

General Information

Stream Name: Spunk Creek

Alternate Name: none

Tributary Number: M-84

Counties: Stearns, Morrison

Source of flow: Wetlands South of Avon

Waterway sequence: Spunk Creek / Pittts Lake/ Kalla Lake/ Upper Spunk Lake/ Middle Spunk Lake/ Lower Spunk Lake / Mississippi River / Gulf of Mexico

Stream Length: 36.8 miles

Gradient: 9.58 feet per mile

Sinuosity: 1.79 From headwater to mouth.

Classification: Class III Cool to warm-water

Watershed Description

Watershed Name and Number

Major: Mississippi River — Sartell (15)

Minor: 15005,15015,15016

Watershed Land Use: The land use is 43% agriculture, 25% pasture, 19% forest, and 3% residential/farmstead.

Riparian Zone: The Riparian corridor is a mix of shrub, tree and grassed areas with relatively undisturbed vegetation for widths between 320 feet to over 1000 feet around the stream channel. However, there were areas observed that had little quality vegetation present next to the wetted area of the stream.

Summary and recommendations

Spunk Creek (Figure 1) is a small to medium sized, warm-water tributary to the Mississippi River. The mouth is located approximately 1.7 miles southwest of North Prairie, MN. The headwater is located approximately three miles south of Avon, MN. The watershed represents a diverse landscape ranging from level farmland in the lower third of the stream, to rolling, wooded hills in the upper portion of the stream. Spunk Creek's watershed covers 52,625 acres (Figure 2). The watershed basin is ellipsoid in shape and has an northeast facing aspect. While the stream length was calculated at 36.8 miles from the headwater to the mouth, the drainage network includes 84 miles of streams and ditches. The middle third of the stream was low gradient with a relatively high sinuosity. Wild rice was the dominant vegetation (Appendix, Figure 4). The upper third of Spunk Creek has an extensive ditch network and passes through nine lakes including Upper, Middle and Lower Spunk Lakes. The lower third of the stream changes character as it approaches the Mississippi River, with an increase in slope and sinuosity. Most bank areas appeared to be stable with vegetation, however, only areas near roads or within electrofishing stations were observed.

Spunk Creek was electrofished in September 2004 (Table 1, Figure 3). Electrofishing revealed 28 species of fish (Table 2). Catch per unit of effort and lengths of fish are found in Table 3. The greatest species richness (16 species) occurred in the lower portion of Spunk Creek near the mouth (EF 1). A variety of species were associated with the Mississippi River including walleye and smallmouth bass (Tables 1 and 2). EF station 1 had a relatively high gradient. The substrate of station 1 was found to be sand to sand/gravel with areas of silt. Common plants found at station 1 included river pond weed, reed canary, duckweed, and sago pond weed.

The second electrofishing station was located upstream approximately 4 miles from the mouth and was near the town of Opole. This station was characterized by an abundance of wild rice throughout the channel (Appendix Figure 1). The mean depth was nearly three feet with some pools that were too deep to wade. Substrates were comprised of sand and silt with areas of gravel. Six species of fish were

captured in the station including one smallmouth bass. In addition to wild rice, river pond weed, mud plantain, burreed, bulrush, and cattail were also observed.

EF 3 was located upstream of Queens Highway north of the City of Avon. This station and its surrounding riparian corridor were dominated by reed canary grass. The mean depth was approximately 1 foot and substrates were composed of sand and silt with some areas of gravel. Eleven species of fish were present with central mud minnows observed to be abundant. Other fish species sampled included largemouth bass, black and yellow bullheads, carp and white sucker.

Station 4 (Appendix Figure 2) consisted of Spunk Creek upstream of the Stearns County Road 17 crossing. Dominant plant species for this station included mud plantain, river pond weed, and coontail. Stream substrates consisted of sand and gravel. The water at station 4 was stained brown which suggested tannins were common in the area upstream of the site. Eleven species of fish were sampled at this station. The three most abundant were creek chub, johnny darter, and log perch.

Station 5 included the section of stream immediately downstream of Stearns County Road 17. Substrate and plant species were very similar to station 4 with the addition of wild rice. Fish species composition appeared to be similar to station 4 with three additional species sampled including walleye.

