

2007 Warmwater Fisheries Assessment at Pultneyville, Lake Ontario

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Based on angler reports and the NYSDEC Lake Ontario fishing boat creel census, the near shore waters of Lake Ontario from near Irondequoit Bay (Monroe County) east to Port Bay (Wayne County) produced exceptional smallmouth bass fishing from about 1993 to about 2003 (Eckert 2004, Eckert 2006). In recent years, the NYSDEC Region 8 Fisheries Unit has received many angler complaints about a decline in smallmouth bass catch rates in this section of the lake. The creel census has also documented this decline (Eckert 2006, Lantry and Eckert 2008). As an initial step to determine the cause of the decline, the NYSDEC Region 8 Fisheries Unit conducted a warm water fish community assessment using gill nets near Pultneyville, Wayne County. Comparisons with earlier surveys can be made, as similar sampling was done in this area in 1976-1979 and 2000-2001 (Eckert and Pearsall 2002).

Methods

The warm water assessment utilized standard gangs of sinking gill nets set overnight on the bottom, parallel to depth contours. Each net gang consisted of nine 50 foot long net panels, 8 feet deep and ranging in size from 2-6 inch stretch mesh by 0.5 inch size increments. Two 450 foot long monofilament nets were set overnight for each night from July 16 to 18, 2007. The Pultneyville sample area is near Hughes Marina and is located 2.5 miles east of the mouth of Salmon Creek in Wayne County. Net locations and depths are given in Table 1. The 2007 survey followed methods previously described (Eckert

and Pearsall 2002). Correction factors were applied to the 1976-1979 data to account for gear changes and allow for comparison with 2000, 2001 and 2007 data (Eckert and Pearsall 2002).

All fish were identified, weighed and measured for total length. Scales were taken from a sub sample of rock bass, smallmouth bass, and yellow perch for age determination. Ages were determined from magnification of scales with a stereo microscope. A sample of 31 smallmouth bass were preserved on ice and sent to the U.S. Fish and Wildlife Service (USFWS) Fish Health Center laboratory in Lamar, PA for Viral Hemorrhagic Septicemia Virus (VHSV) detection. A sample of 17 legal sized (>12") smallmouth bass were preserved by freezing and sent to the NYSDEC Rome Field Station laboratory in Gloversville, NY for contaminant analysis under the Statewide Toxics Monitoring Program (STMP).

Results and Discussion

Catch per unit effort (CPUE) estimates for the 2007 survey are presented in Table 2. In 2007, six net sets yielded 13 fish species and a total of 521 fish (86.8 fish per net). Three hundred twenty five smallmouth bass accounted for 62 percent of the catch, or 54.17 smallmouth bass per net. The second and third most commonly caught fish were yellow perch (17% of the catch) and rock bass (10% of the catch). Of note, an approximately 48" lake sturgeon was caught in one net, but escaped before it could be hauled aboard the *Stone II*. Round gobies were sampled for the first time at Pultneyville in 2007. All smallmouth bass tested negative for VHSV (John Coll, USFWS

personal communication). STMP analysis results are pending.

Total warm water fish catches in the Pultneyville area increased 44.0% between 1976-1979 and 2000-2001 (Table 3). Total warm water fish catches decreased 36% between 2000-2001 and 2007. Three of the most common species from the 1976-1979 period (alewife, gizzard shad, and white perch) continued to decline through 2007 (Table 3).

