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

Report Date: January 25, 2013

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 of Assessment: September 28, 2012

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 508/ adults/mile and 1703 recruits/mile. There were an estimated 114 brown trout ≥ 12 inches, 45 ≥ 14 inches, and 5 ≥ 16 inches per mile.

The brook trout population had an estimated 68 adults/mile and 169 recruits/mile. There was an estimated 5 brook trout ≥10 inches per mile.

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

Stream: Cold Spring Brook
Tributary: M-34-48
Report Date:1/25/13

Station: 0.5	Date: 9/28/2012	Gear: Shocking Barge	Method: Electrofishing	Station length (ft): 1170

Brown Trout			
In Station			
	Recruits	Adults	Total
n	377	113	490
95% CI	40.90	6.50	
Per Mile			
	Recruits	Adults	Total
n	1703	508	2210
	≥ 12 inches	≥ 14 inches	≥ 16 inches
n	114	45	5
95% CI	4.71	0.00	0.00
Per Acre			
	Recruits	Adults	Total
n	562	168	729
lbs	30.2	92.7	122.9

Brook Trout			
In Station			
	Recruits	Adults	Total
n	38	15	53
95% CI	3.75	0.64	
Per Mile			
	Recruits	Adults	Total
n	169	68	237
	≥ 10 inches		
n	5		
95% CI	0.00		
Per Acre			
	Recruits	Adults	Total
n	56	22	78
lbs	2.1	6.6	8.7

Length (in)	Brook Trout	Brown Trout	White Sucker
1			
2			
3	9	23	
4	17	116	
5	9	137	
6	1	35	
7	2	1	
8	5	12	
9	7	26	
10	1	28	
11		16	
12		7	
13		8	
14		5	
15		4	
16		1	
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30+			
Total	51	419	0

Common Name	Number Sampled
slimy sculpin	36

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 (Tables 1 & 2).

In the fall of 2012, the brown trout population was estimated at 508 adults/mile, lower than the 14 year mean of 1,131/mile but more than the amount in 2010 of 44/mile (Table 1). The estimated number of recruits was 1703/mile, near the 14 year mean of 1,825 and near 3 times the value in 2011 of 519 recruits /mile. (Table 1). There was an estimated 114 brown trout/mile ≥12 inches, 45/mile ≥14 inches, and 5/mile ≥16 inches. All of these values decreased from 2011 and 2010. (Table 1). The biomass of brown trout was122.9 lbs/acre which is lower than the 14-year mean of 180 lbs/acre but higher than last year's (Table 1).

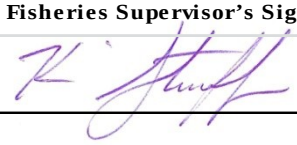
The estimated number of adult brook trout was 68/mile (Table 2). This is lower than the 14 year fall mean of 331/mile and lower than the 2011 value of 78/mile (Table 2). The brook trout population had an estimated 169 recruits/mile which is lower than the 14 year mean of 949/mile and lower than the estimate in 2011 of 554/mile (Table 2). There were 5 brook trout ≥10 inches found in this survey. There were no brook trout above 10 inches in 2011. (Table 2). Brook trout biomass was 8.7 lbs/acre which is lower than the 2011 value of 12.9 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 four years. A score of 105 was recorded in 2009 and decreased to 70 in 2010, but rebounded to 105 in 2011 and is now at 100 in 2012(Table 3). This may be the result of significant flood events that have occurred during this time period and the stations proximity to the Zumbro River.

In 2012, the Minnesota Stream Habitat Assessment (MSHA) score was 63.35 (Table 3). The stream is characterized by moderate bank erosion but the recent flood added stress to banks. Shade, instream 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 was scheduled to begin in 2011. It has been delayed and will likely start in the spring of 2012.

Credits and Signatures:

Field Crew:		
Randy Binder, John Hoxmeier, Dan Spence		
Report completed by:		
Name:	**Title:**	**Date:**
Dan Spence	Fisheries Specialist	25-Jan-13
Approved by:		
Area Fisheries Supervisor's Signature	**Regional Fisheries Manager's Signature**	**Date:**
		

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Coldwater Index of Biotic Integrity (Mundahl and Simon 1998)

Metric (Max Score)	Value (Score)
Total Captured	510
Number of Species (10)	3 (10)
Number of Coldwater Species (10)	3 (5)
Number of Minnow Species (10)	0 (10)
Number of Benthic Species (10)	1 (10)
Number of Tolerant Species (10)	0 (10)
Percent Salmonids as Brook Trout (10)	10.75 (0)
Percent Intolerant Individuals (10)	17.05 (5)
Percent Coldwater Individuals (10)	100 (10)
Percent White Suckers (10)	0 (10)
Percent Top Carnivores (10)	92.94 (10)
Number of Coldwater Individuals per 150m (10)	214.51 (10)
Number of Warmwater Individuals per 150m (10)	0 (10)
TOTAL IBI SCORE (120 maximum)	100
Percent of maximum score	83.33

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**

Table 1. Trends in brown trout population metrics for Cold Spring Brook, years 1998-2012.

