

Minnesota  
F-29-R(P)-24  
Area 315  
Study 3  
March 2015

**Minnesota Department of Natural Resources  
Division of Fish and Wildlife  
Section of Fisheries**

**Stream Survey Report**

**Fairhaven Creek  
(M-071-005)  
2014**

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**Montrose Area Fisheries Office**



Your purchase of fishing equipment  
and motor boat fuel supports boating  
access and Sport Fish Restoration.

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## **Summary**

Fairhaven Creek is a designated trout stream west of the town of Fairhaven in Stearns County. It contains a self-sustaining population of Brook Trout with high numbers of smaller fish, abundant spawning habitat, and favorable water temperatures. Backpack electrofishing collected more trout longer than 200 mm, but otherwise the results were similar to 2006. More large fish (>200 mm) were caught in surveys prior to 2006 and the stream may still be recovering from siltation due to road construction in 2003. The watershed is mainly agricultural, but the stream is well-buffered by forest and grassland. Acquiring angling easements would provide public access that is currently lacking and allow habitat improvements to be made.

## **Study Area**

Fairhaven Creek (M-071-005) is a designated trout stream with its headwater located approximately two miles northwest of the town of Fairhaven in Stearns County. It flows 3.6 miles to the confluence with Lake Marie, which is in the Clearwater River watershed. Fairhaven Creek has a gradient between 25 and 53 feet per mile and a sinuosity of 5.52 between Lake Marie and 140<sup>th</sup> street northwest of the town of Fairhaven. The stream has a watershed of 1,803 acres with estimated land use of 60% agricultural, 25% forested, 10% grassland/shrub, and 4% residential (Figure 1). Stearns County Road 44 is the only road crossing and only public access.

## **Temperature**

A HOBO<sup>®</sup> Pendant temperature logger was deployed from April 9 to October 16, 2014 approximately 50 feet downstream from the Stearns County Highway 44 culvert (Figure 2). Water temperatures were logged hourly and ranged from 1.0 °C (possibly exposed to air) on April 16 to 18.0 °C on June 2 (Figure 3). Only one reading reached 18°C and 10 readings reached or exceeded 17 °C. Brook trout prefer water temperatures below 20 °C (Scott and Crossman 1979) and growth stops above 20 °C (Wismer and Christie 1987).

## **Electrofishing**

Back pack electrofishing was conducted on October 16, 2014 in four stations using a Halltech HT 2000 backpack electrofisher with pulsed DC current (Figure 2). EF 1 began approximately 1,200 feet upstream from the mouth on Lake Marie and continued upstream. The stations were not contiguous; EF 2 began above the end of EF 1 and EF 3 began above the end of

EF 2 and ended approximately 400 feet below County Road 44. EF 4 began at the upstream end of the culvert and continued for approximately 400 feet. A hand held GPS unit was used to record a track line for each station, but dense tree canopy prevented an accurate line recording. Hence, no distances were calculated for electrofishing stations. The stream line should be walked with a GPS unit when no leaf cover exists to record the stream channel accurately.

A total of 723 Brook Trout were sampled in 1.75 hours of on-time (Table 1). Lengths ranged from 61 to 253 mm and overall catch-per-unit-effort (CPUE) was 414 fish/hr. Mean length ranged from 108 mm for EF 1 to 125 mm for EF 4; mean length increased as sampling moved upstream. A total of 18 Brook Trout were 200 mm or longer and the CPUE for these fish was 10.3/hr. Among stations, the CPUE for fish longer than 200 mm was higher in the upper two stations than in the lower two stations; the catch was similar in other respects. The only other fish species sampled was a single White Sucker.

The length frequency distribution from surveys in 2000, 2006 and 2014 shows a greater number of Brook Trout longer than 200 mm in 2000 (Table 3). Road construction took place in 2003 on Highway 44 and a large amount of silt entered the stream at that time, filling deeper pools favored by larger trout (Minnesota Department of Natural Resources 2006). It is unknown whether or how much this may still be affecting the stream, but the 2014 length frequency appears more similar to 2006 than to 2000.

### **Management Recommendations**

Brook Trout were last stocked in Fairhaven Creek in 1968; the population is self-sustaining and favorable spawning habitat results in high numbers of small trout. Larger trout (>200 mm) were more common in the 2000 and 1994 surveys and habitat improvements could result in deeper pools and larger Brook Trout (Minnesota Department of Natural Resources 2000). The lack of public access currently prevents such projects from taking place and gaining access through angling easements should be pursued. The stream may still be affected by siltation from road construction in 2003. Angling opportunities would increase with easement acquisition and angler harvest might even be beneficial (perhaps increasing growth), given the high number of trout.

