CORRESPONDENCE/MEMORANDUM

DATE:	12/19/2024 (corrected staff on field visit 1/14/2025)	FILE REF: Brillion WWTF
TO:	Nicole Krueger, Limit Calculator; Trevor Moen, Wastewater En	ngineer
FROM:	David Bolha, Stream Biologist; Kristi Minahan, Water Quality S Coordinator	Standards; Diane Figiel, Limit Calculator
SUBJECT:	Brillion WWTF, Unnamed Tributary to Spring Creek (WBIC 77	7100), Calumet County

Overview of issue

The City of Brillion Wastewater Treatment Facility currently discharges to Unnamed Tributary WBIC 77100 (called Black Creek hereafter*) to Spring Creek (WBIC 76900) in Calumet County within the Brillion Wildlife Area (Map 1). The history of the Brillion receiving water classification is complex because the facility changed its location and its outfall was moved from Spring Creek to Black Creek (WBIC 77100). The old receiving water, Spring Creek, is listed in ch. NR 104 as LAL (see Figure 1), but the new receiving water, Black Creek (WBIC 77100), is not listed in ch. NR 104 (see attached memo and maps for more detail on the old and new locations). The 2018 permit limits were based on the old ch. NR 104 listing of LAL, with phosphorus limits based on the North Branch Manitowoc River.

In 2022, Mary Gansberg conducted a site visit to determine stream classifications for these segments (attached 2023 Gansberg memo), but due to difficulty assessing the site with standard protocols, she recommended an additional site visit/survey if possible. In 2024, Dave Bolha and others re-visited the site to reassess conditions and determine the appropriate stream classifications for Black Creek, which is the current receiving water, and its downstream waters.

Brillion WWTF is a continuous discharger, with an annual average design flow of 0.824 MGD (1.275 cfs).

* In this memo, the unnamed tributary WBIC 77100 is called Black Creek to be consistent with the name used by the Brillion WWTF for its receiving water. However, in previous documentation/maps, other names are used. In Gansberg's 2023 memo it was called "Unnamed Tributary 77100". In Minahan's 2018 Notes, it was called "north stream". It appears the local name of Black Creek has been applied at various times to both the stream north & south of the facility. On DNR's data viewers only the stream south of the facility is shown as Black Creek, and not the facility's receiving water (WBIC 77100), which is north of the facility. However, locally, the stream north of the facility is called Black Creek.

Summary of previous and current stream class recommendations

- Segment 1 (most upstream): Black Creek (WBIC 77100) from the Deer Run Golf Course Dam downstream to its confluence with Spring Creek
 - o Codified designated use: Default Full Fish and Aquatic Life; Not listed in NR 104 so considered Warmwater DU
 - *Classification used for previous permit issuance:* LAL, with downstream protection for phosphorus based on the North Branch Manitowoc River.
 - Previous stream class recommendations: None for Black Creek (WBIC 77100). However, 2018 Notes from Kristi Minahan recommended deleting the NR 104 references to Spring Cr. where the facility used to be located (attached 2018 Minahan Notes).
 - o Modeled Natural Community: Warm Headwater
 - New recommended Natural Community (NC) and Designated Use (DU): Warm Headwater Natural Community and Warmwater Forage Fish DU



- Segment 2: Spring Creek (WBIC 76900) downstream of confluence with Black Creek to the North Branch of the Manitowoc River
 - o Codified designated use: Default Full Fish and Aquatic Life; Not listed in NR 104 so considered Warmwater DU
 - Classification used for previous permit issuance: LAL (considered a wetland)
 - *Previous stream class recommendations:* The Mary Gansberg 2022 survey described in her 2023 memo recommended Warmwater for the segment of Spring Creek that is downstream from the current outfall location.
 - (Note that in 1996 Mary Gansberg surveyed the portion of Spring Creek where the outfall used to be located, on a different stream from the current outfall location, and her 1996 memo recommended Warmwater Forage Fish for the portion of Spring Creek that is upstream from Glenview Ave. See attached 1996 Gansberg memo.)
 - Modeled Natural Community: Warm Headwater
 - New recommended NC & DU: Warm Headwater Natural Community and Warmwater Forage Fish DU

• Segment 3: North Branch of the Manitowoc River

- o Codified designated use: Default Full Fish and Aquatic Life
- o Classification used for previous permit issuance: Warmwater Sport Fish
- o Previous stream class recommendations: Warmwater Sport Fish Community
- o Modeled Natural Community: Warm Headwater
- New recommended NC & DU: Warm Mainstem Natural Community and Warmwater Sport Fish DU
- o Recommend wadable fish and habitat surveys in North Branch Manitowoc River to verify Natural Community

Site overview map



Map 1: Brillion WWTF Outfall Location and Receiving Water. The outfall is at the green dot and the Deer Run Golf Course Dam is upstream at the orange dot.