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	9/28/2012	508	1703	114	45	5	122.9
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	1131	1825	160	66	27	180

Table 2. Trends in brook trout population metrics for Cold Spring Brook, years 1998-2012.

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	9/28/2012	68	169	5	8.7
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	331	949	23	27

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 2003-2012.

Station	River Mile	Similar Reach	Date	IBI	Land Use	Riparian Zone	Instream Substrate	Instream Cover	Channel Morphology	Final Score
0.5	0.5	1	9/28/2012	100	3.75	8	9.6	14	28	63.35
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.

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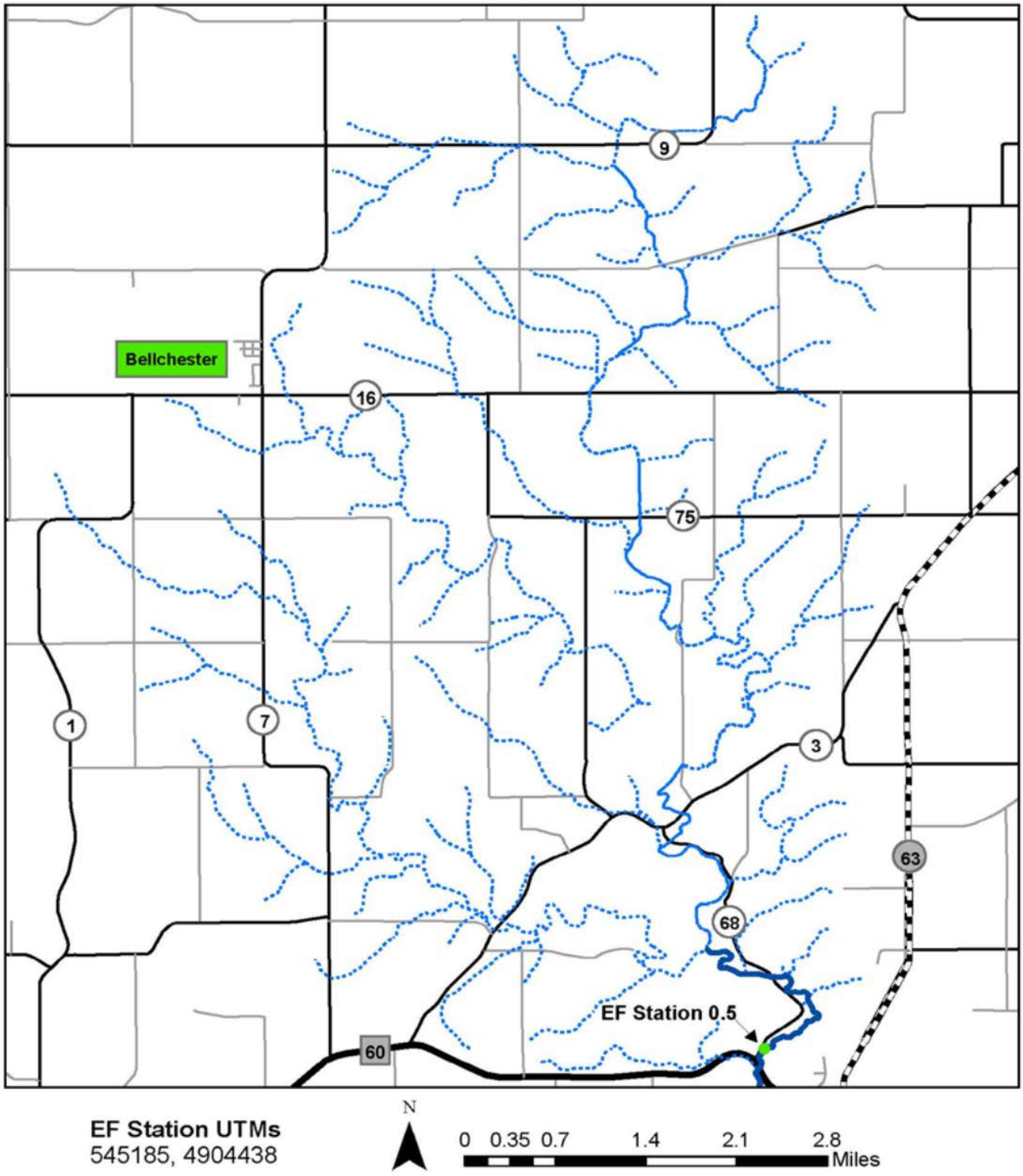
Cold Spring Brook
EF Station



EF Station UTMs
545185, 4904438