

DATE: May 14, 2003

FILE REF: WIBC 15200

TO: Wilson Park Creek (WIBC 15200) and Unnamed Tributary (Edgerton Channel) File

FROM: Will Wawrzyn SER

SUBJECT: Addendum to the Stream Classification and Stream Appraisal Report for Wilson Park Creek / Edgerton Channel

Purpose

The purpose of this memorandum is to re-evaluate previously assigned Stream Classification recommendations for the Wilson Park Creek and an unnamed tributary of Wilson Park Creek known locally as the Edgerton Channel ¹.

Location of Waterbodies

Wilson Park Creek (WIBC 15200) is a tributary to the Kinnickinnic River (WIBC 15100), Kinnickinnic River Watershed, Milwaukee River Basin in Milwaukee County. Wilson Park Creek discharges to the Kinnickinnic River in the SE1/4 of the SE1/4, Section 6, T7N, R21E. Previous planning reports by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) referred to this later headwaters reach of Wilson Park Creek as the Edgerton Channel extending for approximately 1.0 miles from the NW1/4 of the NW1/4, Section 26, T6N, R22E to the SE1/4 of the NW1/4, Section 27, T6N, R22E. The purpose for this unique division by the SEWRPC is unknown and it does not appear to be a result of any uniquely different hydrological divisions or differences. Rather, it appears that the unique stream designations were based on political boundaries. The Department of Natural Resources current Register of Waterbodies does not make a distinction between the two waterbodies and only recognizes the Wilson Park Creek. Hereafter, the conclusions and recommendations contained in this report shall be for the Wilson Park Creek, inclusive of the locally named Edgerton Channel.

Discussion

Habitat in Wilson Park Creek is limited by extensive hydrological modifications including concrete lining of its bed and banks, and lesser amounts of enclosure. Approximately 3 miles (60%) of stream channel have been modified in this manner. Wilson Park Creek was previously classified according on a reach by reach basis, with the hardened-engineered channels being classified as a Limited Aquatic Life Community. Stream reaches still contained in a natural alluvial channel were classified as a Limited Forage Fish Community. The attainability analysis concluded that the hydrological modifications were more or less irreversible.

Since completion of the 1993 Stream Classification Report for the Wilson Park Creek, in-stream and watershed conditions have not changed dramatically to the extent that they would necessitate revising the current reach by reach biological use classification. However, changes in local flood management policy and recent completion of flood management projects in other watershed contained in the Milwaukee River Basin does necessitate re-consideration of the longer term attainability analysis for Wilson Park Creek.

¹ Wilson Park Creek Stream Classification. 1993. Revision to the Wilson Park Creek Stream Classification, Wisconsin Department of Natural Resources, Southeast District, March 1993.

The Milwaukee Metropolitan Sewerage District (MMSD) is the agency charged with flood management throughout Milwaukee County. Since the mid-1960's the MMSD routinely practiced channelization, concrete lining and enclosure as the means for managing flood flows. More recently, it has been the MMSD's new found policy to consider removal of these structures whenever the concrete structures deteriorate to the point of needing major repairs or where removal can have a mitigating effect on flooding. Recent projects have been completed by the MMSD that involved the removal of over 4-miles of concrete invert lining in Lincoln Creek and lesser amounts to the bed and banks of the Menomonee River. These events allow one to conclude that removal of engineered linings from the bed of these streams or "day lighting" enclosures are technically and financially feasible alternatives to managing flood impacts, and restoring some degree of habitat to urban streams.

Recommendations

It is recommended that the current mixed reach-specific biological use classification for Wilson Creek be changed from a *Limited Aquatic Life Community* and *Warmwater Forage Fish Community* to ***Warmwater Forage Fish Community*** throughout its entire course, regardless of the existing channel condition. Recent local initiatives that reconsider traditional flood control practices in lieu of more comprehensive approaches that include restoring and managing streams in their natural alluvial beds have been shown to be technically and financially feasible. The revised use classification will allow for a comprehensive water resource management strategy that protects the stream for the highest existing downstream uses.

ROW Detailed Information

Click [here](#) for Metadata regarding this page.