EF station 6 was located upstream of Kreigle Lake Road in the wetland area immediately downstream of Kalla Lake (Appendix Figure 3). Predominant plant species included sago pondweed, coontail, reed canary, yellow water lily, and filamentous algae. Nine species of fish were present in this station and largemouth bass, hybrid sunfish, and central mudminnow were common. The relative proximity to Kalla Lake likely had some influence on the species composition at this site.

The Spunk Creek Watershed is located in an agriculturally developed area of central Minnesota. The lower five miles of the stream have sport fisheries value. The remainder of the stream is used by northern pike for spawning, channel catfish for nesting, and many other species for resting and feeding.

Table 1. Electrofishing station location information for sampling Spunk Creek MN 2004.

Station	EF1	EF2	EF3	EF4	EF5	EF6
Date	9/7/2004	9/7/2004	9/7/2004	9/9/2004	9/9/2004	9/9/2004
Effort	1217	434	1176	1471	1443	524
Length (ft)	483	144	534	393	503	327
Conduct	345	345	390	345	345	355
Temp °C	20	20	20	21	21	18.5
Location description	Downstream Great River Road	@ 125th ave	Upstream Queens hwy	Upstream CR 17	Downstream CR 17	Upstream Kriegle Ik Rd
Station	EF1	EF2	EF3	EF4	EF4A	EF6
Width - Depth	20-25 ft W - 1 ft D	15 ft W, - 1-5 ft D	15-20 ft W - 0.5-2 ft D	15-20 ft W - 1-3 ft D	15-20 ft W - 0.5-2 ft D	10-15 ft W - 0.5 - 3.5 ft D
Channel, substrate	Moderate meander, sand-gravel bottom	Moderate meander, sand and silt bottom	Wetland area ditching?, silt, sand	Ditched, sand silt, gravel	Ditched, gravel, sand, silt	Excavated, silt, sand, gravel
Vegetation of note	R. PW, S. PW, Aster, Lemna, RC	RPW, Wild rice, Mud plantain, Cattail, Bulrush, Burreed, Lemna, Coontail, RC	Coontail, Cattail, Flatstem PW, Elodea, Lemna, Mud Plantain, burreed, S. PW, R. PW, C. PW	R. PW, Mud plantain, Burreed, Lemna, Wild rice	R. PW, Mud plantain, Burreed, Lemna, Wild rice	Cattail, coontail, S. PW, FA, RC, Lemna, Y Water lily

Table 2. Species sampled by electrofishing at six stations on Spunk Creek during summer 2004.

Species	EF1	EF2	EF3	EF4	EF5	EF6	Total
Black bullhead			3			6	9
Bluegill	1						1
Bigmouth shiner					6		6
Blacknose dace	2			1	4		7
Bluntnose minnow		1					1
Bowfin		1	3				4
Burbot	1						1
Carp			8				8
Central mudminnow			266	1		9	276
Creek chub	10	2	4	9	71		96
Common shiner	11	4	1	2	2		20
Green sunfish						1	1
Hornyhead chub	2			3	3		8
Hybrid sunfish	2		6	2	1	9	20
Johnny darter	5			4	22		31
Log perch				3			3
Largemouth bass			2			14	16
Longnose dace	22				1		23
Mimic shiner	1				2		3
Pumpkinseed sunfish						4	4
Rockbass	1				2		3
Spotfin shiner	2				3		5
Smallmouth bass	7	1		2	6		16
Tadpole madtom	1		6	1	1	1	10
Walleye	1				1		2
White sucker	6	1	6	1	24		38
Yellow bullhead			1			1	2
Yellow perch						2	2
Total	75	10	306	29	149	47	616

Gear: Smith-Root Model 15-D (backpack)

Crew: Eric Altena, Jason Neuman, Mark Pelham.

Table 3. Minimum and maximum lengths of species sampled by electrofishing and CPUE (Catch per hour of electrofishing) Spunk Creek MN during 2004.

