

STREAM ASSESSMENT



MINNESOTA DEPARTMENT OF NATURAL RESOURCES DIVISION OF FISH AND WILDLIFE

Report Date: March 1, 2010

Region	Area	Stream Name	Tributary No.	Stream Length
3	Lake City	Zumbro River	M-34	57.6 Miles

County	Watershed Name, No.	Source (T, R, S)	Mouth (T, R, S)
Wabasha	Zumbro, 41	109-14-27	110-9-31

Date(s) of Assessment: May 8, 11, 12, 15, 2009

Assessment Purpose: Determine abundance and size structure of smallmouth bass in two stations in the Zumbro River.

Station	Similar Reach	Stream Mile	Length (ft)	Mean Width (ft)	Acres	Water Temp (F)	Air Temp (F)	Downstream UTM's	
								utm _x (↔)	utm _y (↑)
Klein's	2	57.6	8450			60		541,553	4,899,917
Hammond	2	45.2	6500			62		548,454	4,899,448

Summary: Smallmouth bass population estimates were completed on two stations on the Main Branch Zumbro River in 2009. The long-term (Klein's) station was sampled and a new station was established between Zumbro Falls and Hammond (Hammond Station). Habitat is similar in each station, but they are not equal lengths, so total catch is not comparable. The long-term station is within the special regulation area (no harvest of smallmouth bass allowed) and the new station is under state-wide fishing regulations (6 bass daily limit). Past surveys on the long-term station were completed using a 3-pass Schnabel method, but beginning in 2009 the sampling methodology was changed to a 2-pass, mark-recapture method utilizing a modified (Chapman) Peterson estimate. Following previous methodology, two pulsed-DC electrofishing boats were utilized on the long-term station. Only one boat was used in station 2. These methods will be followed in all future assessments on these stations. On the first run all gamefish were captured if possible. To avoid injury to fish, not all muskellunge sighted were captured, but attempts were made to estimate numbers and lengths. Estimated lengths are reported separately in Table 2. All captured fish were identified and measured. Smallmouth bass greater than 7 inches long were given a mark (caudal fin clip) for identification on the recapture run. On the second run, all smallmouth bass were captured and measured and fish greater than 7 inches were examined for marks. The same methodology was utilized in both stations. The reported length frequencies do not include recaptured (marked) fish or smallmouth bass < 7 inches long in the second run. No age-growth data was collected this year.

Klein's Station

A total of 243 smallmouth bass greater than 7 inches (Stock size) were captured in both runs. Of those, 193 were >11 inches (Quality size). The calculated Stock Density ratings were as follows: PSD - 79, RSD-P - 22 and RSD(15) - 16. These quality ratings are similar to those observed in 2008. The abundance estimate of fish greater than 7 inches was 475 fish (95% CL 377-573) or 56.2 fish per 1000 feet. The estimates of smallmouth longer than 11 and 14 inches were 341 (271-411) and 70 (54-86) fish, respectively.

Stream Main ZumbroTributary Number M-34**Summary (cont'd):****Hammond Station**

The Hammond station was sampled using one pulsed-DC electrofishing boat. Station length was slightly shorter (6500 feet) so total catch is not directly comparable. A total of 143 smallmouth > 7 inches were sampled in two runs. The estimate of smallmouth >7 inches within the station was 283 fish (95% CL 207-360), or 43.5 per 1000 feet. Stock Density ratings were lower than in Kleins station with a PSD rating of 45, RSD-P of 16 and RSD(15) was 7. The estimates of fish greater than 11 and 14 inches were 91 (70-113) and 26 (21-31) fish, respectively. Total population of stock size smallmouth, as well as quality indices are lower than in the long-term station.

Muskellunge

A total of nine muskellunge were captured and measured in Kleins station during run 1. They ranged in length from 24.6 to 43.7 inches with a mean length of 34.6 inches. Length frequency distribution is included on page 4 and individual lengths are reported in Table 1. To avoid injury to the fish, not all muskellunge were captured, but attempts were made by both boats to estimate lengths of other muskellunge sighted. An additional 12 fish were sighted. The estimated lengths are reported in Table 2. It is quite likely that some of those fish were observed and reported by each boat, especially the 48 inch fish. No muskellunge were observed in the Hammond station.