Map 2: Brillion WWTF Receiving Water Segments

Site observations and habitat survey results (if available)

Segment 1: Black Creek from the Deer Run Golf Course Dam Downstream to its Confluence with Spring Creek

 On September 10th, 2024, David Bolha (myself), Katherine Rynish, and Chris Kolasinski conducted a receiving water evaluation for the Brillion Wastewater Treatment facility. We began our site visit at the County Hwy PP road-crossing of Black Creek (WBIC 77100). Black Creek upstream and downstream of County Hwy PP had minimal flowing water, but indication of bed and bank. Shortly after arrival, the owner of Deer Run Golf Course, Glen Braun, approached us. He invited us onto the golf course, which is the riparian property of Black Creek to the East of County Hwy PP. He accompanied us to the Deer Run Golf Course Dam on Black Creek ~170 meters upstream of County Hwy PP (see attached Dam Details). The golf course is the owner and operator of the dam. Integrated into the structure of the dam, a hydraulic pump will pump water from the upstream side downstream through Black Creek (Photo 1-2). The hydraulic pump operates on-demand either when excessive precipitation

warrants it or irrigation of the golf course downstream of the dam requires more water in the creek near County

Hwy PP (according to the dam owner's discretion). When David, Trevor, and Katherine arrived at the dam with Glen, the pump was not operating, so minimal flow, if any, was flowing downstream. The owner needed to irrigate downstream of the dam, so he turned on the pump (Photo 1). There is a spillway that is used during high precipitation events (typically in Spring), but it was not open while we were there. The operation of the dam significantly influences the fish and aquatic life community of Black Creek. I am concerned that the potential of the fish and aquatic life community may not be reached with the barrier to fish passage and the augmentation of the natural stream flow pattern in Black Creek.

- Based on the operation of the dam, I felt a fish and habitat survey would not be appropriate or representative of typical stream conditions. If conducting a survey while the pump was operating, water levels would be too high for typical summer protocols. If conducting a survey while the pump was not operating, the minimal flow/no flow in Black Creek may not be representative either.
- In September 2022, Mary Gansberg and Claire Hetzel attempted to conduct a receiving water evaluation for Brillion WWTF. At that time, they determined downstream of Brillion's outfall was not surveyable by standard protocols (Photo 3). Thus, I determined upstream of County Hwy PP may be the best approach to determine the natural community and appropriate designated use for Black Creek.
- We followed Black Creek upstream of the Deer Run Dam through the golf course as far as the property continued. The creek is shallow and considerably wider upstream of the dam versus downstream. We concluded our site visit after returning to the course clubhouse.
- Segment 2: Spring Creek Downstream of Confluence with Black Creek to the North Branch of the Manitowoc River
 No surveys or observations were made on Segment 2 during our site visit.
- Segment 3: North Branch of the Manitowoc River Downstream of Spring Creek Confluence
 - No surveys or observations were made on Segment 3 during our site visit.

Fish survey results (if available)

No fish surveys were conducted on September 10th, 2024.

Discussion and Designated Use Recommendations

Note: Recommendations from this site visit are shown at the top of this memo.

- Representative fish and habitat surveys on Black Creek (WBIC 77100) are not possible due to the nature of the marsh downstream of Brillion's outfall or upstream of their outfall due to the observed influences of the Deer Run Golf Course Dam operation. Black Creek and Spring Creek do and should support fish communities given appropriate water quality. Fish were observed in Black Creek at the Brillion outfall in 2022. Spring Creek has a direct connection to the North Branch Manitowoc River, which is a larger, more diverse system with game fish such as Largemouth Bass. Fish and other aquatic life will use Spring and Black Creeks during most times of the year. The modeled natural communities of North Branch Manitowoc River, Spring Creek, and Black Creek are Warm Headwater.
- Without the use of fish surveys to collect a representative fish community in Black or Spring Creeks, their natural communities cannot be verified. Based upon my professional judgement, Segment 1-3 should not be classified as a Macroinvertebrate stream. Considering the continuous discharge of Brillion WWTF and observed fish at their outfall, it is not appropriate to classify Black Creek or Spring Creek as Limited Aquatic Life or Limited Forage Fish. During some drier seasons/years, the connection of Black Creek to Spring Creek and the North Branch Manitowoc River may be limited or prohibited by low flows and/or encroachment by emergent vegetation (cattails) as it flows through the marsh. During these conditions, the fish and aquatic life community may be limited. A poor connection to downstream waters may be influenced by the current operation of the Deer Run Golf Course dam. That may change if operation of the dam changes.
- For the above reasons, a Warmwater Forage Fish Designated Use (which includes the Warm Headwater Natural Community) is recommended for these three segments, to be protective of the fish communities that are expected to make use of these waterways for much of the year. Based on the stream size and characteristics, it is expected to be a