Declines in smallmouth bass, rock bass, and yellow perch indices of abundance were observed in 2007 when compared with the 2001 and 2000 surveys (Table 3). However, the 2007 smallmouth bass, rock bass, and yellow perch CPUEs were above the 1976-1979 average estimates (Table 3). The 2007 Pultneyville smallmouth bass CPUE was well above the mean smallmouth bass CPUEs observed in the eastern basin of Lake Ontario (1976-1979=27.6, 2000-2001=4.0, and 2007=6.4) (Eckert and Pearsall 2002, Lantry 2008). Eckert and Pearsall (2002) provide speculative reasons for the changes in the warm water fish community observed between 1976-1979 and 2000-2001. While a moderate recent decline in smallmouth bass index of abundance was observed, the current smallmouth bass CPUE is still considered to be high enough to produce a quality fishery, given that the smallmouth bass index of abundance is still above historical levels. Anecdotal fishing reports suggest that the recent round goby invasion has hampered smallmouth bass fishing success by anglers using traditional drift fishing techniques. Round gobies are readily taking baits presented by anglers targeting smallmouth bass. Some anglers have avoided catching gobies and are successfully catching smallmouth bass by switching from drift fishing to trolling.

Length and age data for the three most common warm water game fish caught in Lake Ontario at Pultneyville in 2007 (rock bass, smallmouth bass, and yellow perch) are presented in Figures 1-7. Smallmouth bass from Pultneyville reached legal size (12" [305 mm]) at age 4 or 5 in 2007 (Figure 1). Lake Ontario Eastern basin smallmouth bass reached legal size at age 3 or 4 in 2007 (Lantry 2008), and smallmouth bass from the Thousand Island region reached legal size at age 5 or 6 in 2005 (McCullough and Hart 2006). Yellow perch growth rates from Lake Ontario at Pultneyville are greater than yellow perch growth rates from the Thousand Islands region (McCullough and Hart 2006) (Figure 4).

Age-2 (2005 year class) and age-5 (2002 year class) smallmouth bass were well represented in the sample, while the 2004 year class (age 3 in 2007) was poorly represented (Figure 6). The smallmouth bass population may be driven by the 2005 and 2002 year classes for the years to come. Catches of quality sized smallmouth bass should be possible over the next several years, as the 1999-2001 year classes were also well represented in the 2007 sample (Figure 7). Smallmouth bass in the 201-225 mm and the 351-375 mm length intervals dominated the population in 2000 (Figure 8). Age data was not reported for the 2000-2001 surveys, but ages can be inferred from length frequency data. Based on mean length at age calculations from the 2007 data, these fish are likely age 2 (1998 year class) and age 6 (1994 year class), assuming that growth was consistent between years. These year classes appear as the 226-275 mm (likely age 3) and 376-400 mm (likely age 7) length intervals in 2001 (Figure 9). Survival of the 1998 year class appears to be good, because several age 9 smallmouth bass were caught in 2007 (Figure 6). Length and age frequency data indicates that recruitment and survival appear to be consistent between the 2007 and 2000-2001 periods.

References

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- McCullough, R. D., and J. J. Hart. 2006. Thousand Islands Warmwater Fish Stock Assessment. Section 6 *in* NYSDEC 2005 Annual Report, Bureau of Fisheries, Lake Ontario Unit and Saint Lawrence River Unit to the Great Lakes Fishery Commission's Lake Ontario Committee.

Table 1. Locations of warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

Site	Date pulled	Depth (ft)	Latitude	Longitude
2	7/17/2007	28.3 - 29.0	N 43° 17.307'	W 77° 05.004'
3	7/17/2007	16.0 - 19.5	N 43° 17.329'	W 77° 05.430'
4	7/18/2007	16.0 - 22.0	N 43° 17.132'	W 77° 10.604'
5	7/18/2007	10.0 - 16.0	N 43° 17.361'	W 77° 09.195'
6	7/19/2007	19.6 - 25.1	N 43° 17.272'	W 77° 08.166'
7	7/19/2007	10.6 - 12.2	N 43° 17.448'	W 77° 07.409'

Table 2. Catch per unit effort data from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

