

Region SCR County Sauk Date 9.11.81 Classification LAL

Water Body: Narrows Creek Trib

Discharger: fuel alcohol plant - Loganville.

If classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that apply:

Naturally occurring pollutant concentrations prevent the attainment of use

Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met

Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place

Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use

Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses

Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

**Supporting Evidence included**

- Biological Data (fish/invert)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other:

**Comments:**

LAL b/c intermittent flow?

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7/24/81

Fuel Alcohol Plant - Loganville  
Sauk County  
July 24, 1981  
Stream Classification

Tributary to Narrows Creek

A fuel alcohol plant has been proposed to be constructed approximately 1.4 miles east of Loganville. The site is located in Sec. 16, T. 11 N., R. 4 E., on the east side of Center Valley Road. A possible surface water discharge to a tributary of Narrows Creek was evaluated. The tributary flows in a northerly direction and joins Narrows Creek in the NE $\frac{1}{4}$  SE $\frac{1}{4}$ , Sec. 4, T. 11 N., R. 4 E. Narrows Creek is presently managed as a high quality smallmouth bass stream.

When the stream survey was conducted, water was ponded in the uppermost reaches of the tributary, which most likely had accumulated from recent rains. But the streambed remains relatively dry from the proposed discharge area downstream to the juncture with another tributary in the NE $\frac{1}{4}$  NE $\frac{1}{4}$ , Sec. 9, T. 11 N., R. 4 E. A sufficient amount of groundwater enters the stream in this area to maintain continuous stream flow during normal years.

The tributary drains primarily agricultural land, some of which is intensively farmed. Much of the stream below the proposed discharge area is buffered by pasture and several barnyards. Also much of the cropland in the watershed consists of corn. All of these sources contribute sediment and nutrients to the stream during surface water runoff.

The streambed consists of mostly silt and sand. Very little gravel or rubble was evident. The sedimentation problems are linked with barnyard and cropland erosion. One barnyard above Ridge Road is almost totally void of vegetation and a significant amount of manure was present. Any rain would result in the movement of soil and nutrients into the tributary from this source.

Streambank vegetation is abundant and diverse below the juncture of the two tributaries. Vegetation consists of trees and terrestrial grasses along with arrowhead, smartweed and Juncus spp. The "raw" spots on the lower section of the stream are the result of heavy cattle use.

The channel capacity is such that it can handle most peak flows but the stream does appear to be of a somewhat "flashy" nature.

The lower section of the stream does have good fish habitat, considering the amount of sedimentation that has occurred. Pools were in excess of two feet. A fish survey was conducted on July 24, 1981, by Fish Management. The results are contained in Table I. Fish were abundant throughout the 300' survey stretch.

Bank vegetation totally shaded the stream in most areas. It provided fish cover and contributed to lower stream water temperatures. On the day of the stream survey when the air temperature was 79°F., the water temperature was 67°F. A summary of the water quality data is contained in Table II.

A macroinvertebrate sample was also taken on July 24, 1981, approximately 1,000 feet above the juncture with Narrows Creek. The results of the biotic index are contained in Table III. The Biotic Index used (which is an indicator of water

quality) was developed by Dr. Hilsenhoff and is published in D.N.R. Technical Bulletin Number 100. Actual biotic index values were taken from the updated report of November 1980.

With a biotic index value of 4.65 the stream was considered to have "very poor" water quality. The sample was dominated by Asellus intermedius (75%) and four genera of chironomids (17%). The high biotic index was not surprising considering the amount of nutrients and sediment which enters the stream during runoff. It has resulted in a silt-sand substrate which is not conducive to macroinvertebrate attachment.

#### Classification Recommendations

From the proposed discharge site downstream to the juncture with an additional tributary in the NE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub>, Sec. 9, T. 11 N., R. 4 E., the tributary to Narrows Creek should be classified as marginal. *- because of stream to tributary?*

The remainder of the tributary contains an abundant number of fish and contributes additional cool water to Narrows Creek. Consequently, it is important to protect this tributary to maintain the high quality smallmouth bass population in Narrows Creek. For these reasons the tributary to Narrows Creek downstream of the juncture with the second tributary should be classified as fish and aquatic life.



Roger Schlessner  
Water Quality Spec.

Table I

Fish Survey: Tributary to Narrows Creek, 1,000 ft. Upstream of Confluence

July 24, 1981

Fish Species

Population

Bluntnose Minnow  
White Sucker  
Creek Chub  
Common Shiner

Abundant  
Abundant  
Abundant  
Abundant

Table II

Water Quality Data: Tributary to Narrows Creek, 1,000 ft. Upstream of Confluence

July 24, 1981

Time - 13:30  
Time - 13:32

pH - 7.5 (SU)  
Temp. -19.6°C (67°F)  
D.O. - 5.9 mg/l  
Air Temp -26°C (79°F)  
85% Cloud Cover  
Flow - .19 cfs.

TABLE III

Taxonomic List of Macroinvertebrates for MS - 1 July 24, 1981

Taxa	n	a	nxa
DIPTERA			
CHIRONOMIDAE			
<u>Chironomus</u> spp.	<u>5</u>	5	<u>25</u>
<u>Cryptochironomus</u> spp.	<u>3</u>	4	<u>12</u>
<u>Paratanytarsus</u> spp.	<u>3</u>	3	<u>9</u>
<u>Thienemannimyia</u> complex	<u>7</u>	3	<u>21</u>
SIMULIDAE			
<u>Simulium vittatum</u>	<u>3</u>	4	<u>12</u>
TABANIDAE			
<u>Chrysops</u> spp.	<u>3</u>	3	<u>9</u>
ODONATA			
<u>Aeshna</u> sp.	<u>1</u>	3	<u>3</u>
AMPHIPODA			
<u>Gammarus pseudolimneus</u>	<u>1</u>	2	<u>2</u>
ISOPODA			
<u>Asellus intermedius</u>	<u>80</u>	5	<u>400</u>
Total =	<u>106</u>		<u>493</u>

$$\text{Biotic Index} = \frac{493}{106} = 4.65$$



TRIBUTARY TO NARROWS CREEK -  
Upstream of Center Valley Road



TRIBUTARY TO NARROWS CREEK -  
Upstream of Center Valley Road



TRIBUTARY TO NARROWS CREEK -  
Downstream of Center Valley  
Road



TRIBUTARY TO NARROWS CREEK -  
Downstream of Center Valley Road  
(Second bridge below proposed fuel  
alcohol plant)



TRIBUTARY TO NARROWS CREEK -  
Upstream of Ridge Road. Note  
unvegetated barnyard and additional  
sediment in dry run



TRIBUTARY TO NARROWS CREEK -  
Continuous flow section of stream