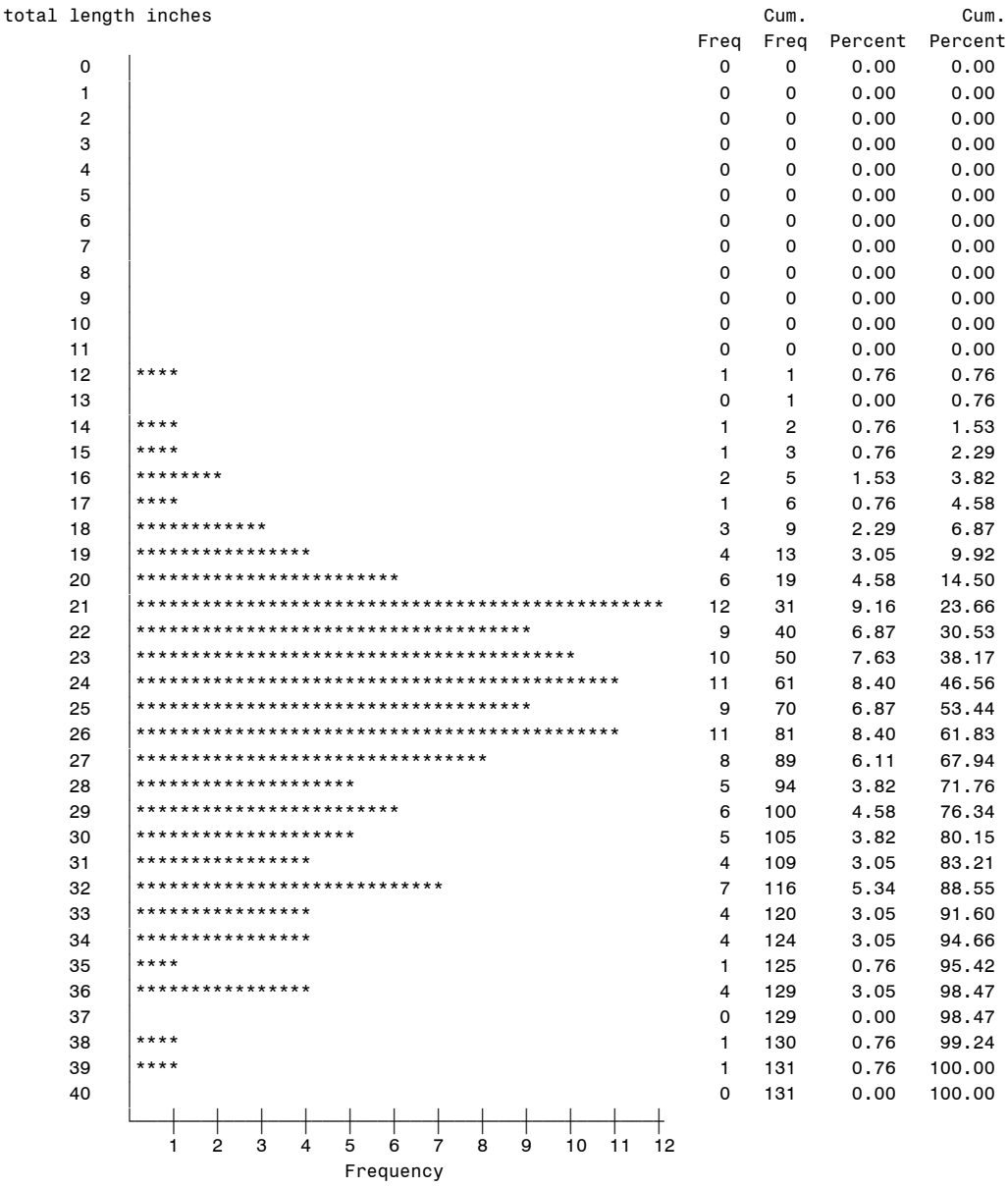


FIGURE 2. SPRING 2008 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), MALES.



