



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

Report Date: February 21, 2012

Region	Area	Stream Name	Tributary No.	Stream Length
3	Lake City	Mazeppa Creek	M-34-49-1	7.9 miles
County		Watershed Name, No.	Source (T, R, S)	Mouth (T, R, S)
Wabasha, Goodhue		Zumbro River, 41	110N15W25	109N14W9

Date(s) of Assessment: September 13, 2011 and September 14, 2011.

Assessment Purpose: Scheduled stream assessment.

Station	Similar Reach	Stream Mile	Length (ft)	Mean Width (ft)	Acres	Water Temp (°F)	Air Temp (°F)	Downstream UTM's	
								utm _x (↔)	utm _y (↓)
6.3	2	6.3	1765	24	0.97			536308	4905869
4.6	2	4.6	950	24	0.52			537772	4904562
1.5	1	1.5	900	30	0.61			539558	4901383

A scheduled stream assessment was done on Mazeppa Creek in the fall of 2011. Three stations were sampled for trout population estimates and fish IBI scores.

Brown trout in Station 6.3 were estimated at 362 adults and 990 recruits per mile. There were an estimated 108 brown trout ≥ 12 inches per mile. There were 79 adult brook trout and 199 recruits per mile. The number of brook trout ≥ 10 inches was 6 per mile.

Station 4.6 had an estimated 465 adult brown trout and 554 recruits per mile. There were 30 brown trout ≥ 12 inches. Two brook trout adults between 7 and 9 inches were sampled in this station.

Station 1.5 had the lowest numbers of trout but had the largest brown trout. There were 381 adults and 11 recruits per mile. There were 83 ≥ 12 inches, 35 ≥ 14 inches, and 12 ≥ 16 inches brown trout per mile. There were no brook trout found in this station. Notably, one adult walleye was sampled.

Fishery Characteristics – Population Estimates

Station: 6.3 Date: 9/13/2011 Gear: Stream Shocking Barge Method: Two Pass Depletion Station length (ft): 1765

Brook Trout			
In Station			
	Recruits	Adults	Total
n	67	26	93
95% CI	90.70	1.76	
Per Mile			
	Recruits	Adults	Total
n	199	79	279
	≥ 10 inches		
n	6		
95% CI	0.00		
Per Acre			
	Recruits	Adults	Total
n	69	27	96
lbs	2.6	7.1	9.7
Brown Trout			
In Station			
	Recruits	Adults	Total
n	331	121	452
95% CI	49.12	7.94	
Per Mile			
	Recruits	Adults	Total
n	990	362	1352
	≥ 12 inches	≥ 14 inches	≥ 16 inches
n	108	--	--
95% CI	595.30	--	--
Per Acre			
	Recruits	Adults	Total
n	340	124	465
lbs	13.9	45.3	59.2

Length (in)	Brook Trout	Brown Trout	White Sucker
1			
2			
3	2	28	
4	21	159	
5	11	68	
6		9	
7	1	7	
8	15	31	
9	8	25	
10	2	24	
11		17	
12		8	
13		3	
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30+			
Total	60	379	0

Other Species Sampled

Common Name	Number Sampled
white sucker	161
sculpin	1
longnose dace	1
brook stickleback	1

Station: 4.6 Date: 9/14/2012 Gear: Stream Shocking Barge Method: Two Pass Depletion Station length (ft): 950

Brown Trout			
In Station			
	Recruits	Adults	Total
n	100	84	183
95% CI	13.73	7.11	
Per Mile			
	Recruits	Adults	Total
n	554	465	1019
	≥ 12 inches	≥ 14 inches	≥ 16 inches
n	30	--	--
95% CI	11.05	--	--
Per Acre			
	Recruits	Adults	Total
n	183	153	336
lbs	7.5	47.9	55.4

Common Name	Number Sampled
white sucker	87
creek chub	19
blacknose dace	8
longnose dace	2
brook stickleback	1

Length (in)	Brook Trout	Brown Trout	White Sucker
1			
2			
3		11	
4		53	
5		22	
6		4	
7	1	12	
8	1	26	
9		14	
10		14	
11		7	
12		4	
13		1	
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30+			
Total	2	168	0

