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

Report Date: February 2, 2012

Region	Area	Stream Name	Tributary No.	Stream Length
3	Lake City	Cold Spring Brook	M-34-48	2.2 miles
County		**Watershed Name, No.**	**Source (T, R, S)**	**Mouth (T, R, S)**
Wabasha		Zumbro River-41	T110N.R14W.S25	T110N.R14W.S36

Date(s) of Assessment: September 29, 2011

Assessment Purpose: Long Term Monitoring

Station	Similar Reach	Stream Mile	Length (ft)	Mean Width (ft)	Acres	Water Temp (°F)	Air Temp (°F)	Downstream UTM's	
								utmx (↔)	utmy (↕)
0.5	1	0.5	1170	25	0.67			545185	4904438

Summary:

Station 0.5 on Cold Spring Brook is one of the Long-Term Monitoring stations in Southeastern Minnesota. This station has been sampled annually in the fall since 1998 as part of the LTM program.

Estimates were obtained using a two pass depletion method using a stream shocking barge.

The brown trout population had an estimated 444 adults/mile and 519 recruits/mile. There were an estimated 118 brown trout ≥ 12 inches, 74 ≥ 14 inches, and 18 ≥ 16 inches per mile.

The brook trout population had an estimated 78 adults/mile and 554 recruits/mile. There were no brook trout ≥10 inches sampled.

There were no white suckers sampled in Cold Spring Brook in this survey.

Two tiger trout were sampled. There were no other species sampled in this survey.

Stream: Cold Spring Brook
Tributary: M-34-38
Survey Year: 2011

Fishery Characteristics – Population Estimates

Station:	0.5	Date:	9/29/2011	Gear:	Shocking Barge	Method:	Two Pass Depletion	Station length (ft):	1170

Brook Trout			
In Station			
	Recruits	Adults	Total
n	123	17	140
95% CI	9.53	6.96	
Per Mile			
	Recruits	Adults	Total
n	554	78	632
	≥ 10 inches		
n	--		
95% CI	--		
Per Acre			
	Recruits	Adults	Total
n	183	26	208
lbs	7.6	5.3	12.9

Brown Trout			
In Station			
	Recruits	Adults	Total
n	115	98	214
95% CI	12.26	5.54	
Per Mile			
	Recruits	Adults	Total
n	519	444	964
	≥ 12 inches	≥ 14 inches	≥ 16 inches
n	118	74	18
95% CI	4.56	7.02	31.27
Per Acre			
	Recruits	Adults	Total
n	171	147	318
lbs	8.0	89.8	97.8

Length (in)	Brook Trout	Brown Trout	Tiger Trout
1			
2			
3	6	14	
4	72	38	
5	32	39	
6	3	5	
7	5		
8	5	4	2
9	2	27	
10		30	
11		7	
12		4	
13		6	
14		10	
15		3	
16		2	
17		1	
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30+			
Total	125	190	2

Other Species Sampled

Common Name	Number Sampled
sculpin	78

Stream: Cold Spring Brook
Tributary: M-34-38
Survey Year: 2011

Coldwater Index of Biotic Integrity (Mundahl and Simon 1998)

Station Name:	0.5
Stream Width (m):	7.6
Station Length (m):	356.6

Metric (Max Score)	Value (Score)
Total Captured	330
Number of Species (10)	2 (10)
Number of Coldwater Species (10)	2 (5)
Number of Minnow Species (10)	0 (10)
Number of Benthic Species (10)	0 (10)
Number of Tolerant Species (10)	0 (10)
Percent Salmonids as Brook Trout (10)	39.39 (5)
Percent Intolerant Individuals (10)	39.39 (5)
Percent Coldwater Individuals (10)	100 (10)
Percent White Suckers (10)	0 (10)
Percent Top Carnivores (10)	100 (10)
Number of Coldwater Individuals per 150m (10)	138.8 (10)
Number of Warmwater Individuals per 150m (10)	0 (10)
TOTAL IBI SCORE (120 maximum)	105
Percent of maximum score:	87.50%

Stream Characteristics – Minnesota Stream Habitat Assessment (MSHA)

MSHA Metric	Component score maximun		Component score
Surrounding Land Use	5		3.75
Riparian Zone	15		8
Instream Zone - Substrate	27		9.6
Instream Zone - Cover	17		14
Channel Morphology	36		28
	100	**MSHA Score** (Max = 100)	**63.35**

Discussion of Fishery:

Station 0.5 on Cold Spring Brook is one of the stations in the Long-Term Monitoring program in southeastern Minnesota. This station has been sampled annually since the fall of 1998 to assess the brown and brook trout populations (Table 1 & 2).

In the fall of 2011, the brown trout population was estimated at 444 adults/mile, lower than the 13 year mean of 1,184/mile and less than the amount in 2010 of 711/mile (Table 1). The estimated number of recruits was 519/mile, lower than the 13-year mean of 1,925/mile and lower than the amount in 2010 which was 689/mile (Table 1). There was an estimated 118 brown trout/mile ≥12 inches, 74/mile ≥14 inches, and 18/mile ≥16 inches. All of these values decreased from 2010. (Table 1). The biomass of brown trout was 97.8 lbs/acre which is lower than the 13-year mean of 185.3 lbs/acre (Table 1).