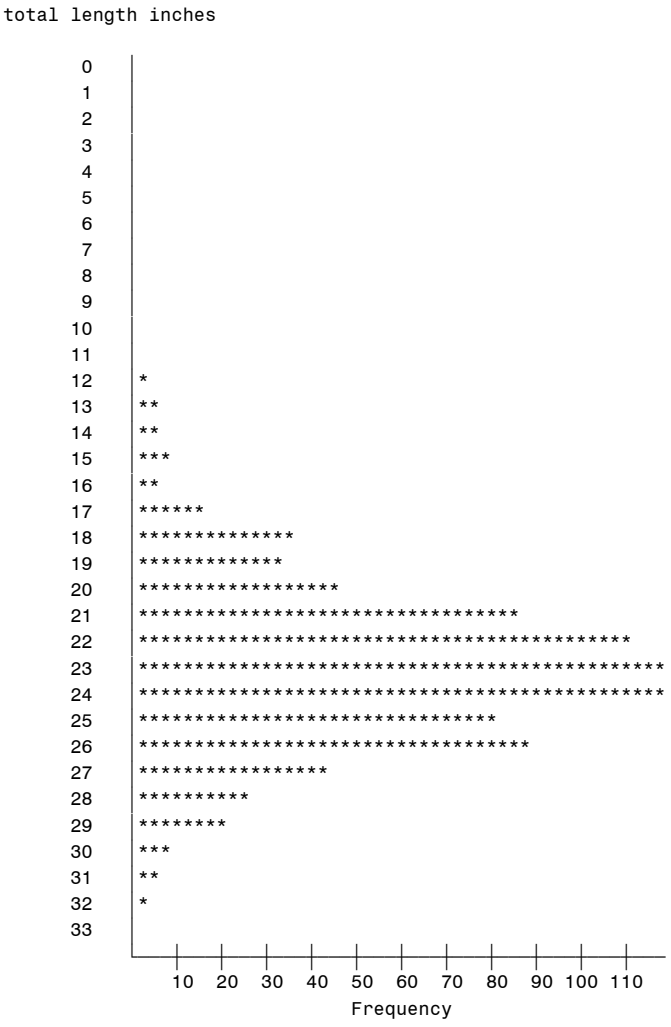
	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	1	1	0.66	0.66
9	1	2	0.66	1.32
10	2	4	1.32	2.63
11	3	7	1.97	4.61
12	1	8	0.66	5.26
13	0	8	0.00	5.26
14	1	9	0.66	5.92
15	0	9	0.00	5.92
16	4	13	2.63	8.55
17	4	17	2.63	11.18
18	7	24	4.61	15.79
19	25	49	16.45	32.24
20	21	70	13.82	46.05
21	16	86	10.53	56.58
22	19	105	12.50	69.08
23	24	129	15.79	84.87
24	11	140	7.24	92.11
25	7	147	4.61	96.71
26	3	150	1.97	98.68
27	2	152	1.32	100.00
28	0	152	0.00	100.00
29	0	152	0.00	100.00
30	0	152	0.00	100.00
31	0	152	0.00	100.00
32	0	152	0.00	100.00
33	0	152	0.00	100.00

FIGURE 3. SPRING 2008 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), FEMALES.