Species	SITES						Total	CPUE (No./Net)
	2	3	4	5	6	7		
Lake sturgeon	0	0	1	0	0	0	1	0.17
Alewife	3	2	0	1	0	0	6	1.00
Gizzard shad	1	0	2	0	0	0	3	0.50
Brown trout	3	3	2	3	0	0	11	1.83
Common carp	0	0	1	0	0	0	1	0.17
White sucker	1	5	5	4	3	2	20	3.33
White perch	0	0	2	1	0	0	3	0.50
Rock bass	12	9	10	4	9	6	50	8.33
Pumpkinseed	0	1	0	0	0	0	1	0.17
Bluegill	0	0	0	0	0	0	0	0.00
Smallmouth bass	54	77	34	38	85	37	325	54.17
Yellow perch	5	20	20	18	12	15	90	15.00
Freshwater drum	0	0	3	3	0	2	8	1.33
Round goby	2	0	0	0	0	0	2	0.33
Total	81	117	80	72	109	62	521	86.83

Table 3. Catch per unit effort data from the 1976-1979, 2000-2001, and 2007 warm water gill nets set in Lake Ontario near Pultneyville, NY.

	Mean catch per 450 ft monofilament gill net gang						
	1976	1977	1978	1979	2000	2001	2007
Lake sturgeon	0	0	0	0	0	0.17	0.17
Bowfin	0	0.05	0	0	0	0	0
American eel	0.10	0	0.05	0	0	0	0
Alewife	31.75	4.0	54.65	66.71	1.8	0.50	1.0
Gizzard shad	2.60	4.20	3.25	2.57	1.10	0	0.50
Northern pike	0	0	0	0.07	0	0	0
Goldfish	0.10	0.30	0.15	0	0	0.17	0
Common carp	0.80	0.35	0.60	0.93	0.30	0	0.17
White sucker	2.75	1.70	5.35	7.43	9.10	6.83	3.33
Silver redhorse	0	0.05	0.05	0.07	0	1.50	0
Shorthead redhorse	0	0	0	0	0.10	0	0
Greater redhorse	0	0	0	0	0.80	0	0
unidentified redhorse	0.05	0	0	0	0	0	0
Brown bullhead	0.19	0.08	0.05	0.23	0	0	0
Channel catfish	0	0	0	0	0.30	0	0
Stonecat	0	0	0	0.07	0.10	0.67	0
White perch	36.34	33.61	5.46	6.50	0.20	0.17	0.50
White bass	0.20	0.25	0.25	0.64	0	0	0
Rock bass	7.25	6.43	6.76	3.04	19.20	13.67	8.33
Pumpkinseed	0.10	0.22	0.15	0.57	0	0.17	0.17
Smallmouth bass	11.53	17.11	16.55	16.21	78.90	86.33	54.17
Yellow perch	0.34	0.21	0.34	11.35	12.20	23.17	15.00
Walleye	0	0.08	0	0.32	0.80	0.33	0
Freshwater drum	0.22	0	0.15	0.21	3.80	6.67	1.33
Round goby	0	0	0	0	0	0	0.33
WW Fish Total	94.32	68.63	93.82	116.93	128.70	140.33	85.0
No. Net Gangs	10	10	10	7	10	6	6

Figure 1. Mean length at age for rock bass (ROB), smallmouth bass (SMB) and yellow perch (YP) from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