Warmwater Forage Fish community most of the year. Sport fish may use it at times, but generally not reside there throughout the summer.

Are code changes and/or a Use Attainability Analysis needed?

- A code change or Use Attainability Analysis are not needed in order to classify Segments 1, 2, or 3 as Warmwater Designated Use, since they are not currently listed in the code as LAL or LFF.
- However, a code change is needed to remove the old LAL and LFF listings for "Tributary-Spring Creek (Brillion)" since the discharge is no longer located there and without the discharge it should default to its appropriate Natural Community. The old listing includes an "Effluent ditch" (LAL) and a continuous section of Spring Creek upstream from Brillion March (LFF), shown below from ch. NR 104, Table 5, row 7. The attached 1996 Gansberg memo provides documentation that an existing Warmwater Forage Fish community was present at that time. Under the Clean Water Act, a Designated Use must, at a minimum, be protective of the highest quality fish community that was supported at any time since 1975. Therefore, at a minimum, a designated use of Warmwater Forage Fish is appropriate for the upper portion of Spring Creek. This is consistent with Dave Bolha's recommendations of a Warmwater Forage Fish classification for the lower portions of Spring Creek, which has an existing channel through the marsh and is managed by the DNR Wildlife Program to keep open flow through the system. This would be protective of current fish community present at the outfall and the North Branch Manitowoc River's Warmwater community.

Figure 1. Listing from ch. NR 104, Table 5, row 7, Wis. Adm. Code, that should be removed based on the relocation of the facility and the existing warmwater fish community.

7.	Tributary-Spring Creek (Brillion)	Channel from Brillion STP to Spring Creek	Effluent ditch	Π
		Spring Creek upstream from Brillion Marsh	Continuous	Ι

Attachments

- Photos from September 2024 site visit by Dave Bolha and 2022 by Mary Gansberg
- 2023 Stream Classification Memo from Mary Gansberg
- 2018 Notes on locational information from Kristi Minahan
- 1996 Stream Classification Memo from Mary Gansberg



Photo 1: Black Creek (WBIC 77100) Downstream of Deer Run Golf Course Dam Facing West toward County Hwy PP. Photo taken by David Bolha on September 10th, 2024.



Photo 2: Black Creek (WBIC 77100) Upstream of Deer Run Golf Course Dam Facing East. Photo taken by David Bolha on September 10th, 2024.



Photo 3: Black Creek (WBIC 77100) at Brillion WWTF Outfall. Photo taken by Mary Gansberg on September 1st, 2022.

CORRESPONDENCE/MEMORANDUM

DATE:	February 3, 2023	FILE REF: Brillion WWTF
TO:	Nicole Krueger, Limit Calculator	
FROM:	Mary Gansberg and Claire Hetzel, Stream Biologists; Kristi Minahan, Water Quality Standards; Diane Figiel, Limit Calculator Coordinator	
SUBJECT:	Brillion WWTF and receiving water Unnamed Trib WBIC 7710	00*, in Calumet County

Overview of issue

The City of Brillion Wastewater Treatment Facility currently discharges to Unnamed Tributary* WBIC 77100 (called UNT 77100 hereafter) to Spring Creek (WBIC 76900) in Calumet County within the Brillion Wildlife Area. The history of the Brillion receiving water classification is complex because the facility changed its location and its outfall was moved from Spring Creek to the Unnamed Tributary. The old receiving water, Spring Creek, is listed in ch. NR 104 as LAL, but the new receiving water, UNT 77100, is not listed in NR 104 (see attached memo and maps for more detail on the old and new locations). The 2018 permit limits were based on the old NR 104 listing of LAL, with phosphorus limits based on the North Branch Manitowoc River. Biologists were asked to conduct a site survey on the UNT to determine what the appropriate classification is.