WBIC: 15200
 Waterbody Name: WILSON PARK CREEK
 Local Name:
 Waterbody Type: River/Stream
 Basin: Milwaukee River
 County: Milwaukee

Location Data at Mouth

TOWN	RANGE	SEC	Q SEC	QQ SEC	QQQ SEC	QQQQ SEC
06	21E	12	SE	SE		

Size For Total Waterbody

STREAM LENGTH MILES	LAKE ACRES	SHORELINE LENGTH mi
4.1	0	0

Other Data

1st Dwnstrm WBIC	1st Dwnstrm Name	USGS Hydro Code	Landlocked	Status
		4040003		Exist

County info comes from County Surface Water Publications. The following is county characteristic data, it applies to the county segment of the waterbody.

County: Milwaukee

Location at County Border

TOWN	RANGE	RANGE DIR	SEC	Q SEC	QQ SEC
06	21	E	12	SE	SE

Size of Waterbody for County Segment

MAX DEPTH FT	% BELOW 20 FT	% ABOVE 3 FT	SHORELINE LENGTH mi
1	0	99	8.2

County Segment Characteristic Data

WATERSHED AREA mi2	OUTLET FLOW cfs	PUBLIC FRONTAGE mi	DRAINAGE AREA mi2	ADJOINING WETLANDS acres	% GRAV EL	% ROC K	% MUC K	% SAN D	% DRAINAGE WILD
10	100	0	4	0	40	10	40	10	0

Wilson Park Creek Stream Classification
Kinnickinnic River Watershed
from Richard Randall, 1984
Water Resource Management
Southeast District
revised March, 1993

Introduction

Wilson Park Creek is a major tributary of the Kinnickinnic River with a drainage area of 11.2 sq. miles or 45 percent of the Kinnickinnic River watershed. The stream originates in Sec. 27, T6N, R22E in the city of Cudahy and flows north west for 6.0 miles. The stream drains the medium hub airport General Mitchell Field, undeveloped county park lands, high density residential, industrial, and commercial areas. Tributaries to Wilson Park Creek include Cherokee Park Creek, Villa Mann Creek, Holmes Avenue Creek, and a extensive drainage system through Mitchell Field. There are 43 know storm sewer outfalls, 7 industrial outfalls, and 8 sanitary sewer flow relief devices in the watershed. Frequent spills have been reported for Wilson Park Creek especially in the headwaters area of the airport and Holmes Creek subwatershed. Spilled materials include aviation fuel, aircraft de-icer, detergents and ink. Wilson Park Creek was previously classified as Marginal Use, class E.

Habitat Evaluation

The Wilson Park Creek channel has been extensively modified to reduce flooding in the watershed. A channelized earthen stream channel exists along a 0.5 mile reach upstream and downstream of the I-94 overpass, and the "Edgerton Channel" reach upstream of the airport. A short spur of concrete invert exists below the overpass. There are 1.5 miles of enclosed conduit including a 0.9 mile section in the airport and a 0.3 mile section above the confluence with the Kinnickinnic River. The remainder of the stream is located in a concrete invert. No Q7,10 data is available, however the stream flows continuously.

The areas with natural substrates upstream of the airport and approximately 1/2 mile upstream and downstream of I-94 provide the most suitable habitat for aquatic life. Above the airport the average width is 5 feet and the average depth is 0.3 feet. Substrate includes silt, clay, sand and lesser amounts of gravel and cobble. Cobble and small boulder are the dominate substrate along the reaches upstream and downstream of the I-94 overpass. Much of the interstitial space between the coarse substrate is filled with silt and sand. Bottom channel widths are approximately 15 feet and the average depth is 0.3-0.7 feet. Where the stream flows through a section of Wilson Park maximum depths increase to about 1.6 feet. The during base flow conditions, this reach resembles a continuous and broad shallow riffle area. Besides the coarse substrate, filamentous algae and Elodea spp. also provide cover through this reach. The lower and upper bank is maintained

as mowed grass. Bank erosion is less severe in sections of Wilson Park where the dominant cover is shrubs and trees, and upstream of the airport where the bank cover is grass and sedge.

From the conduit outlet at Morgan Avenue to the conduit inlet at the Kinnickinnic River, the stream width is about 25 feet and depths vary from 0.1 feet in the riffles to about 1.5 feet behind a small dam at the conduit inlet.

Habitat in the concrete channel is limiting to aquatic life due to lack of cover and shallow water depths. Deposition of sand and silt in the channel provide some habitat but this is usually transient material to scouring of the channel during storm events. Temporary growths of filamentous algae and *Elodea* sp. are present in the concrete channel where these silt and sand deposits occur and scour is not as frequent. Grass and sedge growths temporarily stabilize these deposits until hydraulic scour removes them. Stream widths vary in the concrete channel from 3-15 feet and depths vary from 0.1 to 0.5 feet. Overall stream habitat is rated poor using the Stream System Habitat Rating as a result of concrete channelization.

