



MINNESOTA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND WILDLIFE
STREAM ASSESSMENT REPORT

Report Date: March 23, 2013

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 2012.

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					541553	4899917
Hammond	2	45.2	6500					548454	4899448

Summary:

Smallmouth bass ≥ 7 inches are defined as stock size (Table 1).

Population estimates of stock size smallmouth bass were completed on two stations, "Klein's" and "Hammond", on the Main Branch Zumbro River in 2012. Klein's station has a long term data set dating back to 1997. The Hammond station was established in 2009 and lies between Zumbro Falls and Hammond. Habitat is similar in each station, but they are not equal lengths, so total catch is not comparable. Catch can be compared with population per 1000 feet. Sampling and estimates are made with a 2-pass, mark-recapture method using a caudal fin clip as a mark and a modified Chapman formula for estimates. Two, pulsed-DC electrofishing boats were used on the Klein's station. Only one boat was used on the Hammond station. Surveys prior to 2009 used a 3 pass Schnabel estimate, but all prior estimates were converted to Chapman estimates and all future estimates will rely on the 2-pass Chapman estimates.

Fishery Characteristics – Population Estimates

Methods:

On the first pass all gamefish were captured and measured. Smallmouth bass of stock size were given a caudal fin clip. Muskellunge were measured and checked for both PIT and floy tags from previous surveys. Both PIT and floy tags were uniquely numbered. On the second pass, all smallmouth bass captured were measured and examined for caudal fin clips.

Discussion of Fishery:

Klein's Station:

The Chapman population estimate of smallmouth bass greater than stock size was 1084 (95% CL 838-1330). The estimate of smallmouth bass \geq quality length was 317 (95% CL 231-402) and the estimate of smallmouth bass \geq preferred length was 170 (95% CL 108-232). The long term trends for Klein's station are displayed in attached graphs. The estimate for stock size fish is 128/1000 ft, quality size is 65/1000 ft., and preferred size is 35/1000 feet

Hammond Station:

The Chapman population estimate of smallmouth bass \geq stock size was 333 (95% CI 186 to 481). The estimate of smallmouth bass \geq quality length was 147 (95% CL 66-227) and the estimate of smallmouth bass \geq preferred length was not estimated due to a low sample. Fifteen smallmouth bass \geq preferred length were sampled in run 1 and five in run 2, all of which were recaps. The estimate for stock size fish is 51/1000 ft., quality size is 23/1000 ft. Both of these values are lower than in the Klein's station.

Klein's station is within a special regulation area with no harvest of smallmouth bass allowed and the Hammond station is under state-wide fishing regulations of a 6 bass daily limit.

Klein's station had higher numbers of fish in all size categories than did Hammond. This could be an effect of the regulation, habitat, or a combination of both.

Table 1. Length frequencies of game fish species sampled in the first run of Klein's station of the Zumbro River 2012.

	SMB R1	SMB R2	BKT	BLC	BLG	BNT	CCF	LMB	MUE	NOP	RKB	SAR	WAE	YEP
0.0-2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0-3.9	4	4	0	0	0	0	0	0	0	0	0	0	0	0
4.0-4.9	2	4	0	0	0	0	0	0	0	0	0	2	0	0
5.0-5.9	8	7	0	0	1	0	0	0	0	0	0	0	0	0
6.0-6.9	42	39	0	2	1	1	0	0	0	0	0	3	0	1
7.0-7.9	82	97	0	4	1	1	0	0	0	0	0	12	0	1
8.0-8.9	14	19	0	5	0	0	0	0	0	0	0	5	0	0
9.0-9.9	11	16	0	2	0	0	0	0	0	0	0	0	0	0
10.0-10.9	14	12	0	0	0	0	0	0	0	0	0	0	0	0
11.0-11.9	9	12	0	0	0	0	0	0	0	0	0	0	3	0
12.0-12.9	15	11	0	0	0	0	0	1	0	0	0	4	2	0
13.0-13.9	20	17	0	0	0	0	0	0	0	0	0	2	2	0
14.0-14.9	24	11	0	0	0	0	1	0	0	0	0	2	0	0
15.0-15.9	11	19	0	0	0	1	2	0	0	0	0	0	0	0
16.0-16.9	7	7	0	0	0	0	3	0	0	1	0	0	1	0
17.0-17.9	7	4	0	0	0	0	2	0	0	0	0	0	0	0
18.0-18.9	1	2	0	0	0	0	3	0	0	1	0	0	1	0
19.0-19.9	1	2	0	0	0	0	3	0	0	0	0	1	0	0
20.0-20.9	0	0	0	0	0	0	2	0	0	0	0	0	0	0
21.0-21.9	0	0	0	0	0	0	3	0	0	0	0	0	0	0
22.0-22.9	0	0	0	0	0	0	1	0	0	2	0	0	0	0
23.0-23.9	0	0	0	0	0	0	4	0	0	0	0	0	0	0
24.0-24.9	0	0	0	0	0	0	1	0	0	1	0	0	0	0
25.0-25.9	0	0	0	0	0	0	2	0	1	2	0	0	0	0
26.0-26.9	0	0	0	0	0	0	3	0	0	1	0	0	0	0
27.0-27.9	0	0	0	0	0	0	1	0	0	0	0	0	0	0
28.0-28.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29.0-29.9	0	0	0	0	0	0	0	0	0	1	0	0	0	0
30.0-34.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35.0-39.9	0	0	0	0	0	0	0	0	2	0	0	0	0	0
40.0-44.9	0	0	0	0	0	0	0	0	3	0	0	0	0	0
>44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	272	283	0	13	3	3	31	1	6	9	22	9	9	2
Mean TL	10.1	9.8		8.0	6.1	11.3	20.8	12.5	36.9	23.3	7.2	13.7	13.4	6.6

Table 2. Size structure of smallmouth bass captured in the first and second run, and recaps in Klein's station.