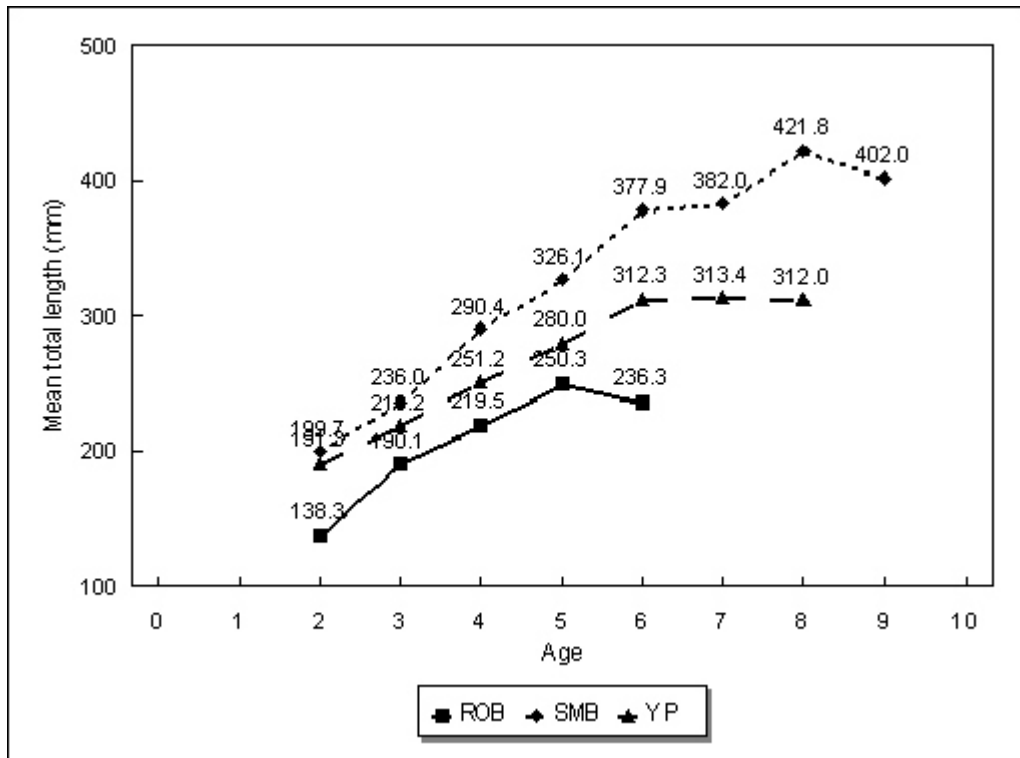


Figure 2. Length frequency distribution of rock bass from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

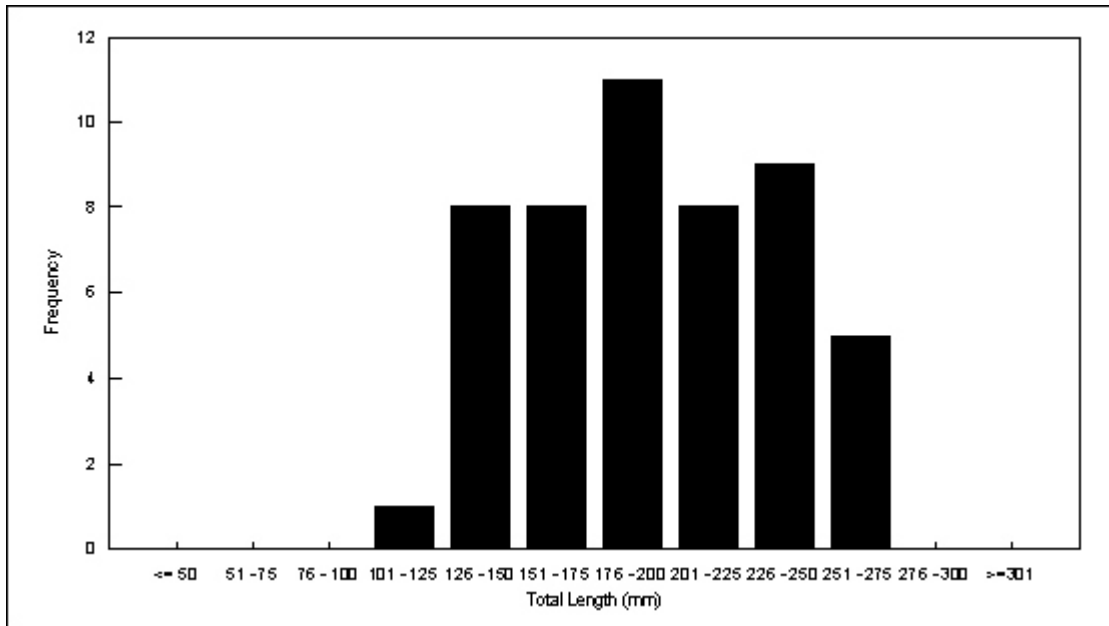


Figure 3. Age frequency distribution of rock bass from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