Most of the stream is well buffered by forest and grassland, reducing the negative effect of high agricultural use within the watershed. Retaining this buffer should be a high priority. A

positive development is that EF 4 was a grazed cow pasture in 2006, but was ungrazed and grown over in 2014. Water temperatures continue to be favorable for Brook Trout. Population assessments should continue every five to six years, or more often if changes occur within the watershed. Any future road work should be done so as to prevent silt or other sediment from entering the stream.

### **Acknowledgments**

Thanks to Ryan Andvik and Brian Beyerl for assistance with fieldwork. Joe Stewig and Ryan Andvik provided helpful manuscript review.

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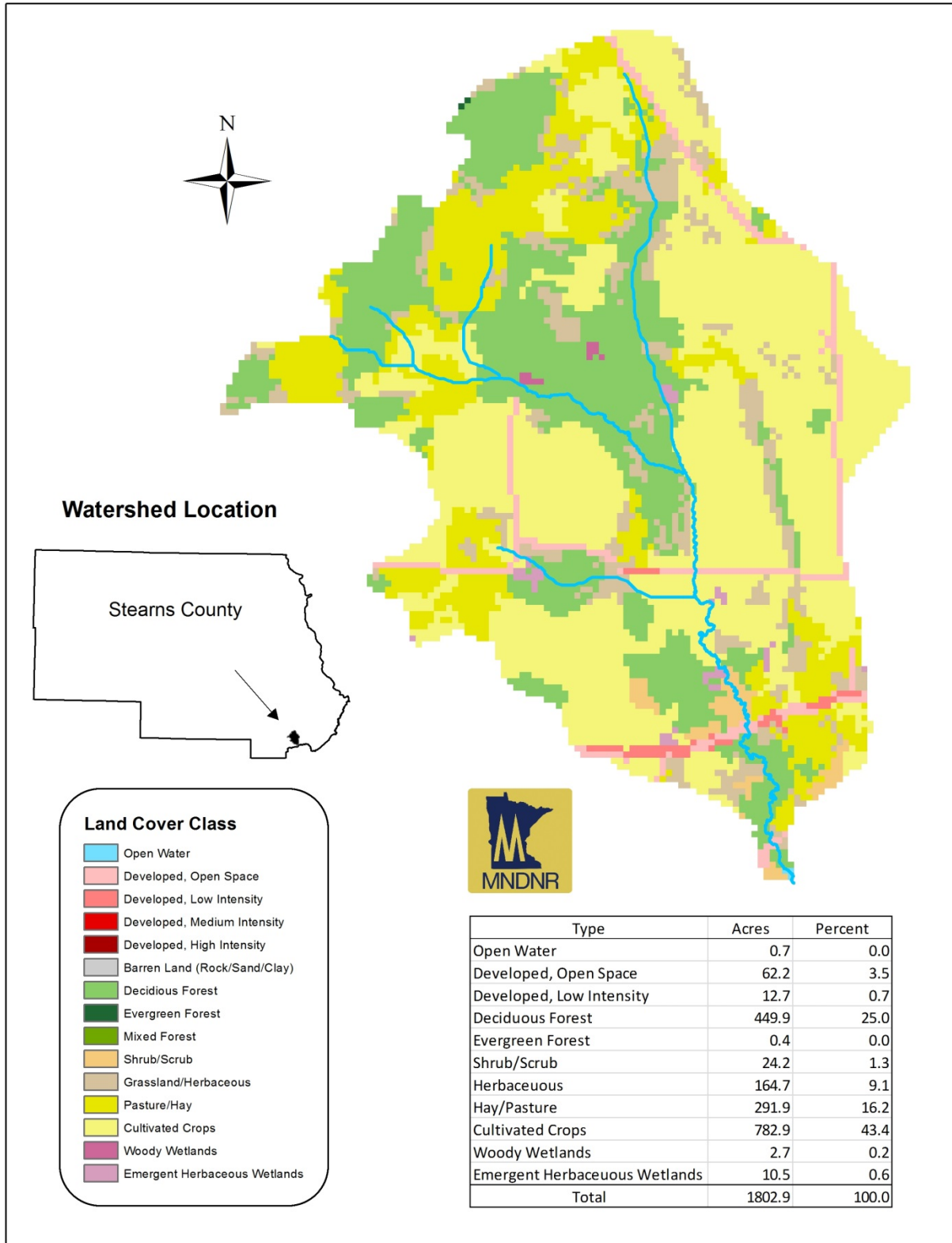


Figure 1. Location and land cover (2011 NLCD data) for the Fairhaven Creek (M-71-5) watershed.