Station: 1.5 Date: 9/14/2011 Gear: Stream Shocking Barge Method: Two Pass Depletion Station length (ft): 900

Brown Trout			
In Station			
	Recruits	Adults	Total
n	11	65	76
95% CI	0.00	8.19	
Per Mile			
	Recruits	Adults	Total
n	65	381	446
	≥ 12 inches	≥ 14 inches	≥ 16 inches
n	83	35	12
95% CI	3.96	0.00	0.00
Per Acre			
	Recruits	Adults	Total
n	18	105	123
lbs	0.9	42.8	43.8

Common Name	Number Sampled
white sucker	240
blacknose dace	53
northern hog sucker	36
central stoneroller	32
creek chub	11
common shiner	6
longnose dace	3
hornyhead chub	3
golden redhorse	2
walleye	1
shorthead redhorse	1

Length (in)	Brook Trout	Brown Trout	White Sucker
1			
2			
3			
4		6	
5		3	
6		3	
7		5	
8		25	
9		10	
10		2	
11		3	
12		4	
13		4	
14		4	
15			
16		2	
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30+			
Total	0	71	0

Coldwater Index of Biotic Integrity (Mundahl and Simon 1998)

Station Name:	6.3	4.6	1.5
Stream Width (m):	7.3	7.6	9.1
Station Length (m):	538.0	289.6	274.3

<u>Metric (Max Score)</u>	<u>Value (Score)</u>	<u>Value (Score)</u>	<u>Value (Score)</u>
Total Captured	601	287	456
Number of Species (10)	5 (5)	7 (5)	11 (0)
Number of Coldwater Species (10)	3 (5)	3 (5)	1 (0)
Number of Minnow Species (10)	1 (10)	3 (5)	5 (0)
Number of Benthic Species (10)	2 (5)	2 (5)	5 (0)
Number of Tolerant Species (10)	1 (10)	3 (5)	3 (5)
Percent Salmonids as Brook Trout (10)	13.69 (5)	1.17 (0)	0 (0)
Percent Intolerant Individuals (10)	9.98 (0)	0.69 (0)	7.89 (0)
Percent Coldwater Individuals (10)	73.04 (5)	59.58 (5)	15.57 (0)
Percent White Suckers (10)	26.78 (0)	30.31 (0)	52.63 (0)
Percent Top Carnivores (10)	72.87 (10)	59.23 (5)	15.78 (0)
Number of Coldwater Individuals per 150m (10)	122.4 (10)	88.58 (10)	38.82 (5)
Number of Warmwater Individuals per 150m (10)	45.16 (5)	60.09 (0)	210.52 (0)
TOTAL IBI SCORE (120 maximum)	70	45	10
Percent of maximum score:	58.33%	37.50%	08.33%

Stream Characteristics – Minnesota Stream Habitat Assessment (MSHA) Station 6.3

MSHA Metric	Component score maximum	Component score
Surrounding Land Use	5	2
Riparian Zone	15	3
Instream Zone - Substrate	27	6.3
Instream Zone - Cover	17	14
Channel Morphology	36	23
	100	MSHA Score (Max = 100)
		48.3

Stream Characteristics – Minnesota Stream Habitat Assessment (MSHA) Station 4.6

MSHA Metric	Component score maximum	Component score
Surrounding Land Use	5	0
Riparian Zone	15	2
Instream Zone - Substrate	27	8.7
Instream Zone - Cover	17	9
Channel Morphology	36	20
	100	MSHA Score (Max = 100)
		39.7

Stream Characteristics – Minnesota Stream Habitat Assessment (MSHA) Station 1.5

MSHA Metric	Component score maximum	Component score
Surrounding Land Use	5	0.75
Riparian Zone	15	5
Instream Zone - Substrate	27	10.5
Instream Zone - Cover	17	10
Channel Morphology	36	14
	100	MSHA Score (Max = 100)
		40.25

Discussion of Fishery:

Three stations were sampled on Mazeppa Creek in the fall of 2011. A stream shocking barge was used in all stations and a two pass depletion method was used to calculate trout populations. IBI scores were also calculated for each station as well as a Minnesota Stream Habitat Assessment (MSHA). There was not a lot of historic data available for these stations. The last survey was done in 2001 and only station 6.3 was duplicated, but due to the time of year it was sampled, recruit estimates were not made.