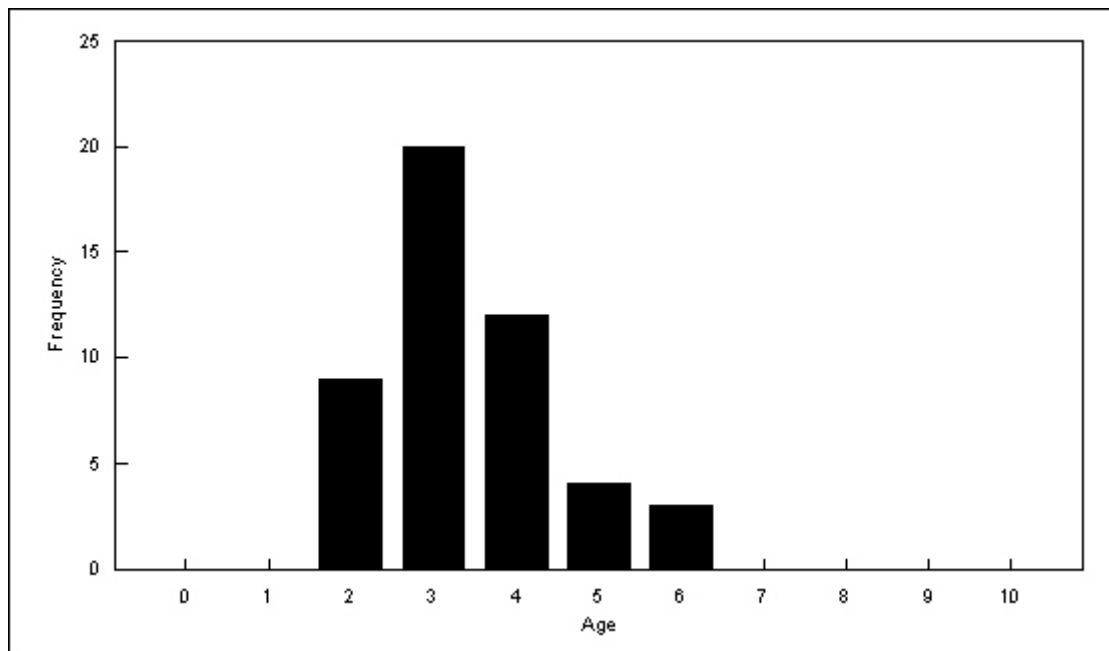


Figure 4. Length frequency distribution of yellow perch from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