Stream Main ZumbroTributary Number M-34**Fishery Characteristics**

Station	Klein's		Hammond					
Date	5/8 & 11/2009		5/12 & 15/2009					
Gear	Smith-Root		Smith-Root					
EFFORT (FEET)	8450 feet 2 runs		6500 feet 2 runs					
Species	No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)	No.	Wt. (lb)
Black bullhead	1	-						
Black crappie	3	-						
Bluegill	2	-						
Brown trout	6	-						
Channel catfish	9	-	4	-				
Largemouth bass	1	-						
Muskellunge	9	-						
Northern pike	7	-	1	-				
Rock bass	8	-	1	-				
Sauger	5	-	2	-				
Smallmouth bass*	330	-	199	-				
Walleye	2	-						
White bass	3	-						

* Recaptured fish from run 2 are not included in totals

Length Class Distributions – Klein's Station, SPRING 2009

May 8, 11, 2009

Stream Main ZumbroTributary Number M-34

Species	SMB	BLB	BLC	BLG	BNT	CCF	LMB	MUE
Station	Klein's							
Length (in)								
< 6.0	20							
6.0 - 6.9	27		3	1				
7.0 - 7.9	6			1	1			
8.0 - 8.9	12					1		
9.0 - 9.9	17				2			
10.0 - 10.9	15	1						
11.0 - 11.9	52							
12.0 - 12.9	48							
13.0 - 13.9	40				1			
14.0 - 14.9	15						1	
15.0 - 15.9	15				1			
16.0 - 16.9	14							
17.0 - 17.9	6							
18.0 - 18.9	3							
19.0 - 19.9						1		
20.0 - 20.9						1		
21.0 - 21.9						1		
22.0 - 22.9					1			
23.0 - 23.9						1		
24.0 - 24.9						3		2
25.0 - 25.9								
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9						1		
29.0 - 29.9								
30.0 - 34.9								2
35.0 - 39.9								4
40.0 - 44.9								1
45.0 - 49.9								
Total No.	290	1	3	2	6	9	1	9
Mean Length	11.4	10.4	6.6	6.9	13.0	21.8	14.0	34.6

Length Class Distributions – Klein’s Station, SPRING 2009

May 8, 11, 2009

Stream Main Zumbro

Tributary Number M-34

Species	NOP	RKB	SAR	WAE	WHB			
Station	Klein’s							
Length (in)								
< 6.0		4						
6.0 - 6.9		2						
7.0 - 7.9		1						
8.0 - 8.9		1						
9.0 - 9.9								
10.0 - 10.9								
11.0 - 11.9			2					
12.0 - 12.9			1	1				
13.0 - 13.9					1			
14.0 - 14.9	1				1			
15.0 - 15.9				1	1			
16.0 - 16.9								
17.0 - 17.9			1					
18.0 - 18.9								
19.0 - 19.9	1							
20.0 - 20.9			1					
21.0 - 21.9	1							
22.0 - 22.9	1							
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9	1							
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 34.9	2							
35.0 - 39.9								
40.0 - 44.9								
45.0 - 49.9								
Total No.	7	8	5	2	3			
Mean Length	23.6	6.4	14.7	13.9	14.2			

Length Class Distributions – Hammond Station, SPRING 2009

May 12, 15, 2009

Stream Main Zumbro

Tributary Number M-34

Species	SMB	CCF	NOP	RKB	SAR			
Station	Hamm.							
Length (in)								
< 6.0	23							
6.0 - 6.9	16			1				
7.0 - 7.9	27							
8.0 - 8.9	28							
9.0 - 9.9	9							
10.0 - 10.9	14							
11.0 - 11.9	11				1			
12.0 - 12.9	19							
13.0 - 13.9	12				1			
14.0 - 14.9	13							
15.0 - 15.9	7							
16.0 - 16.9	1							
17.0 - 17.9	1							
18.0 - 18.9	1							
19.0 - 19.9		1						
20.0 - 20.9		1						
21.0 - 21.9								
22.0 - 22.9		1						
23.0 - 23.9								
24.0 - 24.9								
25.0 - 25.9		1						
26.0 - 26.9								
27.0 - 27.9								
28.0 - 28.9								
29.0 - 29.9								
30.0 - 34.9								
35.0 - 39.9			1					
40.0 - 44.9								
45.0 - 49.9								
Total No.	182	4	1	1	1			
Mean Length	9.7	22.2	35.8	6.5	12.2			

Stream Main ZumbroTributary Number M-34**Table 1.** Individual lengths of muskellunge captured in Kleins station, Run 1.

<u>Length</u>
24.6
24.8
30.1
34.6
37.2
37.6
39.4
39.8
43.7
<u>Total = 9</u>

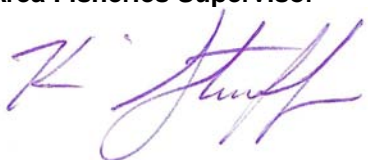
Table 2. Estimated lengths of muskellunge sighted but not captured in Kleins station, Run 1.