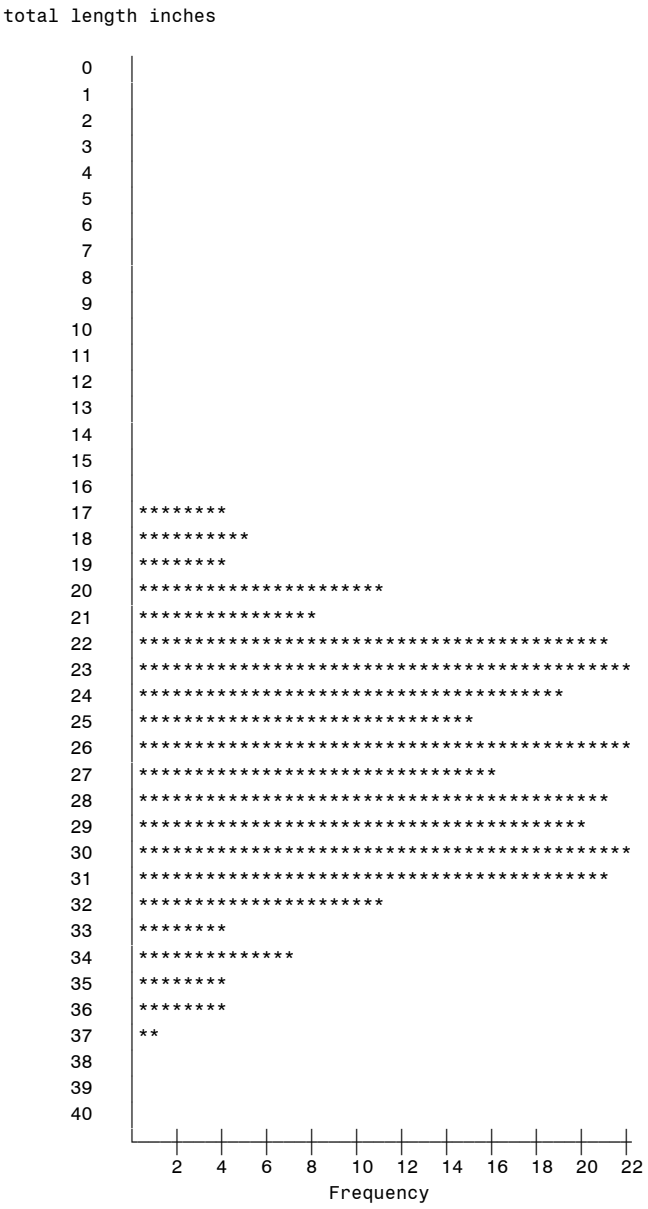
total length inches	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	0	0	0.00	0.00
12	1	1	0.76	0.76
13	0	1	0.00	0.76
14	1	2	0.76	1.53
15	1	3	0.76	2.29
16	2	5	1.53	3.82
17	1	6	0.76	4.58
18	3	9	2.29	6.87
19	4	13	3.05	9.92
20	6	19	4.58	14.50
21	12	31	9.16	23.66
22	9	40	6.87	30.53
23	10	50	7.63	38.17
24	11	61	8.40	46.56
25	9	70	6.87	53.44
26	11	81	8.40	61.83
27	8	89	6.11	67.94
28	5	94	3.82	71.76
29	6	100	4.58	76.34
30	5	105	3.82	80.15
31	4	109	3.05	83.21
32	7	116	5.34	88.55
33	4	120	3.05	91.60
34	4	124	3.05	94.66
35	1	125	0.76	95.42
36	4	129	3.05	98.47
37	0	129	0.00	98.47
38	1	130	0.76	99.24
39	1	131	0.76	100.00
40	0	131	0.00	100.00

FIGURE 4. SPRING 1976 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8 MALES.



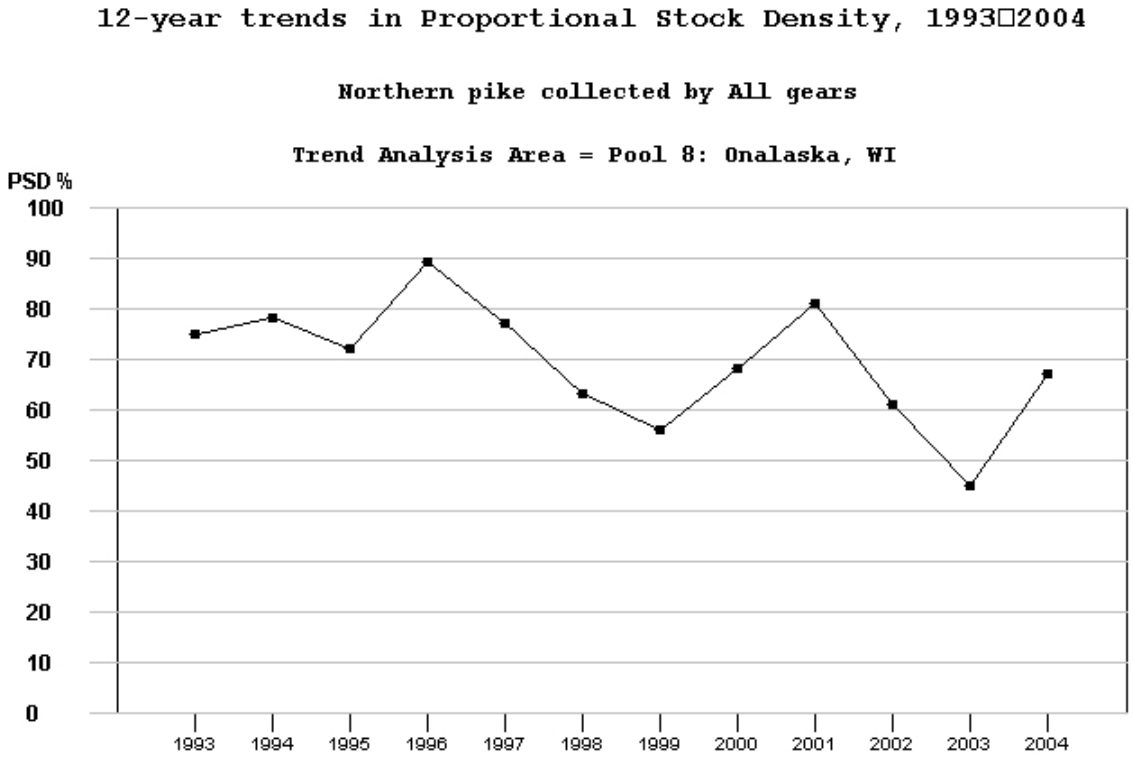
total length inches	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	1	1	0.12	0.12
12	3	4	0.35	0.47
13	4	8	0.47	0.94
14	5	13	0.59	1.53
15	7	20	0.82	2.36
16	4	24	0.47	2.83
17	14	38	1.65	4.48
18	35	73	4.12	8.60
19	32	105	3.77	12.37
20	44	149	5.18	17.55
21	84	233	9.89	27.44
22	111	344	13.07	40.52
23	118	462	13.90	54.42
24	117	579	13.78	68.20
25	79	658	9.31	77.50
26	88	746	10.37	87.87
27	42	788	4.95	92.82
28	26	814	3.06	95.88
29	19	833	2.24	98.12
30	8	841	0.94	99.06
31	4	845	0.47	99.53
32	3	848	0.35	99.88
33	1	849	0.12	100.00