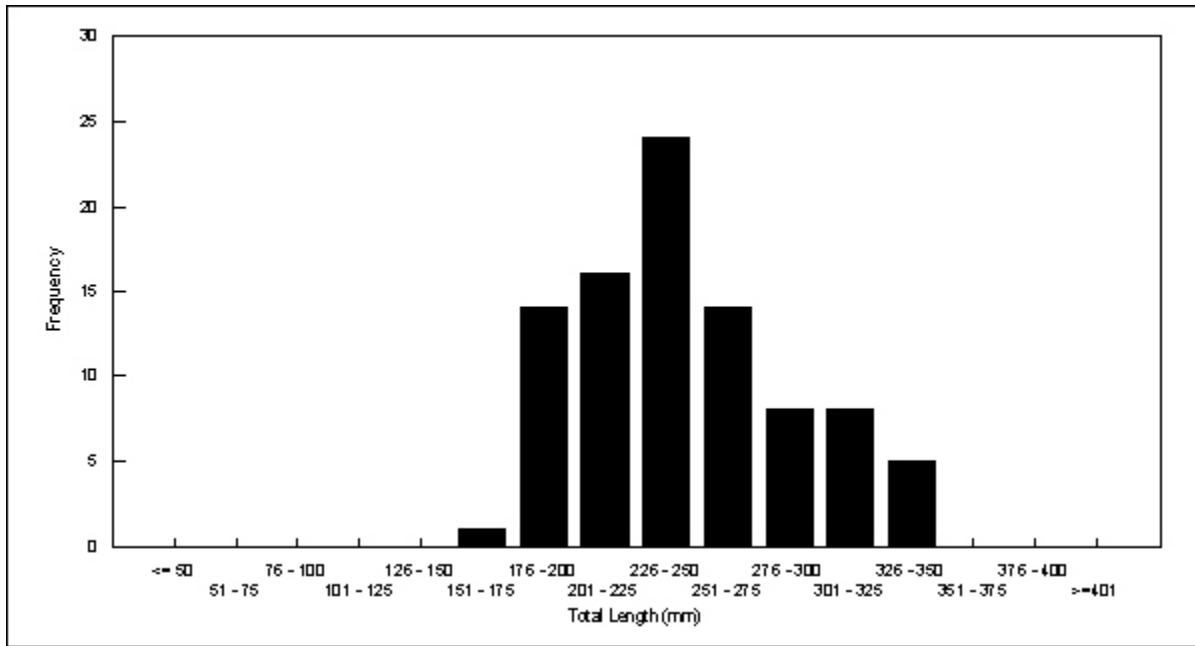


Figure 5. Age frequency distribution of yellow perch from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

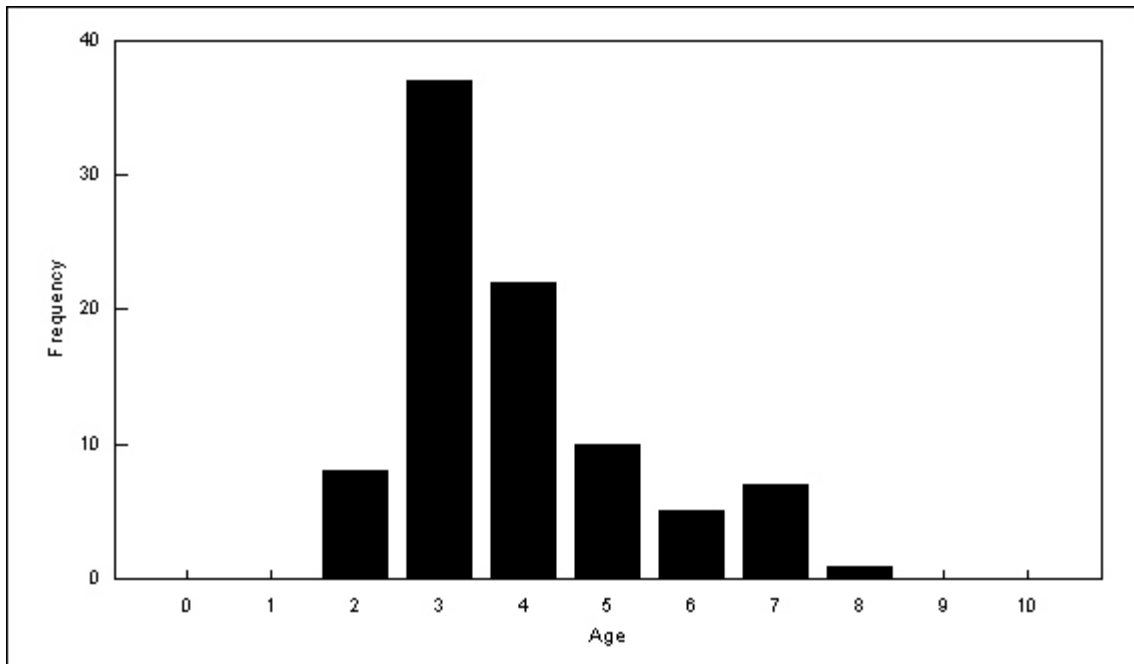


Figure 6. Age frequency distribution of smallmouth bass from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