<u>Estimated length Group (Inches)</u>	<u>Number</u>
30 - 32	1
33 - 34	
35 - 36	5
37 - 38	1
39 - 40	1
41 - 42	1
43 - 44	
45 - 46	1
47 - 48	2
48+	
<u>Total</u>	<u>12</u>

Stream Main Zumbro

Tributary Number M-34

Credits and Signatures

Field Crew: Jeff Weiss, Jonathan Meerbeek, Randy Binder, Dan Dieterman			
Approved by:			
Area Fisheries Supervisor	Date	Regional Fisheries Manager	Date
	3/20/2010		

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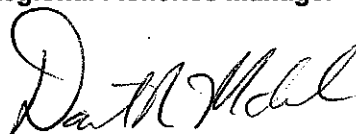
Date

Regional Fisheries Manager

Date



3/20/2010



5/7/10

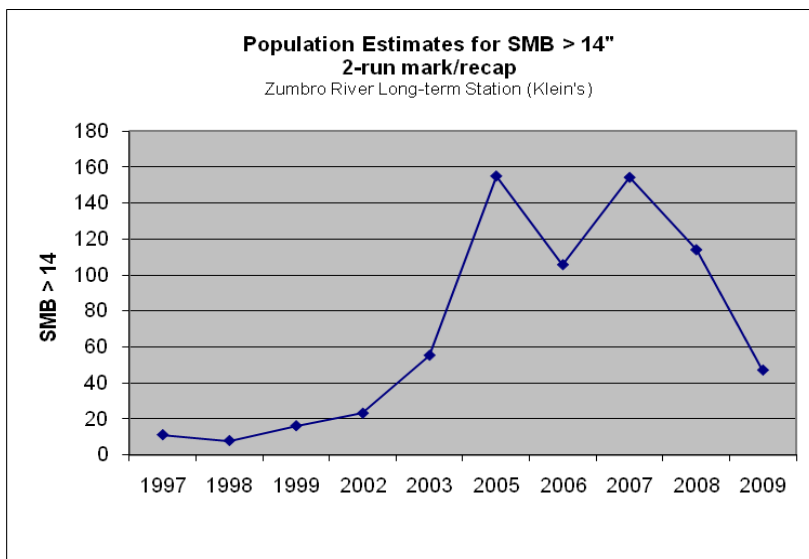
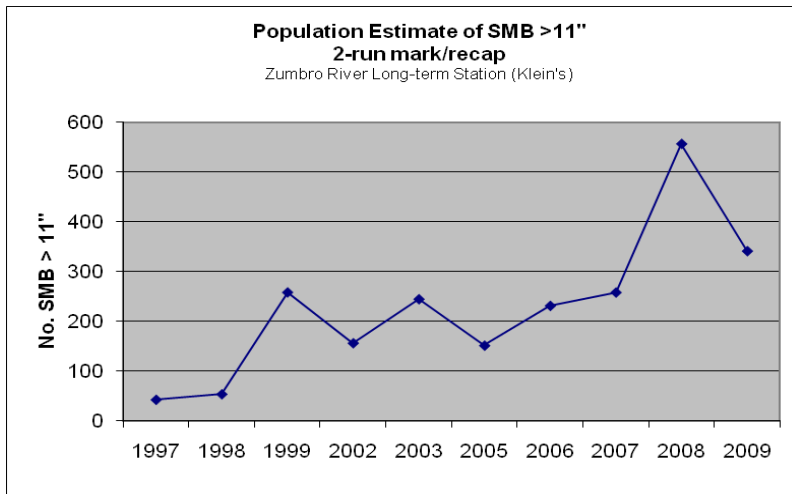
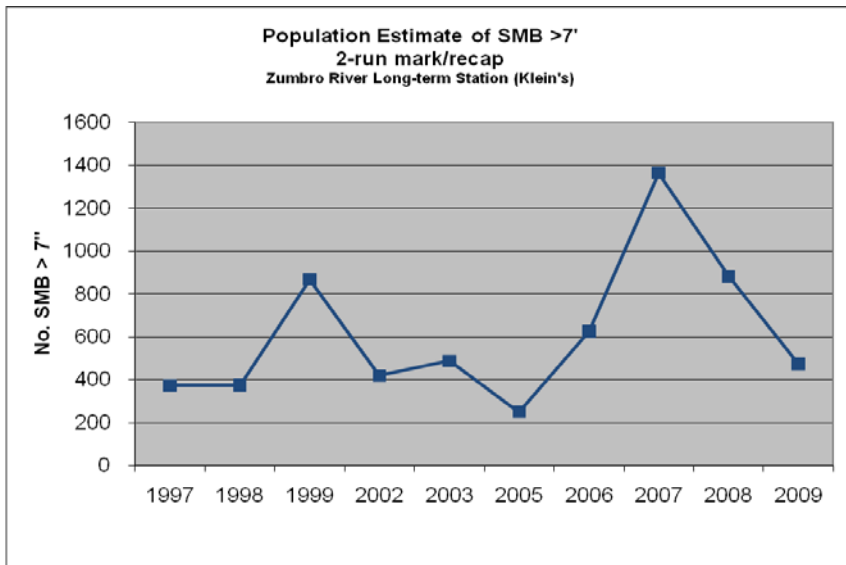