FIGURE 5. SPRING 1976 NORTHERN PIKE LENGTH DISTRIBUTION (INCHES), POOL 8 FEMALES.



total length inches	Freq	Cum. Freq	Percent	Cum. Percent
0	0	0	0.00	0.00
1	0	0	0.00	0.00
2	0	0	0.00	0.00
3	0	0	0.00	0.00
4	0	0	0.00	0.00
5	0	0	0.00	0.00
6	0	0	0.00	0.00
7	0	0	0.00	0.00
8	0	0	0.00	0.00
9	0	0	0.00	0.00
10	0	0	0.00	0.00
11	0	0	0.00	0.00
12	0	0	0.00	0.00
13	0	0	0.00	0.00
14	0	0	0.00	0.00
15	0	0	0.00	0.00
16	0	0	0.00	0.00
17	4	4	1.53	1.53
18	5	9	1.91	3.44
19	4	13	1.53	4.96
20	11	24	4.20	9.16
21	8	32	3.05	12.21
22	21	53	8.02	20.23
23	22	75	8.40	28.63
24	19	94	7.25	35.88
25	15	109	5.73	41.60
26	22	131	8.40	50.00
27	16	147	6.11	56.11
28	21	168	8.02	64.12
29	20	188	7.63	71.76
30	22	210	8.40	80.15
31	21	231	8.02	88.17
32	11	242	4.20	92.37
33	4	246	1.53	93.89
34	7	253	2.67	96.56
35	4	257	1.53	98.09
36	4	261	1.53	99.62
37	1	262	0.38	100.00
38	0	262	0.00	100.00
39	0	262	0.00	100.00
40	0	262	0.00	100.00

FIGURE 6. POOL 8, 1993-2004 NORTHERN PIKE PROPORTIONAL STOCK DENSITY FROM LONG TERM RESOURCE MONITORING DATA.



APPENDIX 1. 2008 DATA.