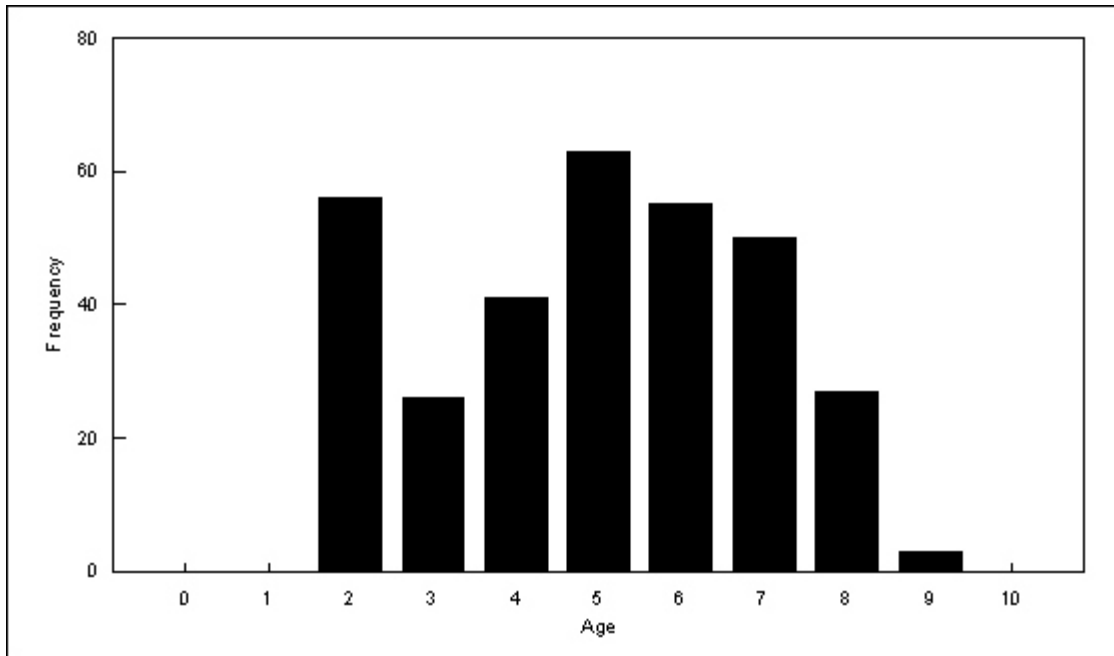


Figure 7. Length frequency distribution of smallmouth bass from warm water gill nets set in Lake Ontario near Pultneyville, NY in July 2007.