* The unnamed tributary WBIC 76900 [CORRECTION: WBIC 77100, by Kristi Minahan 12/2024] has also been called Black Creek in some previous documentation/maps, but on DNR's data viewers only the stream south of the facility is shown as Black Creek, and not the facility's receiving water. It appears the local name of Black Creek has been applied at various times to both the stream north & south of the facility. In this memo we will refer to the receiving water as UNT 77100.

Summary of recommendations

- Segment 1 (most upstream): UNT 77100, from outfall to confluence with Spring Cr. (WBIC 76900)
 Codified designated use: Not listed in NR 104 so considered Warmwater
 - *Classification used for previous permit issuance:* LAL, with downstream protection for phosphorus based on the N Br Manitowoc R.
 - Previous stream class recommendations: None for the UNT. However, 2018 Memo from Kristi Minahan recommended deleting the NR 104 references to Spring Cr. where the facility used to be located (attached). There was also a 1996 memo from Mary Gansberg but it was in reference to Spring Cr. instead of UNT 77100.
 - o *Modeled Natural Community:* Warm Headwater
 - o New recommended Natural Community and Designated Use: Warmwater
- Segment 2: Spring Creek (WBIC 76900) from UNT 77100 to confluence with North Branch Manitowoc River
 - o Codified designated use: Not listed in NR 104 so considered Warmwater
 - Classification used for previous permit issuance: LAL (considered a wetland)
 - Previous stream class recommendations: None for the stretch of Spring Cr below the confluence with the UNT (Mary Gansberg's 1996 memo recommended Warmwater Forage Fish from Glenview Ave upstream)
 - Modeled Natural Community: Warm Headwater
 - New recommended NC & DU: Warmwater



Site visit

On September 1, 2022, Mary Gansberg and Claire Hetzel attempted to conduct a wadeable fish survey downstream from the City of Brillion Wastewater Treatment Facility discharge. Weather underground (www.wunderground.com) indicated 0.5 inches of rain 4 days prior to our survey so we assumed the stream would not be dry. We walked to the discharge location from the treatment facility building off Clearwater Drive. UNT 77100 is not wadeable from CTH PP road crossing downstream to the discharge location.



Brillion WWTF discharge location, UNT 77100 and Spring Creek.

Water depth at the discharge location was approximately 1-1.5 feet deep, but the soft sediment was too deep to wade, therefore a fish survey could not be completed. Several dozen fish were observed swimming around the discharge pipe (see photos below) and we were able to capture four fathead minnows using a net although other fish species were also observed but not captured. Specific conductivity at the point of discharge in the stream was 2723 uS/cm, which is higher than would be expected in a natural stream; this would have precluded use of a fish shocker.

UNT 77100 has a defined stream channel with standing water. Emergent aquatic plant species such as cattails and bur reed make up most of the stream banks. UNT 77100 clearly supports a fish community although a wadeable stream survey could not be conducted because of the deep soft sediment. Since fish are obviously present in the stream, we recommend the UNT be considered to support a Warmwater Full Fish and Aquatic Life community.

A code change is not needed in order to apply a warmwater classification to the facility's current discharge location on UNT 77100, since their discharge site is not listed in ch. NR 104 as LAL or LFF. However, we recommend updating NR 104 to delete the obsolete listing at the facility's old location on Spring Creek.

Dozens of fish observed at discharge pipe



At discharge pipe facing downstream



Approximately 100 meters downstream of discharge pipe



Notes on Spring Cr & Brillion Sewage Treatment Plant, Calumet Co., Kristi Minahan, 10-2018

We are currently working on a rule revision to NR 104 in which we are proposing to delete LAL/LFF status of waterbodies that no longer have an individually permitted discharger. The waters that are deleted from 104 will revert to having a Designated Use based on their modeled Natural Community, like other waters in the state that have not yet received an NC verification in order to put them into a specific DU.

We are proposing to delete the NR 104 listings in Table 5, number 7:

7. Tributary-Spring Creek (Brillion)

Channel from Brillion STP to Spring Creek	Effluent Ditch	LAL
Spring Creek upstream from Brillion Marsh	Continuous	LFF

This was a confusing case so I am documenting our findings after investigating the file and speaking with permits staff (Dick Sachs, Dave Gerdman, Diane Figiel).