Species	Min Length (mm)	Max length (mm)	CPUE
Black bullhead	149	180	5.17
Bluegill	94	94	0.57
Bigmouth shiner	0	0	3.45
Blacknose dace	50	62	4.02
Bluntnose minnow	73	73	0.57
Bowfin	183	215	2.30
Burbot	100	100	0.57
Carp	76	106	4.60
Central mudminnow	50	100	158.60
Creek chub	25	170	55.16
Common shiner	28	101	11.49
Green sunfish	76	76	0.57
Hornyhead chub	54	120	4.60
Hybrid sunfish	53	132	11.49
Johnny darter	49	56	17.81
Log perch	89	105	1.72
Largemouth bass	49	80	9.19
Longnose dace	64	75	13.22
Mimic shiner	45	45	1.72
Pumpkinseed sunfish	76	100	2.30
Rockbass	28	85	1.72
Spotfin shiner	35	75	2.87
Smallmouth bass	50	189	9.19
Tadpole madtom	31	90	5.75
Walleye	152	304	1.15
White sucker	55	285	21.84
Yellow bullhead	55	207	1.15
Yellow perch	71	76	1.15

Spunk Creek Watershed Stearns County, MN

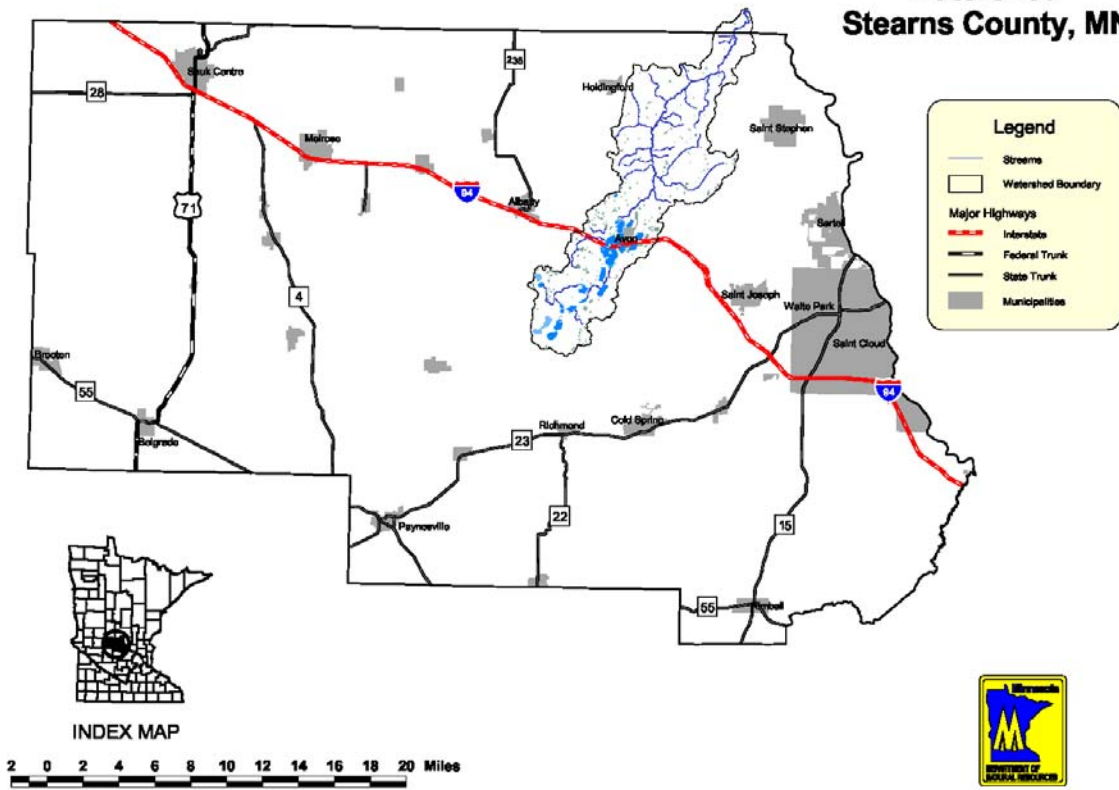
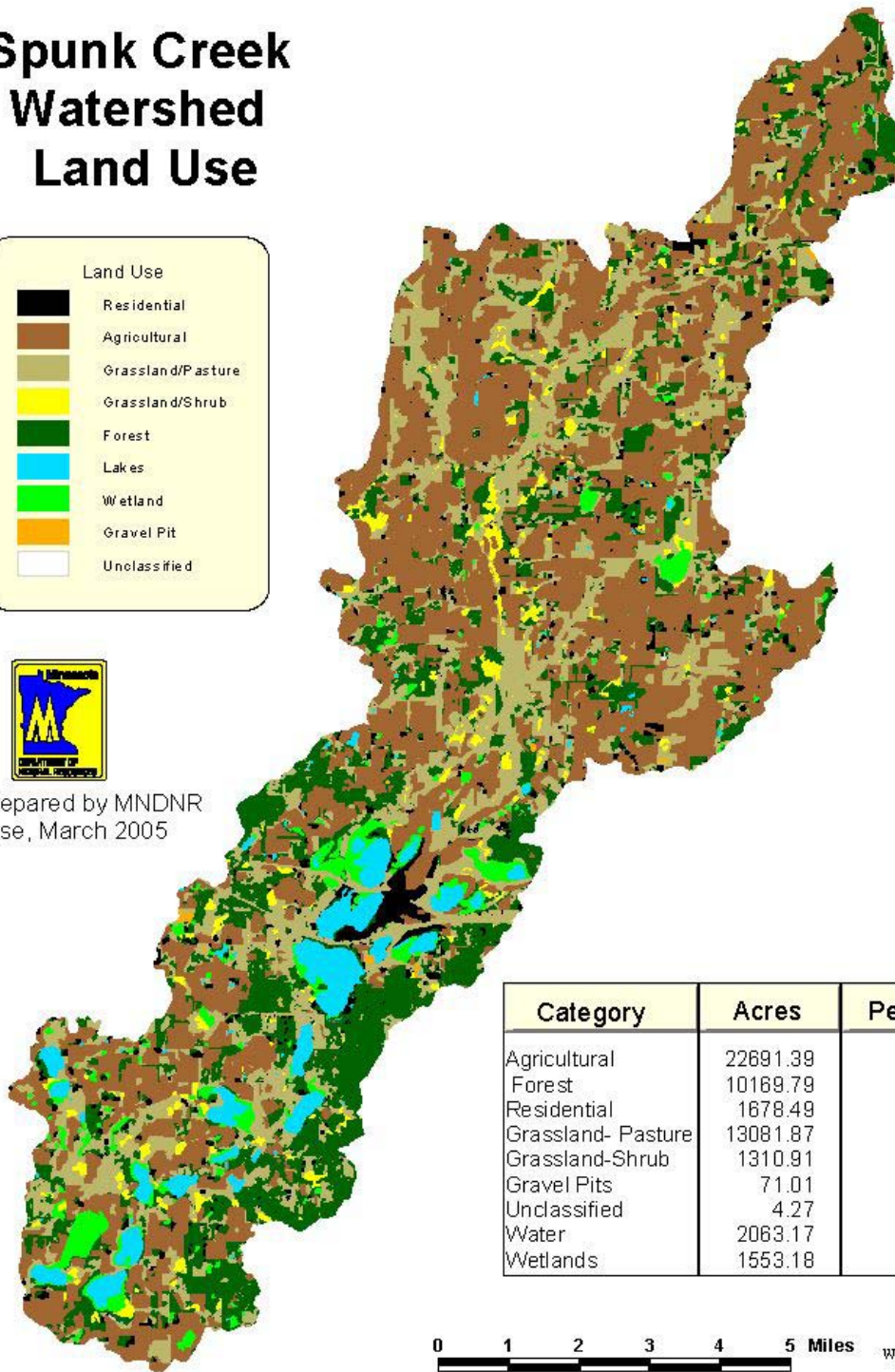