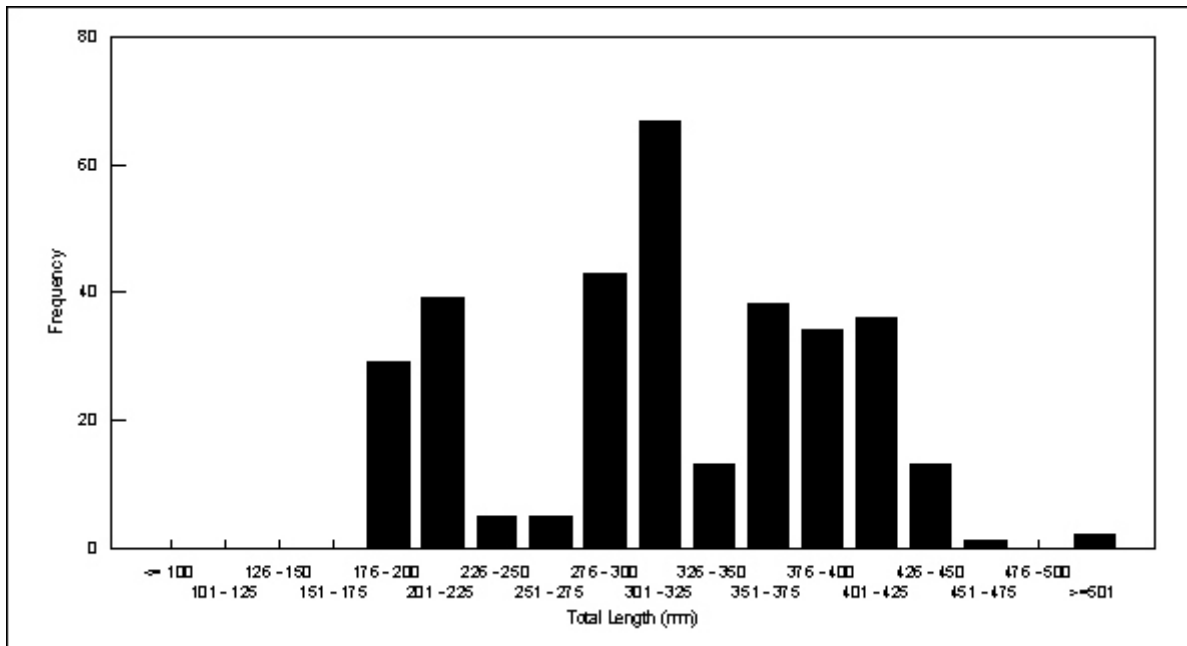


Figure 8. Length frequency distribution of smallmouth bass from warm water gill nets set in Lake Ontario near Pultneyville, NY in August 2000.

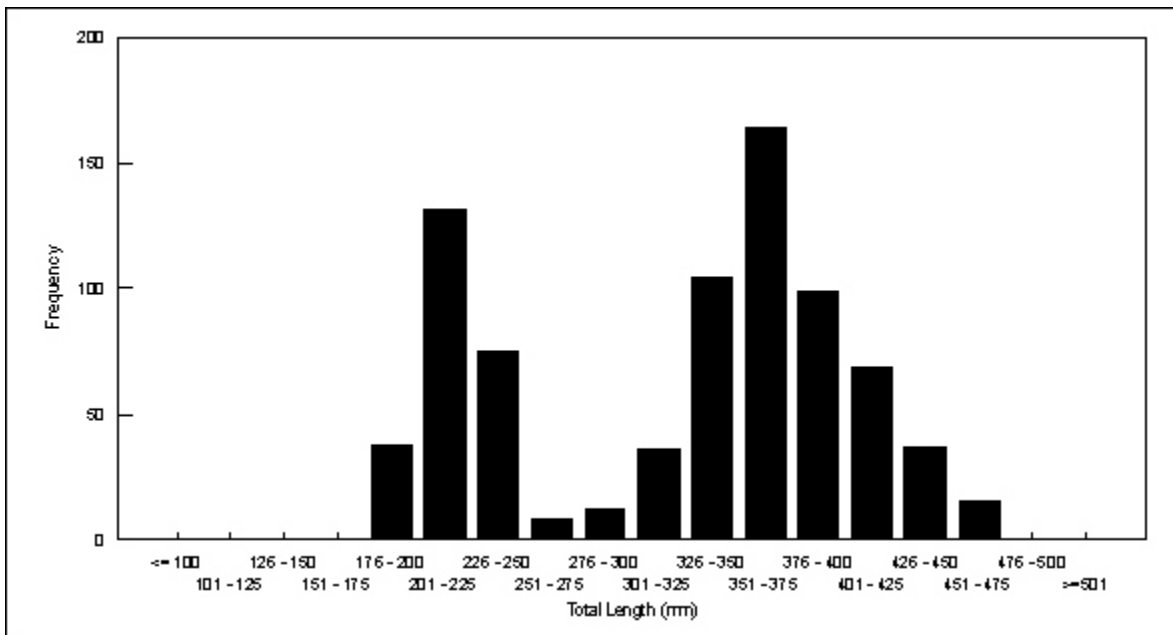


Figure 9. Length frequency distribution of smallmouth bass from warm water gill nets set in Lake Ontario near Pultneyville, NY in August 2001.