- A. **Original location of STP.** The original location for the Brillion STP was in town (shown in hand drawn map from 1975 in this folder), between Glenview Ave & Co. Hwy. PP (formerly STH 114). It discharged to a wastewater effluent channel (LAL) that then entered Spring Creek (LFF, WBIC 76900). In 1981, a new STP was built in the location below.
- B. **Discharge location of new STP & duplicate stream names.** The new STP facility built in 1981 was located between a stream to the north (WBIC 77100, here called "north stream" for purposes of explanation) and a stream to the south (WBIC 77000, here called "south stream").
 - a. Although the STP is located closer to south stream, the discharge from the STP flows via pipe to north stream, WBIC 76900. There is no longer an effluent channel since the discharge is via pipe. (An additional point of confusion is that in the 1977 hand drawn map the proposed facility location looks like it's closer to the north stream, but the final location was closer to the south stream. However the hand-drawn map did indicate discharge to the north stream, which is correct.)
 - b. The discharge location was complicated by the fact that the north & south stream have duplicate names...
 - i. The north stream originates at Grass Lake and flows west to join Spring Creek (WBIC 76900). North stream is called "Unnamed" on the Surface Water Data Viewer; however, in GoogleMaps and in some of the documents in the file folder it is called "Black Creek" (documents in file using "Black Creek" include the 2003 "File Memo" from Michael Reif, and 1999 memo from Jeff Haack).
 - ii. The south stream is called "Black Creek" on the Surface Water Data Viewer. Therefore when the files said it discharged to Black Creek it was easy to think they were referring to the south stream, but that is not the case. Though it is unclear on the 24K Hydrography map layer which direction this intermittent creek flows and what it connects with, on the Natural Community map layer it appears that this south stream joins the north stream to the west and then flows to Spring Cr.
- C. **Remove effluent ditch LAL.** Because there is no longer an effluent ditch (there is no discharge at old effluent ditch location; effluent travels via pipe from new location), it is appropriate to remove the effluent ditch LAL listing in 104.
- D. **Remove Spring Creek's LFF classification.** Because Brillion STP is no longer discharging to Spring Creek on the segment previously classified as LFF, it is appropriate to remove the LFF classification from that segment.
 - a. Note that there was also a former company called Brillion Ironworks that used to have an individual WPDES permit farther north from the old Brillion STP location, but the ironworks

is no longer active. The ironworks facility was bought recently by Ariens, but they anticipate converting to residential and do not expect to seek an individual discharge permit.

- b. By deleting the LFF status of this portion of Spring Creek, it will revert to its modeled natural community of Cool-Warm Headwater, which would receive a Warm Des. Use. In Jeff Haack's limits memo in 1996 he also indicated that under a 1996 classification report by Mary Gansberg, Spring Creek was proposed to be changed from LFF to Warm Water Forage Fish, so a change to Warm under the model is likely appropriate.
- c. On a side note, there is mention in one of the docs in the file folder that Spring Creek was rerouted at some point in time, but I have not found any further information on that.

E. Future verification of north stream recommended. In the future, a Natural

Community/Designated Use classification of the STP's current receiving water (north stream, WBIC <u>77100</u> (corrected WBIC in 6-17-2022; was incorrect in 2018 doc)) may be appropriate. Until such time, this stream will continue to receive the default Warm classification (NC model=Warm Headwater = Warm Des. Use). Per permit staffs' observations, there is definitely flow in this stream, and probably could sustain small fish.





Stream Classification Spring Creek

Manitowoc River Basin North Branch Manitowoc River Watershed (MA04) Townships of Rantoul and Brillion, Calumet County

Submitted by Mary Gansberg Wisconsin Department of Natural Resources Northeast Region Headquarters September 11, 1996

INTRODUCTION

In 1996, I conducted monitoring on Spring Creek for the purpose of determining the streams classification. Spring Creek discharges to the North Branch Manitowoc River at T19N, R20E, Sec 4, NW1/4 NW1/4 in the Township of Rantoul, Calumet County. Brillion Iron Works, Inc and Dean Foods Brillion Plant both discharge to Spring Creek; however, Dean Foods is scheduled to close in 1997. This report summarizes the assessment of the streams existing biological use and recommends the stream classification. See attached map for location.

METHODS

Monitoring was conducted at several locations along Spring Creek in the spring and summer to determine the existing and potential biological uses. Monitoring included the following:

<u>Dissolved oxygen and temperature</u> - grab samples were collected on several occasions at several locations using a YSI Model 55 Handheld meter.

<u>Macroinvertebrate communities</u> - aquatic invertebrates were collected and sent to UW-Stevens Point for sorting and identification. Sample results were evaluated using the Hilsenhoff Biotic Index which provides a relative measure of organic pollution in the stream. <u>Fish communities</u> - a backpack stream shocker was use to collect fish. Fish were identified and released.