Biological

Benthic macroinvertebrate samples were collected in May of 1984 in Wilson Park Creek downstream of the concrete channel in riffle areas at 20th St. and above confluence with the Kinnickinnic River. Both samples were dominated by *Oligochaeta* spp. and were low in diversity which indicate very poor water quality. The most dominant arthropod collected at both sites for calculating the Hilsenhoff Biotic Index was *Cricotopus* spp. The resulting index values of 3.93 and 3.73 at 20th St. and above the confluence respectively, indicate poor water quality. These results are similar to a sample collected in October 1975 which also was dominated by *Oligochaeta* spp.

No fish were collected in Wilson Park Creek despite shocking long reaches in May of 1984 adjacent to Wilson Park and in September 1984 above the confluence with the Kinnickinnic River. Only small minnow fry and crayfish were observed in the stream. In 1975 the Bureau of Research captured only one goldfish in the stream adjacent to Wilson Park. Fish collections reported by Greene in 1924 included brook stickleback, bluntnose minnows, creek chubs, fathead minnows, and johnny darters. Although significant fish populations have not been documented from Wilson Park Creek, the available habitat along earthen channel reaches are capable of supporting tolerant fish species. The lack of fish is likely a result of chronic water quality problems and migration barriers. Water quality problems include urban nonpoint sources, sanitary bypasses, and spills.

Water Quality

The most recent water quality information for Wilson Park Creek was

collected for the 1975-1977 Milwaukee County Rivers Basin Report and General Mitchell Field nonpoint source study. The data indicated that airport runoff, other urban nonpoint sources, and petroleum and other spills at the airport limited water quality in the stream. State water quality standards and EPA recommended criteria for nutrients, solids, and heavy metals were routinely exceeded during storm events. Sediments in the stream were found to be polluted primarily with heavy metals and PCBs. Water quality during non-event flows generally met state and federal standards and criteria.

Currently a majority of the industrial effluent discharged to the stream are non-contact cooling water, but unknown sources of petroleum based material are routinely observed.

Conclusions and Recommendations

Habitat in Wilson Park Creek is limited by concrete channels, deposition, and scouring of the bottom channel. Water quality and the bottom sediments are limited by urban nonpoint sources, spills and sanitary sewer discharges. The absence of a viable fish population and the presence of a very tolerant macroinvertebrate community support this conclusion. Habitat along earthen channel reaches is however, capable of supporting a limited forage fish community more tolerant of degraded environmental conditions. Abatement of these limiting factors would be expected to improve environmental quality conditions along earthen stream reaches, the Kinnickinnic River and estuary.

It is recommended that the remaining natural segments of Wilson Park Creek upstream and downstream of the I-94 overpass, and upstream of the airport (locally referred to as Edgerton Channel) be re-classified from Marginal Use, Class E to a **Limited Forage Fish Community** per NR 102 and NR 104 capable of supporting a limited community of forage fish and macroinvertebrates. It is further recommended that all concrete lined and enclosed reaches of Wilson Park Creek be classified as **Limited Aquatic Life** per NR 102 and NR 104 capable of supporting a limited and very tolerant population of macroinvertebrates and an occasional fish.

References

- Ball, Joseph, 1982. Stream Classification Guidelines for Wisconsin. WDNR Technical Bulletin.
- Fago, Donald M., 1981. Data for Fish Distribution Study. WDNR Bureau of Fish Research.
- Hilsenhoff, William L., 1982. Using a Biotic Index to Evaluate Water Quality in Streams.
WDNR Technical Bulletin No. 132.

SEWRPC 1978. A Comprehensive Plan for the Kinnickinnic River Watershed. Planning Report No. 32.

WDNR 1977. Milwaukee County Rivers Basin Report and General Mitchell Field Nonpoint Source Study.

Region SCR County Milwaukee Report Date 3/1993 Classification LAL/LFE

Water Body: Kinnickinnic R. (Wilson Park creek) unnamed trib

Discharger: MMSD, etc.

If stream is classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that are identified in the classification report:

- 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 in the report (include comments on how complete/thorough data is)

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

Historical Reports in file:

- no report -

Additional Comments/How to improve report:

- is this a diff't report than the Wilson Park Creek report -
Milw. Ductile Iron, Froedert malting. ?