Figure 1 – abundance trends of smallmouth bass, by size group, in the Zumbro River long-term monitoring station (Klein's station).

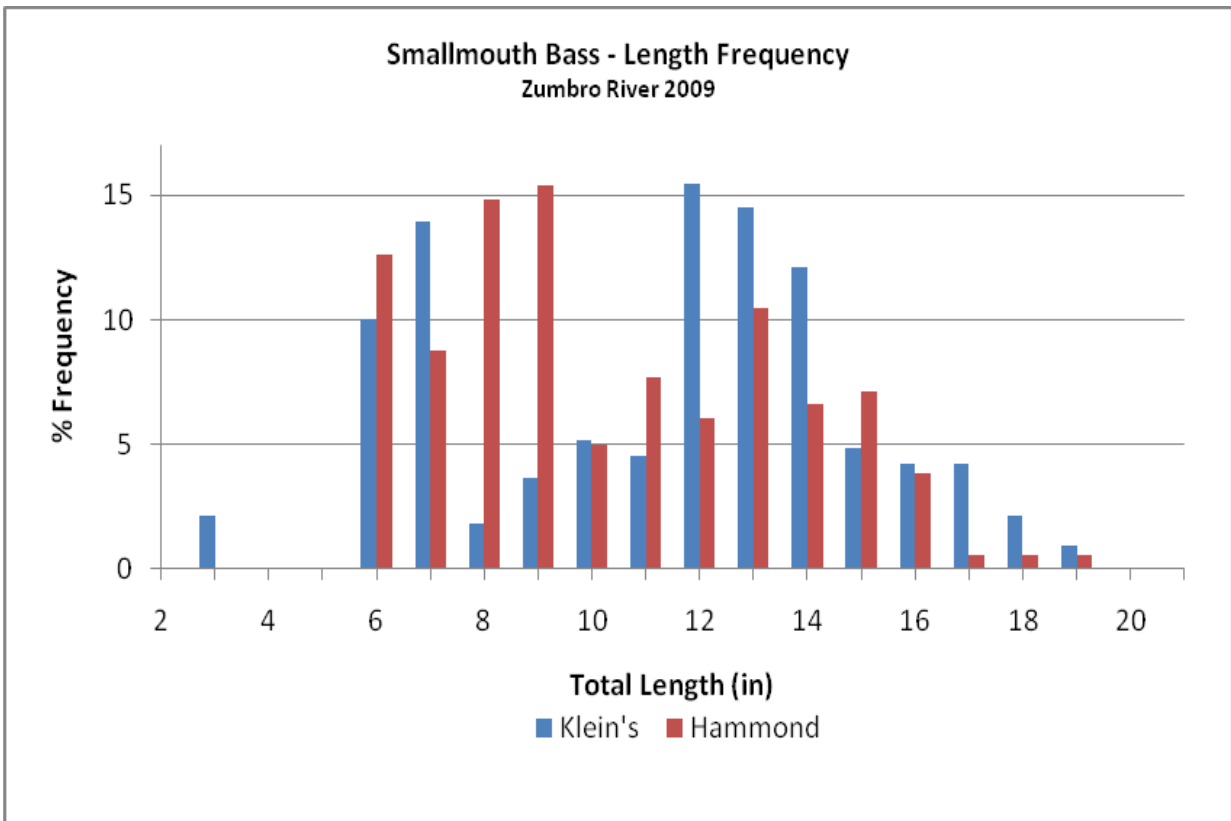


Figure 2 – comparison of length frequency distributions of smallmouth bass in two stations of the Zumbro River.