<u>Stream habitat evaluation</u> - aquatic life habitat was evaluated at several sites along the tributary and recorded on a stream habitat evaluation form.

1

<u>Water chemistry</u> - samples were collected during runoff events on three separate occasions at CTH PP in Brillion. Samples were sent to the State Lab of Hygiene and analyzed for total and dissolved phosphorus, ammonia, nitrate nitrogen, biochemical oxygen demand, and suspended solids.

Data sheets that include specific monitoring results are filed in the Manitowoc River Basin, North Branch Manitowoc River Watershed (MA04), Point Source folder in the Water Resources Section of the Northeast Region Headquarters Wisconsin Department of Natural Resources office.

RESULTS AND DISCUSSION

A stream is classified based on the streams natural physical and chemical characteristics, cultural influences of the stream system, and its potential biological use. These factors affect the ability of the surface water to support certain uses. I evaluated the streams existing biological use and determined what its potential use could be in the absence of controllable impacts.

The headwaters of Spring Creek downstream to the city limits at Hwy 10 are significantly impacted by controllable agricultural nonpoint source runoff. Cattle have access to the creek. Runoff from barnyards, feedlots, and manure stacks enter the creek. In some locations, buffers are minimal to none. Monitoring conducted in Spring Creek between the headwaters and Hwy 10 found average water temperature in summer to be 19 °C. Average dissolved oxygen was only 5.5 mg/l. Habitat evaluations rated this section of Spring Creek as fair aquatic life habitat. Stream flows are intermittent and the substrate is mostly soft sediment with rubble and gravel present. Duck weed and filamentous algae are common.

As Spring Creek flows through the city of Brillion, it receives storm sewer runoff and effluent from both Brillion Iron Works, Inc and Dean Foods Brillion Plant. Dissolved oxygen measurements taken at several locations in Spring Creek between Hwy 10 and Glenview Ave., where Spring Creek enter the Brillion Marsh Wildlife Area, found summer dissolved oxygen at a relatively low average concentration of 5.1 mg/l. Average water temperature was 22 °C.

Water chemistry samples collected during spring snowmelt and two rain runoff events show significantly elevated levels of ammonia (mean 0.74 mg/l), total phosphorus (mean 1.05 mg/l), dissolved phosphorus (mean 0.80), and nitrate-nitrogen (mean 2.81 mg/l). Since the samples were collected at CTH PP after the creek travels through several miles of agricultural land and the city of Brillion, these nutrients could be coming from rural or urban nonpoint sources or from point source discharges.

Fish surveys were conducted at two locations in Brillion. The first site was upstream of Brillion Iron Works at St. Francis Street and the second site was below Brillion Iron Works at E. Water Street. Both survey sites were approximately a 50 foot stretch of stream. At the upstream site, 188 fish were captured and identified. Brook stickleback were the most abundant species present followed by creek chubs, blacknose dace, fathead minnows, central mudminnows, and white suckers. At the downstream site, 82 fish were captured. Creek chubs were the most abundant followed by white suckers, brook stickleback, fathead minnows, common shiners, and blacknose dace. Although the number of fish caught was greater in the upstream site, all species collected are tolerant to very tolerant to environmental degradation and severe environmental conditions. This indicates that adverse conditions are limiting the number and type of fish species present in the stream.

A macroinvertebrate sample collected in spring at CTH PP received a Hilsenhoff Biotic Index value of 6.19 indicating fair water quality with fairly significant organic pollution present. The order Diptera was the most abundant order present with the family Chironomidae making up 75% of the entire sample. The lack of a diverse population and the presence of only tolerant organisms indicate significant pollution problems.

Habitat evaluations rated the section of stream within the city limits as fair aquatic life habitat. Where flows decrease, much of the rubble and gravel substrate is covered by silt and muck. Deep pools and riffles are rare. Macrophytes and filamentous algae are common.

No evaluation was made in Spring Creek from the Brillion Marsh downstream to the confluence of the North Branch Manitowoc River.

CONCLUSION

The <u>existing</u> biological use of Spring Creek from its headwaters downstream to Glenview ave. (T20N R20E Sec 26 NW1/4 SE1/4 - the start of the Brillion Marsh Wildlife Area) is warm water forage fish communities. Because of the size and flow of Spring Creek, it does not have the potential to support a higher use classification then it already supports; although with the reduction of sediment and nutrient loading, it does have the potential to support more abundant and diverse biological populations. Thus, the <u>classification</u> of Spring Creek should be warm water forage fish communities.

