

STREAM ASSESSMENT



MINNESOTA DEPARTMENT OF NATURAL RESOURCES DIVISION OF FISH AND WILDLIFE

Report Date: December 22, 2008

Region	Area	Stream Name	Tributary No.	Stream Length
3	Lanesboro	Trout Brook	M-48-07	3.0 miles
County	Watershed Name, No.	Source (T, R, S)	Mouth (T, R, S)	
Dakota, Goodhue	Cannon River - 34	T113N.R17W.S27	T113N.R17W.S36	

Date(s) of Assessment: September 24, 2008

Assessment Purpose: Long-term monitoring – brook trout population

Station	Similar Reach	Stream Mile	Length (ft)	Mean Width (ft)	Acres	Water Temp (F)	Air Temp (F)	Downstream UTM's	
								utm _x (↔)	utm _y (↓)
2.79	1	2.79	540	11.8	0.146	-	-	513607	4934557

Summary:

Station 2.79 on Trout Brook is one of 23 stations in the Long-Term Monitoring program in southeast Minnesota.

Estimated numbers of recruit brown trout was 10/mile with no brown trout adults collected (Table 1).

The estimated number of adult brook trout was 235/mile with 3,400 brook trout recruits/mile (Table 2). There were 44 brook trout ≥10 inches/mile and total brook trout biomass was 106.1 lbs/acre.

There were no white suckers collected during this assessment.

Stream
Tributary number
Report Date

Trout Brook
M-48-07
December 22, 2008

Fishery Characteristics – Population Estimates

Population Metrics

Station	2.79 (LTM)		
Date	September 24, 2008		
Gear	Backpack		
Method	Two pass depletion		
Station length (ft)	540		

Population Estimate in Station, Adults

Species	Number	Wt (lbs)	Number	Wt (lbs)	Number	Wt (lbs)
Brown trout	0	0				
95% CI	-					
Brook trout	24	7.18				
95% CI	±16.97					
Rainbow trout	0	0				
95% CI	-					
Total trout	24	7.18				

Population Estimate in Station, Recruits (YOY or yearlings)

Species	Number	Wt (lbs)	Number	Wt (lbs)	Number	Wt (lbs)
Brown trout	1	0.05				
95% CI	±0					
Brook trout	348	8.34				
95% CI	±17.82					
Rainbow trout	0	0				
95% CI	-					
Total trout	349	8.39				

Population Estimate in Station, Total

Species	Number	Wt (lbs)	Number	Wt (lbs)	Number	Wt (lbs)
Brown trout	1	0.05				
Brook trout	372	15.52				
Rainbow trout	0	0				
Total trout	373	15.57				

Population Estimate in Station, White Suckers (LTM stations only)

Species	Number	Wt (lbs)	Number	Wt (lbs)	Number	Wt (lbs)
Adults	0					
95% CI	-					
Recruits	0					
95% CI	-					
Total white sucker	0					

Stream
Tributary number
Report Date

Trout Brook
M-48-07
December 22, 2008

Fishery Characteristics – Population Estimates (continued)

Population Estimate Summary

Station	2.79 (LTM)								
Date	September 24, 2008								
Species	No/Mile	No/Acre	Lbs/Acre	No/Mile	No/Acre	Lbs/Acre	No/Mile	No/Acre	Lbs/Acre
Brown trout	10	7	0.35						
Adults	0	0							
≥12 inches	0	0							
95% CI	-	-							
≥14 inches	-	-							
95% CI	-	-							
≥16 inches	-	-							
95% CI	-	-							
Recruits	10	7	0.35						
Brook trout	3,635	2,541	106.09						
Adults	235	164	49.10						
≥10 inches	44	31							
95% CI	±29.33	±20.51							
Recruits	3,400	2,377	56.99						
Rainbow trout	0	0	0						
Adults	-	-	-						
≥12 inches	-	-							
95% CI	-	-							
Recruits	-	-	-						
All trout	3,644	2,548	106.44						
Adults	235	164	49.10						
Recruits	3,410	2,384	57.34						