STATION	HRS	TEMP_C	AVDEPTHM	SEX	GRAVID	REPR_CON	LENGTHIN	DAY	MONTH	YEAR4	SP_CODE
163		3	0.5					28	3	2008	
164		3.1	0.7					28	3	2008	
165		2.9	1					28	3	2008	
163	23.317	3.9	0.5	M	Y	G	17.8	29	3	2008	L02
163	23.317	3.9	0.5	M	Y	G	10.8	29	3	2008	L02
164	23.433	3.7	0.7	M	Y	G	11.0	29	3	2008	L02
164	23.433	3.7	0.7	M	Y	G	20.7	29	3	2008	L02
164	23.433	3.7	0.7	F	Y	G	20.9	29	3	2008	L02
164	23.433	3.7	0.7	M	Y	G	20.5	29	3	2008	L02
164	23.433	3.7	0.7	F	Y	G	24.2	29	3	2008	L02
164	23.433	3.7	0.7	M	N		19.2	29	3	2008	L02
164	23.433	3.7	0.7	F	Y	G	18.7	29	3	2008	L02
164	23.433	3.7	0.7	M	Y	G	24.1	29	3	2008	L02
164	23.433	3.7	0.7	F	Y	G	21.0	29	3	2008	L02
165	23.517	3.9	1	M	Y	G	19.1	29	3	2008	L02
165	23.517	3.9	1	F	Y	G	21.1	29	3	2008	L02
165	23.517	3.9	1	F	Y	G	21.7	29	3	2008	L02
165	23.517	3.9	1	M	Y	G	23.1	29	3	2008	L02
165	23.517	3.9	1	M	Y	G	19.0	29	3	2008	L02
165	23.517	3.9	1	F	Y	G	29.3	29	3	2008	L02
165	23.517	3.9	1	F	Y	G	29.2	29	3	2008	L02
165	23.517	3.9	1	M	Y	G	25.2	29	3	2008	L02
165	23.517	3.9	1	M	Y	G	20.9	29	3	2008	L02
163	23.35	4	0.5	M	Y	G	21.3	30	3	2008	L02
163	23.35	4	0.5	F	Y	G	20.4	30	3	2008	L02
164	23.417	4.8	0.7	F	Y	G	32.2	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	G	16.9	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	G	19.1	30	3	2008	L02
164	23.417	4.8	0.7	F	Y	G	28.7	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	R	22.2	30	3	2008	L02
164	23.417	4.8	0.7	F	Y	G	24.0	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	G	21.9	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	G	21.4	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	G	22.7	30	3	2008	L02
164	23.417	4.8	0.7	M	Y	G	22.5	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	23.2	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	23.9	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	20.7	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	18.9	30	3	2008	L02
165	23.417	4.9	1	F	Y	G	23.9	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	24.9	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	24.1	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	19.7	30	3	2008	L02
165	23.417	4.9	1	M	Y	G	21.8	30	3	2008	L02
165	23.417	4.9	1	F	Y	G	25.4	30	3	2008	L02
165	23.417	4.9	1	F	Y	G	22.5	30	3	2008	L02
163	19.05	4.2	0.5	F	Y	G	29.1	31	3	2008	L02
163	19.05	4.2	0.5	M	Y	G	24.4	31	3	2008	L02
163	19.05	4.2	0.5	U	Y		13.0	31	3	2008	L02
164	20.08	4.4	0.7	F	Y	G	24.0	31	3	2008	L02
164	20.08	4.4	0.7	M	Y	G	18.6	31	3	2008	L02
165	20.9	4.3	1	F	Y	G	31.9	31	3	2008	L02
165	20.9	4.3	1	F	Y	G	23.0	31	3	2008	L02
163	20.6	3.7	0.5	M	Y	G	8.5	1	4	2008	L02
163	20.6	3.7	0.5	F	Y	G	17.6	1	4	2008	L02
163	20.6	3.7	0.5	F	Y	G	22.0	1	4	2008	L02
163	20.6	3.7	0.5	F	Y	G	26.4	1	4	2008	L02