Figure 1. Location of the Spunk Creek estimated watershed MN 2004.

Spunk Creek Watershed Land Use



Map prepared by MNDNR
Montrose, March 2005



Category	Acres	Percent
Agricultural	22691.39	43.12
Forest	10169.79	19.33
Residential	1678.49	3.20
Grassland- Pasture	13081.87	24.86
Grassland-Shrub	1310.91	2.49
Gravel Pits	71.01	0.13
Unclassified	4.27	0.01
Water	2063.17	3.92
Wetlands	1553.18	2.95

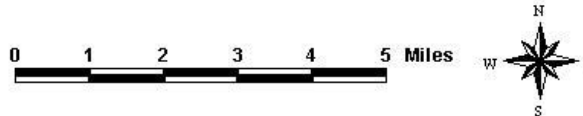


Figure 2. Estimated land use * of the Spunk Creek watershed MN 2004.

*Land use was calculated from 1991 land use land cover layer.

Spunk Creek Electrofishing Stations

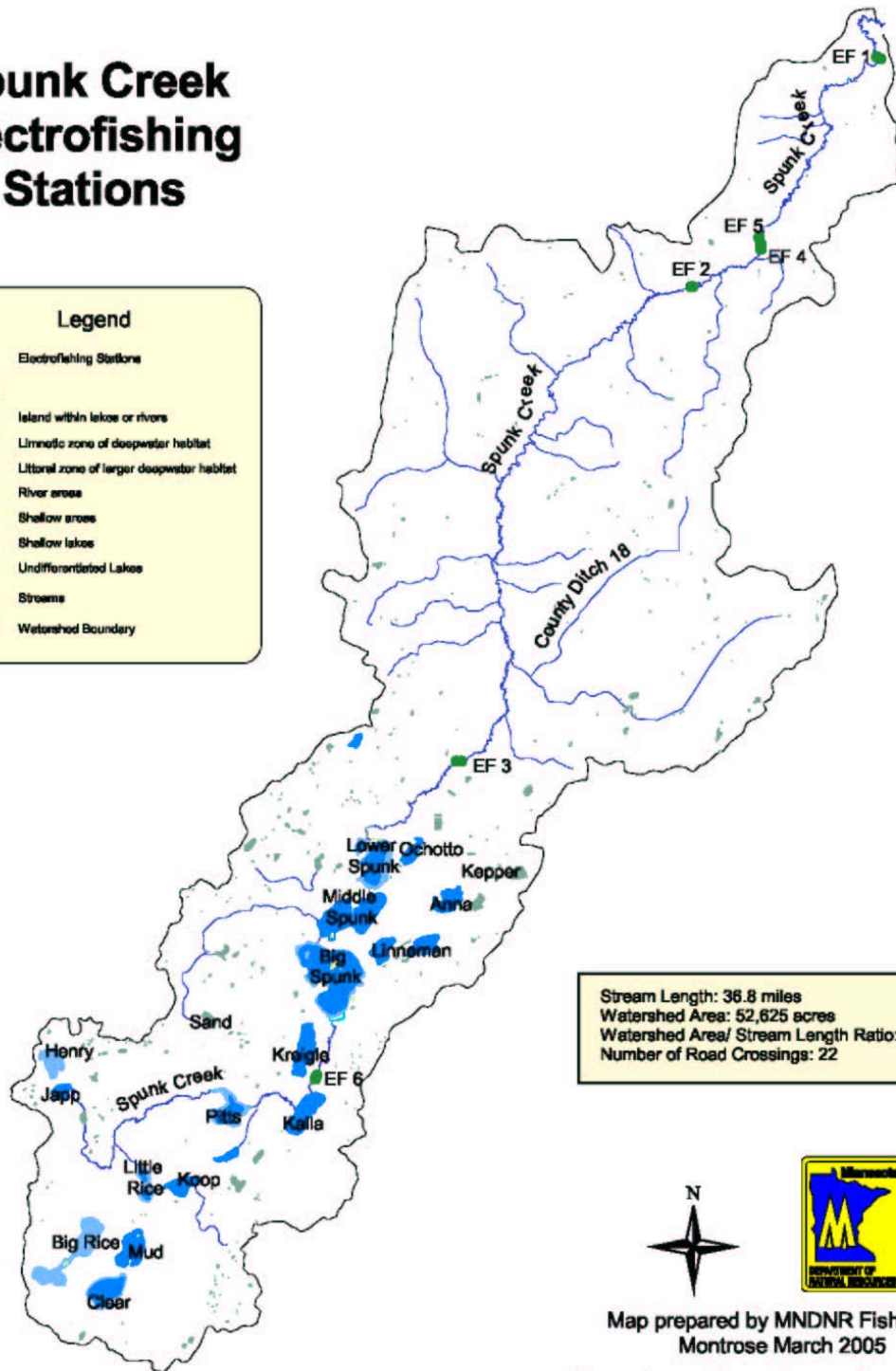


Figure 3. Electrofishing sample locations on Spunk Creek MN, 2004.

Appendix:



Figure 1. EF 2 upstream of 125th Avenue, south of Opole, Spunk Creek, Stearns County, MN 2004.



Figure 3. EF 6 Upstream of Kriegle Lake Road, Spunk Creek MN, 2004.



Figure 2. EF 4 upstream of CR 17 Spunk Creek MN, 2004.



Figure 4. Upstream of 420th Street, Wild rice stand in stream channel of Spunk Creek MN, 2004.

Author Date

Area Fisheries Supervisor Date

Regional Fisheries Supervisor Date

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