Population Estimate Summary (LTM stations only)

Species	No/Mile	No/Acre	Lbs/Acre	No/Mile	No/Acre	Lbs/Acre	No/Mile	No/Acre	Lbs/Acre
White sucker	0	0							
Adults	-	-							
Recruits	-	-							

Stream
Tributary number
Report Date

Trout Brook
M-48-07
December 22, 2008

Fishery Characteristics – Length Frequency in Station (Actual Catch)

Species	Brook trout	Brown trout	
Station	2.79 (LTM)	2.79 (LTM)	
Date	September 24, 2008	September 24, 2008	
Length Class			
0 – 2.9			
3.0 – 3.4	5		
3.5 – 3.9	64		
4.0 – 4.4	126		
4.5 – 4.9	76		
5.0 – 5.4	39	1	
5.5 – 5.9	12		
6.0 – 6.4	1		
6.5 – 6.9	2		
7.0 – 7.4	1		
7.5 – 7.9	2		
8.0 – 8.4	1		
8.5 – 8.9	6		
9.0 – 9.4	1		
9.5 – 9.9	1		
10.0 – 10.4	2		
10.5 – 10.9			
11.0 – 11.4	2		
11.5 – 11.9			
12.0 – 12.4			
12.5 – 12.9			
13.0 – 13.4			
13.5 – 13.9			
14.0 – 14.9			
15.0 – 15.9			
16.0 – 16.9			
17.0 – 17.9			
18.0 – 18.9			
19.0 – 19.9			
20.0 – 20.9			
21.0 – 21.9			
22.0 – 22.9			
23.0 – 23.9			
24.0 – 24.9			
25.0 – 25.9			
26.0 – 26.9			
27.0 – 27.9			
28.0 – 28.9			
29.0 – 29.9			
30.0+			
Sample Size	341	1	

Stream
Tributary number
Report Date

Trout Brook
M-48-07
December 22, 2008

Fishery Characteristics – Non-game species

Species Sampled

Station	2.79 (LTM)		
Date	September 24, 2008		
Length (ft)	540		
Mean Width (ft)	17.8		
Species	Number	Number	Number
Stickleback, Brook	7		

Coldwater Index of Biotic Integrity (Mundahl and Simon 1998) for Station 2.79 (LTM)

Value	Score	Metric	IBI Rating Guidelines	
275		Total Captured		
3	10	Number of Species	105-120	Excellent
3	5	Number of Coldwater Species	70-100	Good
0	10	Number of Minnow Species	35-65	Fair
0	10	Number of Benthic Species	10-30	Poor
0	10	Number of Tolerant Species	0-5	Very Poor
99.62687	10	Percent Salmonids as Brook Trout		
97.09091	10	Percent Intolerant Individuals		
100	10	Percent Coldwater Individuals		
0	10	Percent White Suckers		
97.45455	10	Percent Top Carnivores		
250.6197	10	Number of Coldwater Individuals per 150m		
0	10	Number of Warmwater Individuals per 150m		
	115	TOTAL IBI SCORE (120 maximum)		
	95.83	Percent of maximum score		

Stream Characteristics – Minnesota Stream Habitat Assessment (MSHA) (Fisheries Stream Survey Manual)

MSHA Metric	Component score maximum	Component score of station
Surrounding Land Use	5	5
Riparian Zone	15	12
Instream Zone – Substrate	27	20.3
Instream Zone – Cover	17	14
Channel Morphology	36	27
	100	Final score 78.3

Stream
Tributary number
Report Date

Trout Brook
M-48-07
December 22, 2008

Discussion of Fishery:

Station 2.79 on Trout Brook is part of the Long-Term Monitoring program in southeast Minnesota.

Recruit brown trout numbers were estimated at 10/mile with no brown trout adults collected (Table 1). In 2006, 135 brown trout recruits/mile were estimated in the station and in 2007, there were 68 adults/mile; therefore brown trout abundance has been declining.