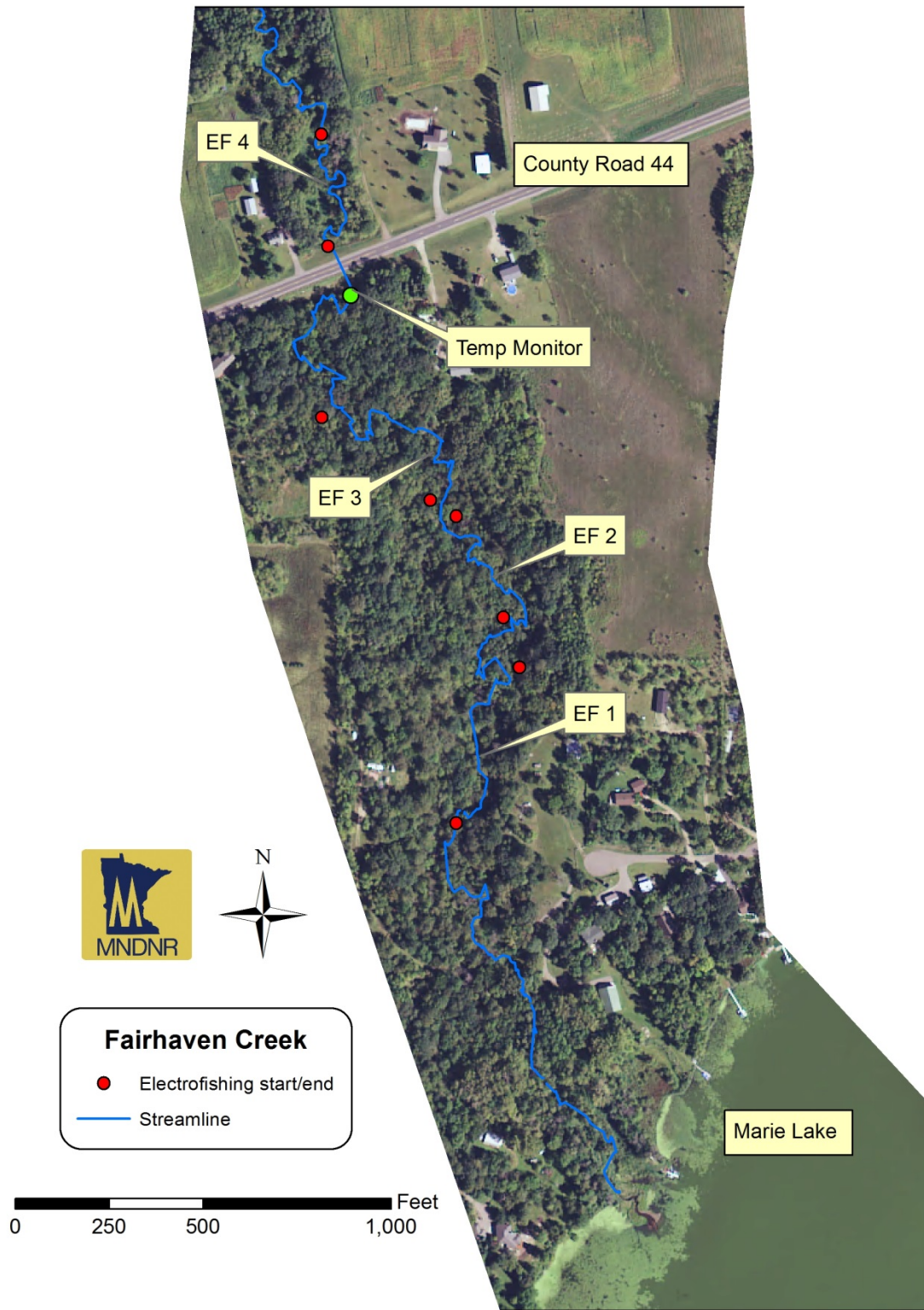


Figure 2. Sampling locations and temperature logger site, Fairhaven Creek (M-71-5), 2014.