163	20.6	3.7	0.5	F	Y	G	27.0	1	4	2008	L02
163	20.6	3.7	0.5	M	Y	R	23.2	1	4	2008	L02
164	21.2	3.6	0.7					1	4	2008	Z98
165	21.901	3.8	1	M	Y	R	20.7	1	4	2008	L02
165	21.901	3.8	1	M	Y	R	23.0	1	4	2008	L02
165	21.901	3.8	1	M	Y	R	19.2	1	4	2008	L02
165	21.901	3.8	1	F	Y	G	27.0	1	4	2008	L02
165	21.901	3.8	1	M	Y	R	23.0	1	4	2008	L02
165	21.901	3.8	1	M	Y	R	23.2	1	4	2008	L02
165	21.901	3.8	1	F	Y	G	20.7	1	4	2008	L02
165	21.901	3.8	1	F	Y	G	23.0	1	4	2008	L02
165	21.901	3.8	1	M	Y	R	24.9	1	4	2008	L02
165	21.901	3.8	1	M	Y	R	19.4	1	4	2008	L02
166		2.9	0.3					1	4	2008	
167		4	0.8					1	4	2008	
168		4	0.9					1	4	2008	
163	26.67	5.8	0.5	M	Y	R	24.3	2	4	2008	L02
163	26.67	5.8	0.5	M	Y	R	24.1	2	4	2008	L02
163	26.67	5.8	0.5	F	Y	G	31.9	2	4	2008	L02
163	26.67	5.8	0.5	M	Y	R	25.7	2	4	2008	L02
163	26.67	5.8	0.5	M	Y	R	11.6	2	4	2008	L02
164	26.78	6	0.7					2	4	2008	Z98
165	26.83	6	1	M	Y	R	18.7	2	4	2008	L02
165	26.83	6	1	F	Y	G	25.7	2	4	2008	L02
165	26.83	6	1	M	Y	G	21.3	2	4	2008	L02
165	26.83	6	1	M	Y	R	22.5	2	4	2008	L02
165	26.83	6	1	M	Y	G	23.2	2	4	2008	L02
165	26.83	6	1	M	Y	R	16.5	2	4	2008	L02
165	26.83	6	1	F	Y	G	22.9	2	4	2008	L02
165	26.83	6	1	F	Y	R	27.1	2	4	2008	L02
165	26.83	6	1	M	Y	R	22.2	2	4	2008	L02
165	26.83	6	1	M	Y	R	21.9	2	4	2008	L02
165	26.83	6	1	F	Y	G	28.1	2	4	2008	L02
165	26.83	6	1	F	Y	G	39.4	2	4	2008	L02
165	26.83	6	1	U	N	I	12.6	2	4	2008	L02
166	26.15	4.9	0.3	M	Y	R	20.2	2	4	2008	L02
166	26.15	4.9	0.3	M	Y	R	16.1	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	26.1	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	20.9	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	22.9	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	23.7	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	32.0	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	22.4	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	28.0	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	24.4	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	24.1	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	23.4	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	20.8	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	25.6	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	19.4	2	4	2008	L02
167	26.16	6	0.8	F	Y	G	24.0	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	17.8	2	4	2008	L02
167	26.16	6	0.8	M	Y	R	21.1	2	4	2008	L02
168	26.3	5.6	0.9	F	Y	G	27.4	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	23.3	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	16.7	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	G	21.8	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	22.9	2	4	2008	L02
168	26.3	5.6	0.9	F	Y	R	26.1	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	25.0	2	4	2008	L02
168	26.3	5.6	0.9	F	Y	G	25.4	2	4	2008	L02

168	26.3	5.6	0.9	F	Y	G	23.2	2	4	2008	L02
168	26.3	5.6	0.9	F	Y	G	21.6	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	22.2	2	4	2008	L02
168	26.3	5.6	0.9	F	Y	G	20.9	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	19.8	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	19.9	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	19.7	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	23.4	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	18.9	2	4	2008	L02
168	26.3	5.6	0.9	F	Y	G	29.9	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	20.3	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	22.2	2	4	2008	L02
168	26.3	5.6	0.9	M	Y	R	22.4	2	4	2008	L02
169		4.9	1					2	4	2008	
170		4.9	0.4					2	4	2008	
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5		Y			3	4	2008	L02
163	24.75	6.4	0.5	M	Y	R	8.3	3	4	2008	X15
163	24.75	6.4	0.5	U	Y		7.9	3	4	2008	X15
163	24.75	6.4	0.5	M	Y	G	6.5	3	4	2008	X15
163	24.75	6.4	0.5	U	Y		6.7	3	4	2008	X15
164	25.2	6.1	0.7	F	Y	G	30.8	3	4	2008	L02
164	25.2	6.1	0.7	F	Y	G	25.2	3	4	2008	L02
164	25.2	6.1	0.7	F	Y	G	22.0	3	4	2008	L02
164	25.2	6.1	0.7	F	Y	G	10.3	3	4	2008	X15
164	25.2	6.1	0.7	F	Y	G	8.7	3	4	2008	X15
164	25.2	6.1	0.7	F	Y	G	11.4	3	4	2008	X15
165	25.08	5.9	1	M	Y	R	23.4	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	27.4	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	29.1	3	4	2008	L02
165	25.08	5.9	1	F	N	I	12.2	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	24.0	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	21.1	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	34.1	3	4	2008	L02
165	25.08	5.9	1	M	Y	R	19.1	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	23.1	3	4	2008	L02
165	25.08	5.9	1	M	Y	R	18.6	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	18.3	3	4	2008	L02
165	25.08	5.9	1	M	Y	R	25.1	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	30.3	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	14.9	3	4	2008	L02
165	25.08	5.9	1	M	Y	S	18.5	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	22.9	3	4	2008	L02
165	25.08	5.9	1	M	Y	R	22.6	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	38.2	3	4	2008	L02
165	25.08	5.9	1	F	Y	G	11.9	3	4	2008	X15
165	25.08	5.9	1	M	Y	R	7.1	3	4	2008	X15
165	25.08	5.9	1	F	Y	R	7.7	3	4	2008	X15
166	23.3	6.7	0.3	F	Y	G	23.2	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	20.3	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	18.3	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	20.1	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	20.9	3	4	2008	L02