There was an estimated 235 adult brook trout/mile in this assessment, which is very low compared to the 2007 value of 3,004/mile (Table 2). There were an estimated 3,400 brook trout recruits/mile and 44 brook trout ≥ 10 inches/mile. Total brook trout biomass was estimated at 106.1 lbs/acre, which is higher than the 5-assessment mean of 77.6 lbs/acre. Brook trout biomass was not reported in the other 7 assessments.

No white suckers were collected in this station.

Trout Brook is managed using the general southeast Minnesota trout stream angling regulation of 5 trout in the daily limit, one of which can be ≥ 16 inches.

The Coldwater IBI (Mundahl and Simon 1998) score of 115 remains the same as that calculated previous years (Table 3). This is the highest Coldwater IBI score of any station in our Long-Term Monitoring Program. The only deduction is for a low number of coldwater species (3).

The high Minnesota Stream Habitat Assessment score of 78.3 reflects the excellent surrounding land use (Table 3). Moderate bank erosion was present with a substantial amount of shade provided over the stream channel. Embeddedness was light and cover was moderate. Sinuosity and channel stability was moderate, with good channel development.

Credits and Signatures:

Field Crew:

John Hoxmeier, Doug Dieterman

Report completed by:

Name:	Title:	Date:
Melissa L. Konsti	Fisheries Specialist	December 22, 2008

Approved by:

Area Fisheries Supervisor's Signature	Regional Fisheries Manager's Signature	Date:
---------------------------------------	--	-------

Stream
Tributary number
Report Date

Trout Brook
M-48-07
December 22, 2008

Table 1. Trends in brown trout population metrics for Trout Brook, years 1983-1989 & 2005-2008

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)
2.79	2.79	1	9/24/2008	0	10	0	0	0	0.23
2.79	2.79	1	9/26/2007	68	0	0	0	0	10.96
2.60	2.60	1	10/12/2006	0	135	0	0	0	3.4
2.60	2.60	1	9/26/2005	0	0	0	0	0	0
2.70	2.70	1	10/14/1989	0	0	0	0	0	0
2.70	2.70	1	9/30/1988	0	0	0	0	0	0
2.70	2.70	1	9/23/1987	0	0	0	0	0	0
2.70	2.70	1	9/16/1986	0	0	0	0	0	0
2.70	2.70	1	9/11/1985	0	0	0	0	0	0
2.70	2.70	1	9/20/1984	0	0	0	0	0	0
2.70	2.70	1	9/7/1983	0	0	0	0	0	0
Fall Mean				6	13	0	0	0	1.3

Note: There are many new values reported in this assessment that were not previous years assessments.

Table 2. Trends in brook trout population metrics for Trout Brook, years 1983-1990 & 2005-2008

Station	River Mile	Similar Reach	Date	No./mile (Adult)	No./mile (Recruits)	No./mile (≥10 in.)	lbs/acre (all sizes)
2.79	2.79	1	9/24/2008	235	3,400	44	70.33
2.79	2.79	1	9/26/2007	3,004	137	0	202.5
2.60	2.60	1	10/12/2006	45	3,398	6	51.24
2.60	2.60	1	9/26/2005	116	238	12	19.8
2.70	2.70	1	10/5/1990	105	275	0	-
2.70	2.70	1	10/14/1989	179	47	16	-
2.70	2.70	1	9/30/1988	132	1,395	-	-
2.70	2.70	1	9/23/1987	42	2,526	-	-
2.70	2.70	1	9/16/1986	37	1,584	-	-
2.70	2.70	1	9/11/1985	241	53	-	-
2.70	2.70	1	9/20/1984	0	200*	0	-
2.70	2.70	1	9/7/1983	0	136	0	8.55
Fall Mean				345	1,116	11	77.6

Note: There are many new values reported in this assessment that were not previous years assessments.

* This is a minimum estimate because only total captured was used to calculate number per mile.