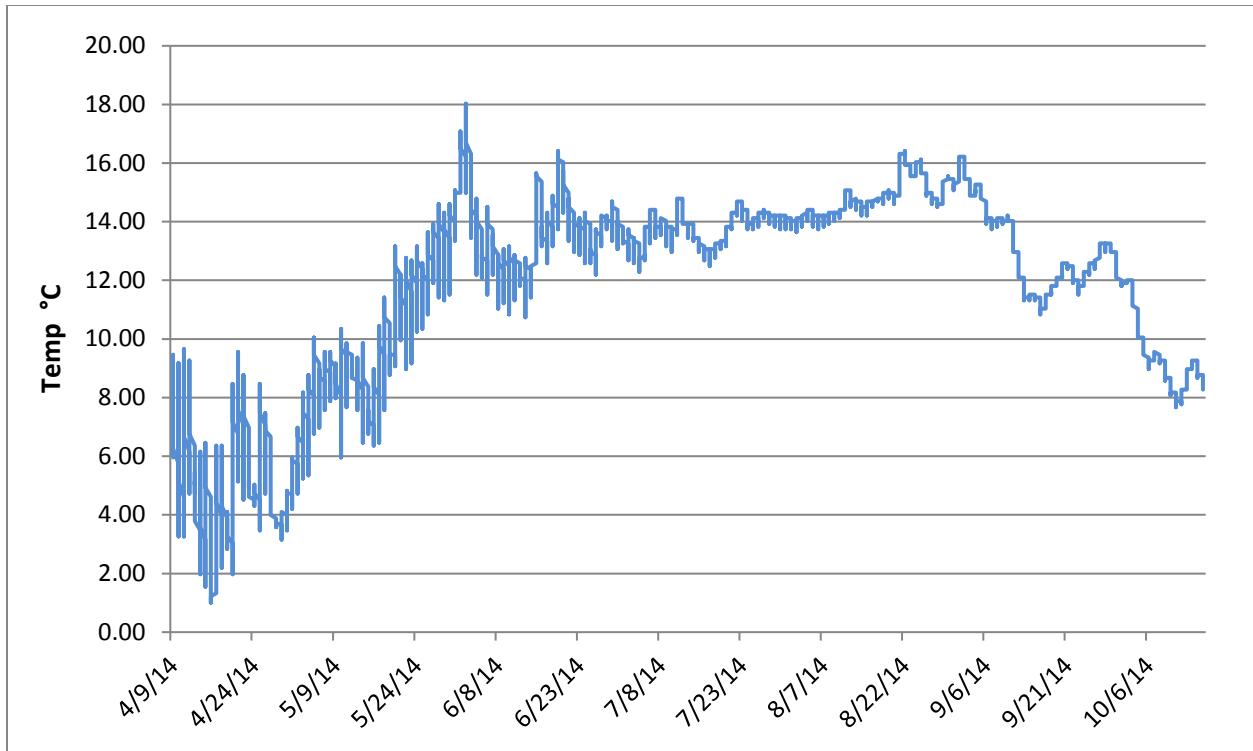


Figure 3. Hourly temperatures (°C) at County Road 44, Fairhaven Creek (M-71-5), April-October 2014.



Table 1. Electrofishing station information for Fairhaven Creek (M-71-5), 2014 and 2006.

	EF 1	EF 2	EF 3	EF 4	2014 all	2006 all
Effort (sec)	1240	1420	1570	2055	6,285	7,758
N-BKT	151	175	189	208	723	787
Length range (mm)	64-253	61-208	63-252	62-214	61-253	70-300
Mean length (mm)	108.4	109.8	117.6	125.3	116.0	NA
BKT>200 mm	3	2	7	6	18	16
CPUE (N/hr)	438.4	443.7	433.4	364.0	414.1	365.2
CPUE>200 mm	8.7	5.1	16.1	10.5	10.3	7.4

Gear: Halltech HT 2000 (backpack)

Crew: Ryan Andvik, Brian Beyerl, Mark Pelham

Table 2. Number of Brook Trout per 10 mm group (total length) from all electrofishing stations for Fairhaven Creek (M-71-5), 2000 to 2014.

Length Group*	2000**	2006**	2014
60	3		6
70	34	88	75
80	117	135	146
90	121	135	64
100	94	139	34
110	37	74	57
120	7	16	60
130	7	33	48
140	15	40	51
150	24	34	44
160	33	32	45
170	33	18	27
180	41	16	26
190	36	9	17
200	23	8	10
210	13	3	7
220	10	4	3
230	14	2	
240	11		1
250	2		2
260	3		
270			
280			
290			
300		1	
Total	678	787	723

\*Midpoint of 10 mm group, e.g. 130 mm group contains fish from 125-134 mm.

\*\*Numbers were re-calculated from previous surveys.

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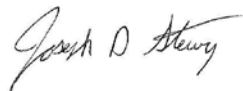


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3/20/15

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