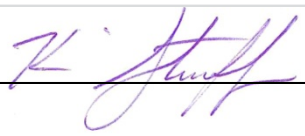
The estimated number of adult brook trout was 78/mile (Table 2). This is lower than the 13 year fall mean of 349/mile and lower than the 2010 value of 191/mile (Table 2). The brook trout population had an estimated 554 recruits/mile which is lower than the 13-year mean of 979/mile and lower than the estimate in 2010 of 994/mile (Table 2). There were no brook trout ≥10 inches found in this survey. This is the first survey with no brook trout over ten inches. (Table 2). Brook trout biomass was 12.9 lbs/acre which is lower than the 2010 value of 24.67 lbs/acre (Table 2).

There were no white suckers found in this survey which is common for this stream.

The Coldwater Index of Biotic Integrity (Mundahl and Simon 1998) score has been variable over the last three years. A score of 105 was recorded in 2009 and decreased to 70 in 2010, but rebounded to 105 in 2011.(Table 3). This may be the result of significant flood events that have occurred during this time period.

In 2011, the Minnesota Stream Habitat Assessment (MSHA) score was 63.35, lower than the 2010 value of 70.15 (Table 3). The stream is characterized by minimal bank erosion but the recent flood added stress to banks. Shade, in stream cover, channel stability, and sinuosity are moderate. The stream is also moderately embedded. Cold Spring Brook has good channel development with a good pool; riffle dynamic. A habitat improvement project is scheduled to begin in 2011.

Credits and Signatures:

Field Crew:		
Randy Binder, Dan Dieterman, Jeff Weiss, Dan Spence		
Report completed by:		
Name: Dan Spence	**Title: Fisheries Specialist**	**Date: 2/6/2012**
Approved by:		
Area Fisheries Supervisor's Signature	**Regional Fisheries Manager's Signature**	**Date:**
		

Stream: Cold Spring Brook
Tributary: M-34-38
Survey Year: 2011

Table 1. Trends in brown trout population metrics for Cold Spring Brook, years 1998-2011

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)
0.5	0.5	1	9/29/2011	444	519	118	74	18	97.8
0.5	0.5	1	10/5/2010	711	689	195	95	45	193.97
0.5	0.5	1	9/16/2009	1,270	696	158	81	32	181.53
0.5	0.5	1	10/1/2008	431	1,825	262	81	27	133.11
0.5	0.5	1	9/27/2007	1,029	47	164	106	55	153.73
0.5	0.5	1	10/5/2006	489	4,395	251	120	41	200.8
0.5	0.5	1	9/27/2005	757	266	246	59	9	142
0.5	0.5	1	9/24/2004	1,506	1,727	120	27	5	178.3
0.5	0.5	1	9/22/2003	2,072	1,637	82	5	5	204
0.5	0.5	1	9/20/2002	1,318	3,017	137	27	9	193.7
0.5	0.5	1	9/21/2001	1,405	2,507	150	68	45	207.7
0.5	0.5	1	9/26/2000	1,403	3,118	150	55	27	230.7
0.5	0.5	1	9/30/1999	1,407	3,020	113	57	20	210.22
0.5	0.5	1	9/28/1998	1,598	2,080	97	63	36	179.7
0.5	0.5	1	Fall Mean	1184	1925	163	65	27	185.3

Table 2. Trends in brook trout population metrics for Cold Spring Brook, years 1998-2011

Station	River Mile	Similar Reach	Date	No./mile (Adult)	No./mile (Recruits)	No./mile (≥10 in.)	lbs/acre (all sizes)
0.5	0.5	1	9/29/2011	78	554	0	12.9
0.5	0.5	1	10/5/2010	191	994	18	24.67
0.5	0.5	1	9/16/2009	377	115	9	20.93
0.5	0.5	1	10/1/2008	50	721	32	12.39
0.5	0.5	1	9/27/2007	221	139	5	12
0.5	0.5	1	10/5/2006	191	611	96	31.3
0.5	0.5	1	9/27/2005	232	72	27	22.7
0.5	0.5	1	9/24/2004	210	1,638	14	29
0.5	0.5	1	9/22/2003	406	99	14	21.64
0.5	0.5	1	9/20/2002	578	1,232	23	43
0.5	0.5	1	9/21/2001	340	1,633	14	30.6
0.5	0.5	1	9/26/2000	541	928	9	34.4
0.5	0.5	1	9/30/1999	600	3,525	36	53.17
0.5	0.5	1	9/28/1998	612	1,030	23	29.8
0.5	0.5	1	Fall Mean	349	979	25	28

Table 3. Trends in Index of Biotic Integrity (Mundahl and Simon 1998) and Minnesota Stream Habitat Assessment (Fisheries Stream Survey Manual 2007) scores for Cold Spring Brook, years 2003-2011