Table 3. Trends in Index of Biotic Integrity (Mundahl and Simon 1998) and Minnesota Stream Habitat Assessment (Fisheries Stream Survey Manual 2007) scores for Trout Brook, years 2006-2008

Station	River Mile	Similar Reach	Date	IBI	Land Use	Riparian Zone	Instream Substrate	Instream Cover	Channel Morphology	Final Score
2.79	2.79	1	9/24/2008	115	5	12	20.3	14	27	78.3
2.79	2.79	1	9/26/2007	115	5	11	18.5	12	33	79.5
2.6	2.6	1	10/12/2006	115	-	-	-	-	-	-

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.

Trout Brook - Brook Trout Abundance

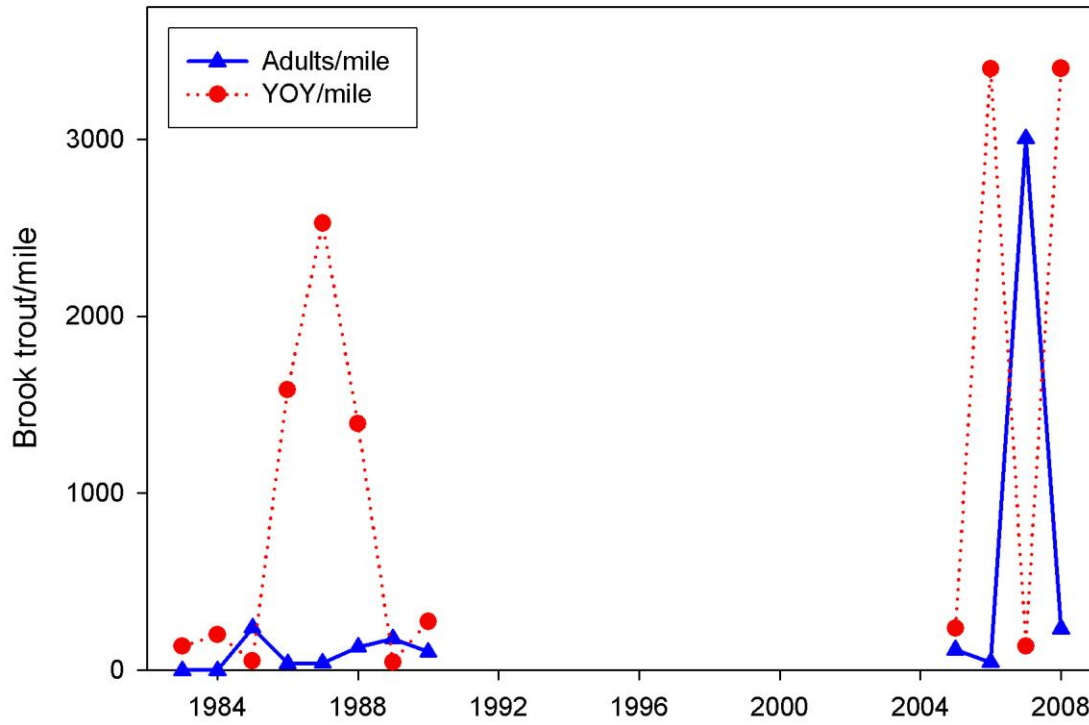
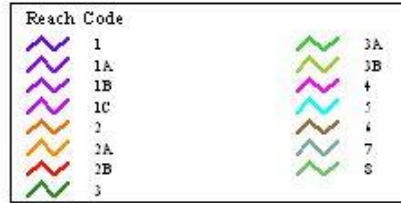


Figure 1. Abundance of brook trout adults and recruits (YOY) in Trout Brook, fall 1983-2008