Station 6.3 was located in a cattle pasture owned by Susan Arendt just upstream from Wabasha County road 1. The pasture was heavily grazed. There were an estimated 362 adult and 990 recruit brown trout per mile. There were 108 brown trout ≥ 12 inches per mile. Brook trout estimates were 79 adults and 199 recruits per mile. There were an estimated 6 brook trout ≥ 10 inches per mile. Station 6.3 had the highest IBI score of the three stations with a score of 70. Other species sampled included white sucker, sculpin, longnose dace, and brook stickleback. The MSHA score was 48.3. The heavy grazing, high eroding banks, and sedimentation weigh heavy on habitat scores along much of Mazeppa Creek. In 2001 there were an estimated 577 adult brown trout per mile with 3 ≥ 12 inches (Table 1). In the same year there were an estimated 21 adult brook trout per mile with 6 ≥ 10 inches.

Station 4.6 flows through the farm of Dennis Klein. It was heavily grazed by cattle and some row crop was present nearby. There were an estimated 465 adult brown trout and 554 recruits per mile. There were 30 brown trout ≥ 12 inches per mile. Two brook trout were sampled in this station and they were both adults between 7 and 9 inches long. The IBI score for station 4.6 was 45. This decrease from the station two miles upstream was driven by the presence of more warmwater species. White sucker, creek chub, blacknose dace, longnose dace, and brook stickleback were sampled. It had a MSHA score of 39.7. There is lots of erosion, little bank cover, high embeddedness, and little sinuosity.

Station 1.5 runs alongside Wabasha County 7 and through a horse pasture on the property of Dennis Post. It connects to the North Fork of the Zumbro River just downstream. This station had the lowest number of brown trout with 381 adults and 61 recruits per mile. However, the largest size structure was in this lower reach. There were an estimated 83 brown trout ≥ 12 inches, 35 ≥ 14 inches, and 12 ≥ 16 inches. There were no brook trout sampled in this section. This station had a very low IBI score of 10. White sucker, blacknose dace, northern hogsucker, central stoneroller, creek chub, common shiner, longnose dace, horny head chub, golden redhorse, shorthead redhorse, and a walleye were sampled. This species assembly was very diverse, but not typical of quality trout streams. The MSHA score was 40.25. Within station 1.5 the stream widened, became braided, consisted primarily of shallow water, and has heavy erosion from sandy banks.

Mazeppa Creek falls under the statewide trout regulation of 5 fish with only 1 over 16 inches allowed. Due to its proximity to Rochester effort should be made to pursue easement acquisition on Mazeppa Creek. Other landowners on Mazeppa have not been approached about the potential for easement acquisition for a number of years.

Credits and Signatures:


Field Crew:		
Randy Binder, Dan Dieterman, Nick Schlessler, Dan Spence		
Report completed by:		
Name:	Title:	Date:
Dan Spence	Fisheries Specialist	21-Feb-12
Approved by:		
Area Fisheries Supervisor's Signature	Regional Fisheries Manager's Signature	Date:
		

Table 1. Trends in brown trout population metrics for Mazeppa Creek 2011

Station	River Mile	Similar Reach	Date	No./mile (Adult)	No./mile (Recruits)	No./mile (≥12 in.)	No./mile (≥14 in.)	No./mile (≥16 in.)	lbs/acre (all sizes)
6.3	6.3	2	9/13/2011	362	990	108	0	0	59.2
4.6	4.6	2	9/14/2011	465	554	30	0	0	55.4
1.5	1.5	1	9/14/2011	381	65	83	35	12	43.8
6.3	6.3	2	6/28/2001	577	-	3	0	0	-

Table 2. Trends in brook trout population metrics for Mazeppa Creek 2001 and 2011

Station	River Mile	Similar Reach	Date	No./mile (Adult)	No./mile (Recruits)	No./mile (≥10 in.)	lbs/acre (all sizes)
6.3	6.3	2	9/13/2011	79	199	6	9.7
6.3	6.3	2	6/28/2001	21	-	6	

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.