Station	River Mile	Similar Reach	Date	IBI	Land Use	Riparian Zone	Instream Substrate	Instream Cover	Channel Morphology	Final Score
0.5	0.5	1	9/29/2011	105	3.75	8	9.6	14	28	63.5
0.5	0.5	1	10/5/2010	70	3.75	8	16.4	14	28	70.15
0.5	0.5	1	9/16/2009	105	3.75	9	16.4	14	28	71.15
0.5	0.5	1	10/1/2008	105	2.5	7.5	17.15	13	28	68.15
0.5	0.5	1	9/27/2007	85	3.5	7	17.05	13	28	67.55
0.5	0.5	1	10/5/2006	100	-	-	-	-	-	-
0.5	0.5	1	9/27/2005	105	-	-	-	-	-	-
0.5	0.5	1	9/24/2004	105	-	-	-	-	-	-
0.5	0.5	1	9/22/2003	100	-	-	-	-	-	-

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.

Stream: Cold Spring Brook
Tributary: M-34-38
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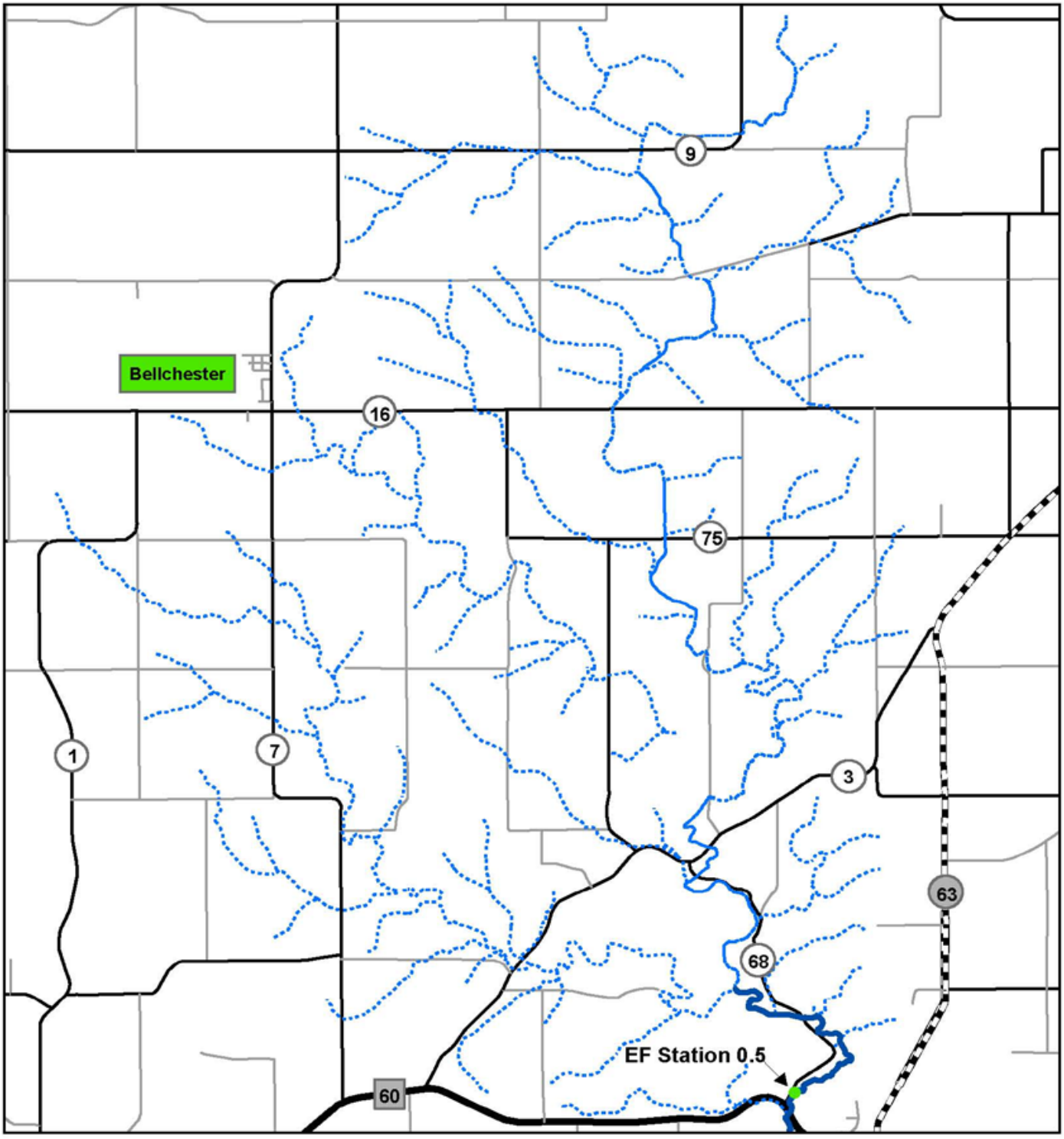
Cold Spring Brook
EF Station



EF Station UTMs
545185, 4904438

N

0 0.35 0.7 1.4 2.1 2.8
Miles

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Approved by:		
Area Fisheries Supervisor's Signature	**Regional Fisheries Manager's Signature**	**Date:**
		6.7.12