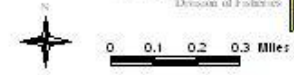
Trout Brook

M-48-7

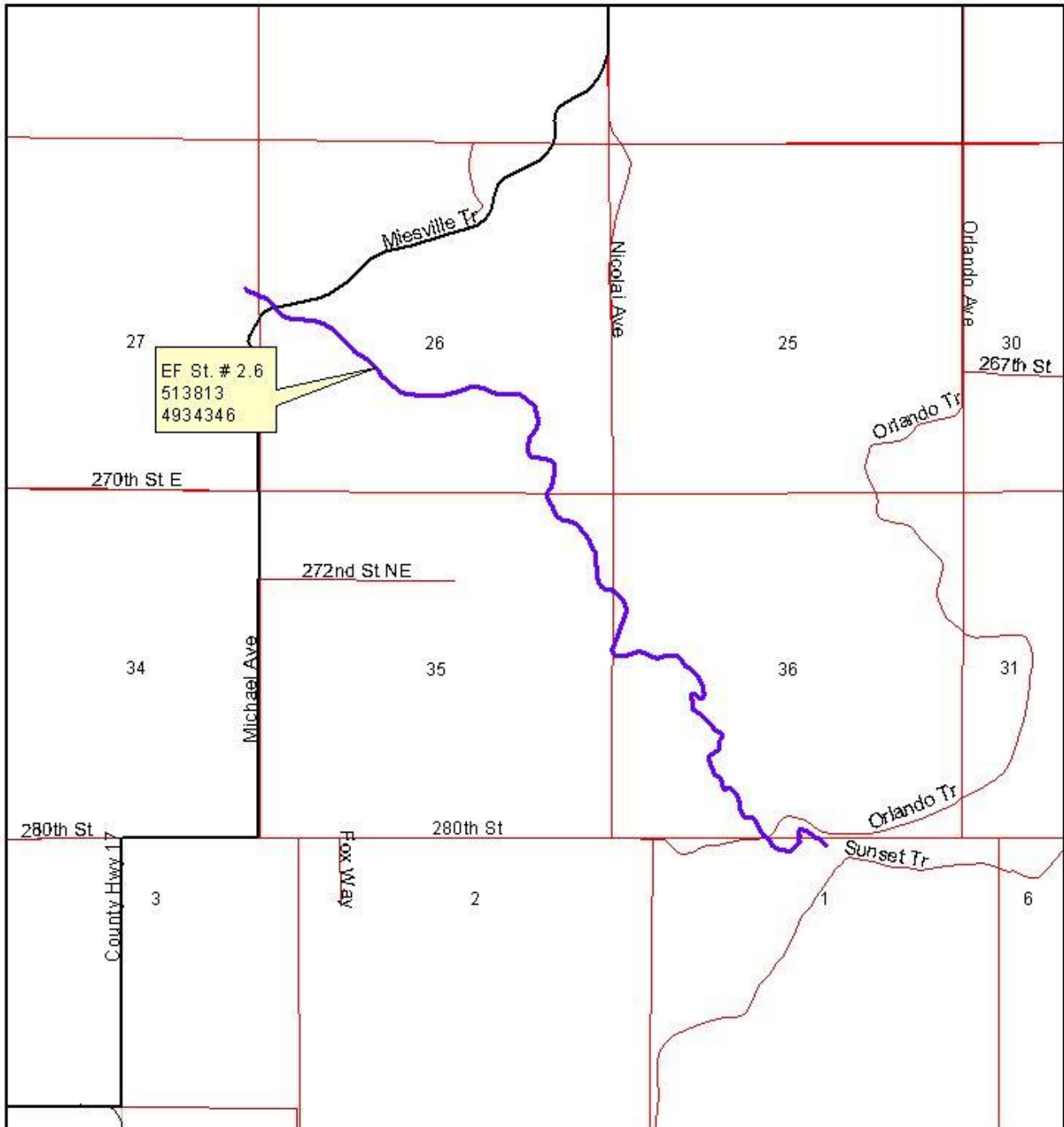
Date: January 05, 2009
 Map For: Habitat Development
 Prepared By: Jim Melander
 Fisheries Office: Lanesboro
 Mouth TRS: 113-17-36
 Source TRS: 113-17-27
 Counties: Dakota, Goodhue



Copyright February 2007
 MN Dept. of Natural Resources
 Division of Fisheries



Electrofishing Station Location.



n:\jim m\trout brook assessment maps\trout.apr