166	23.3	6.7	0.3	F	Y	G	25.9	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	22.1	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	24.0	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	21.9	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	22.3	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	32.7	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	19.5	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	19.7	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	16.3	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	G	19.7	3	4	2008	L02
166	23.3	6.7	0.3	F	N	I	14.1	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	22.4	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	19.4	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	22.2	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	19.8	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	15.7	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	18.7	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	19.3	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	33.5	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	R	34.3	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	32.3	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	20.1	3	4	2008	L02
166	23.3	6.7	0.3	F	Y	G	22.4	3	4	2008	L02
166	23.3	6.7	0.3	M	Y	R	8.6	3	4	2008	X15
166	23.3	6.7	0.3	F	Y	G	11.6	3	4	2008	X15
167	24.92	7.5	0.8	F	Y	G	27.0	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	17.3	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	18.9	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	20.1	3	4	2008	L02
167	24.92	7.5	0.8	F	Y	G	32.2	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	24.9	3	4	2008	L02
167	24.92	7.5	0.8	F	Y	G	27.8	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	18.5	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	19.7	3	4	2008	L02
167	24.92	7.5	0.8	F	Y	G	20.2	3	4	2008	L02
167	24.92	7.5	0.8	F	Y	G	19.1	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	20.4	3	4	2008	L02
167	24.92	7.5	0.8	F	Y	G	25.3	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	19.3	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	19.4	3	4	2008	L02
167	24.92	7.5	0.8	M	Y	R	24.2	3	4	2008	L02
167	24.92	7.5	0.8	F	Y	G	9.1	3	4	2008	X15
168	23.9	5.7	0.9	F	Y	G	25.7	3	4	2008	L02
168	23.9	5.7	0.9	F	Y	G	22.8	3	4	2008	L02
168	23.9	5.7	0.9	F	Y	G	21.4	3	4	2008	L02
168	23.9	5.7	0.9	M	Y	R	10.6	3	4	2008	L02
168	23.9	5.7	0.9	M			8.7	3	4	2008	L02
168	23.9	5.7	0.9	F	Y	G	31.1	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	17.6	3	4	2008	L02
169	23.57	6.2	1	F	Y	G	16.7	3	4	2008	L02
169	23.57	6.2	1	M	Y	G	16.9	3	4	2008	L02
169	23.57	6.2	1	M	Y	G	25.1	3	4	2008	L02
169	23.57	6.2	1	F	Y	G	25.1	3	4	2008	L02
169	23.57	6.2	1	F	Y	G	21.7	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	17.6	3	4	2008	L02
169	23.57	6.2	1	F	Y	R	20.0	3	4	2008	L02
169	23.57	6.2	1	M	Y	G	21.0	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	16.1	3	4	2008	L02
169	23.57	6.2	1	M	Y	G	10.4	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	18.2	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	23.0	3	4	2008	L02