	<u>Run 1</u>	<u>Run 2</u>	<u>Recaps</u>
No. > 7"	216	229	45
No > 11"	95	85	25
No > 14"	51	45	13

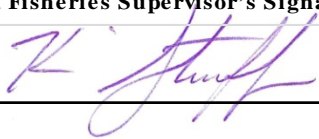
Table 3. Length frequencies of game fish species sampled in the first run of the Hammond station of the Zumbro River 2012.

	SMB R1	SMB R2	BKT	BLC	BLG	BNT	CCF	LMB	MUE	NOP	RKB	SAR	WAE	YEP
0.0-2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0-3.9	1	0	0	0	0	0	0	0	0	0	0	1	0	0
4.0-4.9	1	1	0	0	0	0	0	0	0	0	0	0	0	0
5.0-5.9	14	18	0	0	0	0	0	0	0	0	0	2	0	0
6.0-6.9	18	12	0	0	0	0	0	0	0	0	0	0	0	0
7.0-7.9	29	30	0	0	0	0	0	0	0	0	0	1	0	0
8.0-8.9	6	6	0	0	0	0	0	0	0	0	0	0	0	0
9.0-9.9	0	5	0	0	0	0	0	0	0	0	0	0	0	0
10.0-10.9	2	3	0	0	0	0	0	0	0	0	0	0	0	0
11.0-11.9	1	3	0	0	0	0	0	0	0	0	0	0	2	2
12.0-12.9	7	2	0	0	0	0	0	0	0	0	0	0	0	0
13.0-13.9	7	4	0	0	0	0	3	0	0	0	0	0	1	0
14.0-14.9	5	3	0	0	0	0	0	0	0	0	0	0	0	0
15.0-15.9	2	1	0	0	0	0	0	0	0	0	0	0	0	0
16.0-16.9	5	1	0	0	0	0	0	0	0	0	0	0	1	0
17.0-17.9	2	0	0	0	0	0	0	0	0	0	0	0	0	0
18.0-18.9	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19.0-19.9	1	0	0	0	0	0	0	0	0	0	0	0	0	0
20.0-20.9	0	0	0	0	0	0	1	1	0	0	0	0	0	0
21.0-21.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22.0-22.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23.0-23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24.0-24.9	0	0	0	0	0	0	0	1	0	0	0	0	0	0
25.0-25.9	0	0	0	0	0	0	0	1	0	0	0	0	0	0
26.0-26.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27.0-27.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28.0-28.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29.0-29.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.0-34.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35.0-39.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40.0-44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>44.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	101	89	0	0	0	4	3	0	0	0	4	5	2	0
Mean TL	9.4	8.2				14.9	23.3				5.4	14.3	11.8	

Table 4. Size structure of smallmouth bass captured in the first and second run, and recaps in the Hammond station.

	Run 1	Run 2	Recaps
No. > 7"	67	58	11
No > 11"	30	14	8
No > 14"	15	5	5

Credits and Signatures:

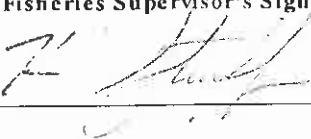
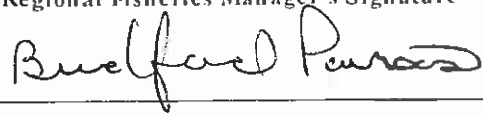
Field Crew:		
Randy Binder, Dan Dieterman, Nick Schlessler, Dan Spence		
Report completed by:		
Name:	Title:	Date:
Dan Spence	Fisheries Specialist	23-Mar-13
Approved by:		
Area Fisheries Supervisor's Signature	Regional Fisheries Manager's Signature	Date:
		

References

Fisheries Stream Survey Manual. 2007. Special Publication No. 165. Minnesota Department of Natural Resources.

Mundahl, N.D., and T.P. Simon. 1998. Development and application of an index of biotic integrity for coldwater streams of the upper Midwestern United States. Pages 383-415 In Thomas P. Simon (ed.). Assessing the Sustainability and Biological Integrity of Water Resources Using Fish Communities. CRC Press, Boca Raton, Florida.

Credits and Signatures:

Field Crew:		
Randy Binder, Dan Dieterman, Nick Schlessler, Dan Spence		
Report completed by:		
Name:	Title:	Date:
Dan Spence	Fisheries Specialist	23-Mar-13
Approved by:		
Area Fisheries Supervisor's Signature	Regional Fisheries Manager's Signature	Date:
		6-11-13

References

Fisheries Stream Survey Manual. 2007. Special Publication No. 165. Minnesota Department of Natural Resources.

Mundahl, N.D., and T.P. Simon. 1998. Development and application of an index of biotic integrity for coldwater streams of the upper Midwestern United States. Pages 383-415 In Thomas P. Simon (ed.). Assessing the Sustainability and Biological Integrity of Water Resources Using Fish Communities. CRC Press, Boca Raton, Florida.

