

Stream Status

Overall Strategy: Routine Watershed Management

Water Quality Rating: B

Stream Class: Groundwater Small Watershed Nonurban (GWS)

Stream Type: Unstable, incised, highly erodible channel primarily comprised of an unconsolidated, heterogeneous mixture of gravel, some small cobble, and sand.

Subwatershed Land Cover: 70% forests and woodlands, 20% grassland/shrubland/sparse vegetation, 10% planted or cultivated.



Macroinvertebrate Data (2002-2003)*

Metric	Score	Mean of Spring Creeks
Chironomidae Species Richness	13	21
Invertebrate Taxa Richness	28	31.75
HBI	4.2	4.4
% EPT	31.12	36.9
% Dominance	36.5	35.5
Most Common Families	Scuds, Small Minnow Mayfly, and Nemourid Broadbacks	

Water Chemistry (2000-2002)*

Parameter	Site Mean	Site σ	MPCA NCHF Benchmark MIS/St. Croix River		Mean of Spring Creeks
TP [$\mu\text{g/L}$]	31.77	21.92	90	55	42.47
NO ₂ +NO ₃ [mg/L]	.97	0.27	0.1	0.203	2.15
TSS [mg/L]	12.63	11.35	8.8	7.50	15.96
Temperature [C]	10.4	3.03	13.0	10.30	9.95

*Refer to 2010 Watershed Management Plan Section V, Stream Management Plans for definitions of macroinvertebrate metrics and water chemistry parameters.

BASIC FACTS

Section	30
Township	32
Range	19
Stream Length	0.22 miles
Subwatershed Area	9 acres
Baseflow	0.20 cfs
Bankfull Flow	1.63 cfs
Entrenchment Ratio	1.60
Width:Depth Ratio	8.70
Sinuosity	1.10
Slope	0.06
Rosgen Class	A4
DNR Trout Stream	No

Fish Species: N/A

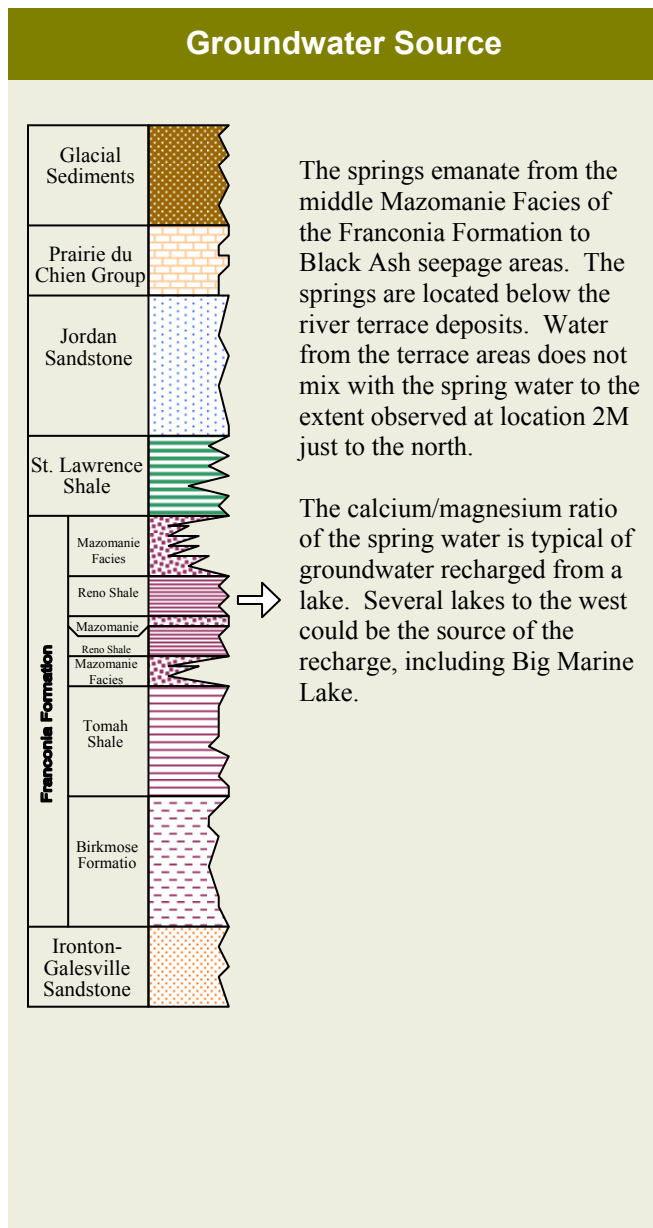
CMSCWD References:
Lower St. Croix River Spring Creek Stewardship Plan ('03)

Overall Assessment: William O'Brien State Park Creek

The watershed for this stream is among the smallest within the study area (9 acres). The watershed is entirely contained within William O'Brien State Park and extends from just east of Highway 95 to the St. Croix River near the north boundary of the park at the St. Croix River. This stream originates from two large seeps discharging from the middle terrace slope of the St. Croix River. The stream flows for about 1000 feet through a mixed hardwood seepage swamp before outletting to the St. Croix River. Most of this small watershed is forested with a small area of grassland in the upper watershed near Highway 95.

The middle and lower section of this small watershed is within an excellent quality mixed hardwood seepage swamp. Records of rare features within this watershed include red shouldered hawk (*Buteo lineatus*). The Blanding's turtle (*Emydoidea blandingii*) is a state-listed threatened species that may be encountered throughout the watershed. Although this stream is relatively small, it is regularly visited by park users.

Based on macroinvertebrate data from the 2003 *Lower St. Croix River Spring Creek Stewardship Plan*, William O'Brien State Park has a water quality rating of 'B.' Data indicate a good Hilsenhoff's biotic index (HBI), decent percent EPT (percent of pollutant intolerant mayflies, stoneflies and caddisflies in the sample) and richness and low chironomid diversity. Organic enrichment is likely natural from wetlands.



Key Management Recommendations

- Limit recreational uses (by William O'Brien State Park) near the stream to prevent trampling of the streambank and associated vegetation.
- Avoid increase in stormwater runoff and volume from bluffline above the spring discharge points.
- Near the mouth of the stream (at the St. Croix River) the streambank is severely eroded. The park should consider restoring this shoreline and directing park users to an area less prone to erosion.

* See 2010 Watershed Management Plan Section V, *Stream Management Plans* for additional information on District stream management activities.