169	23.57	6.2	1	M	Y	R	19.6	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	19.6	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	21.0	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	18.9	3	4	2008	L02
169	23.57	6.2	1	F	Y	G	28.3	3	4	2008	L02
169	23.57	6.2	1	F	Y	G	27.6	3	4	2008	L02
169	23.57	6.2	1	M	Y	R	26.8	3	4	2008	L02
169	23.57	6.2	1	F	Y	G	36.2	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	26.8	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	R	20.4	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	29.9	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	29.5	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	R	22.9	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	21.1	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	17.5	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	22.4	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	G	9.6	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	R	19.7	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	G	21.6	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	22.8	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	R	22.0	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	R	26.4	3	4	2008	L02
170	24.2	7.5	0.4	M	Y	R	15.9	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	S	30.7	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	G	24.6	3	4	2008	L02
170	24.2	7.5	0.4	F	Y	R	8.8	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	7.3	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	6.1	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	7.8	3	4	2008	X15
170	24.2	7.5	0.4	F	Y	G	7.7	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	7.7	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	8.5	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	7.6	3	4	2008	X15
170	24.2	7.5	0.4	U	N	I	7.2	3	4	2008	X15
170	24.2	7.5	0.4	U	N	I	5.0	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	7.3	3	4	2008	X15
170	24.2	7.5	0.4	M	Y	R	6.4	3	4	2008	X15
163	22.83	8.7	0.5	F	Y	G	35.8	4	4	2008	L02
163	22.83	8.7	0.5	F	Y	R	26.0	4	4	2008	L02
163	22.83	8.7	0.5	M	Y	R	20.5	4	4	2008	L02
163	22.83	8.7	0.5	M	Y	R	19.5	4	4	2008	L02
163	22.83	8.7	0.5	F	Y	G	29.9	4	4	2008	L02
163	22.83	8.7	0.5	F	Y	S	23.3	4	4	2008	L02
163	22.83	8.7	0.5	F	Y	R	9.9	4	4	2008	X15
163	22.83	8.7	0.5	F	Y	G	8.2	4	4	2008	X15
163	22.83	8.7	0.5	F	Y	R	8.7	4	4	2008	X15
163	22.83	8.7	0.5	F	Y	G	7.3	4	4	2008	X15
164	22.23	7.3	0.7	F	Y	G	25.1	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	17.6	4	4	2008	L02
165	22.25	7.2	1	F	Y	G	35.6	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	22.8	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	23.8	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	23.7	4	4	2008	L02
165	22.25	7.2	1	F	Y	G	35.8	4	4	2008	L02
165	22.25	7.2	1	F	Y	S	34.1	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	26.4	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	20.5	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	19.5	4	4	2008	L02
165	22.25	7.2	1	F	Y	R	32.5	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	22.1	4	4	2008	L02
165	22.25	7.2	1	F	Y	G	34.1	4	4	2008	L02

165	22.25	7.2	1	M	Y	R	24.4	4	4	2008	L02
165	22.25	7.2	1	F	Y	G	26.4	4	4	2008	L02
165	22.25	7.2	1	F	Y	G	30.7	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	19.5	4	4	2008	L02
165	22.25	7.2	1	F	Y	G	33.1	4	4	2008	L02
165	22.25	7.2	1	M	Y	R	22.8	4	4	2008	L02
165	22.25	7.2	1	M	Y	G	20.2	4	4	2008	L02
166	21.2	5.4	0.3	M	Y	R	26.7	4	4	2008	L02
166	21.2	5.4	0.3	F	Y	R	24.4	4	4	2008	L02
166	21.2	5.4	0.3	F	Y	G	26.8	4	4	2008	L02
166	21.2	5.4	0.3	F	Y	G	11.2	4	4	2008	X15
166	21.2	5.4	0.3	F	Y	G	8.7	4	4	2008	X15
167	23.17	7.8	0.8	M	Y	R	19.9	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	22.5	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	23.4	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	20.7	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	25.8	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	25.8	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	R	33.3	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	19.7	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	R	25.0	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	19.1	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	R	25.2	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	21.3	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	21.1	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	22.2	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	22.2	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	24.2	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	19.6	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	22.6	4	4	2008	L02
167	23.17	7.8	0.8	M	Y	R	21.3	4	4	2008	L02
167	23.17	7.8	0.8	F	Y	G	29.3	4	4	2008	L02
168	23.27	7.8	0.9	M	Y	R	6.3	4	4	2008	X15
169	24.4	6.4	1	M	Y	R	13.9	4	4	2008	L02
169	24.4	6.4	1	F	Y	G	35.0	4	4	2008	L02
170	20.3	5.5	0.4	F	Y	G	21.0	4	4	2008	L02
170	20.3	5.5	0.4	U	Y		6.9	4	4	2008	X15
170	20.3	5.5	0.4	F	Y	G	9.1	4	4	2008	X15
170	20.3	5.5	0.4	M	Y	R	9.8	4	4	2008	X15
170	20.3	5.5	0.4	M	Y	R	6.2	4	4	2008	X15
170	20.3	5.5	0.4	M	Y	R	6.2	4	4	2008	X15