

Region NER **County** Calumet **Report Date** 1978 and 1995 **Classification** LFF

Water Body: Kankapot Creek

Discharger: AMPI Sherwood Plant

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
- Low flow is cited as reason for LFF in 1978 report and in 1995 report.
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
- Clay substrate cited in 1995 report - Also erosion, high suspended solids.
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) Invertebrates and foraging minnows are noted in the 1978 report.
- Chemical Data (temp, D.O., etc.) No chemical data are presented in the 1978 report. Nutrient concentrations are presented in the 1995 report, as are pH, D.O., temp., bacteria.
- Physical Data (flow, depth, etc.) Flows, widths and depths are given in the 1978 report. Flow is also presented in 1995 report.
- Habitat Description Pool/riffle areas and substrate type are described in the 1978 report. Habitat is noted as fair to poor in 1995 report (clay, erosion, etc.).
- Site Description/Map Surrounding land use (agricultural) is described in 1978 report.
- Other: _____

Historical Reports in file:

- 1978 Stream Classification Report for Kankapot Creek in conjunction with Effluent Limits for AMPI Sherwood Plant. 2 k.p., 3 maps, 8 photos.
- 1995 Fox River - Appleton Watershed Nonpoint Source Assessment Report. 4 p text plus tables and map.

Additional Comments/How to improve report:

No additional data seen necessary.

**Fox River - Appleton Watershed
Nonpoint Source Assessment Report**

Submitted by Mary Gansberg

Wisconsin Department of Natural Resources

March, 1995

I. INTRODUCTION

As recommended in the *Lower Fox River Basin Water Quality Management Plan (1991)*, monitoring was conducted in 1992 in the Fox River - Appleton watershed (Figure 1) to determine the present status of water quality and the potential impacts of nonpoint source pollution. Kankapot, Garners, and Mud Creek are the tributaries to the Fox River in this watershed that were monitored.

II. METHODS AND PROCEDURE

Water samples were collected and preserved following "Sample Handling and Preservation Handbook" protocol (1988). Samples were analyzed for total and dissolved phosphorus, total and volatile suspended solids, nitrate-nitrogen, total kjeldahl nitrogen, ammonia, biochemical oxygen demand, fecal coliform and fecal streptococcus bacteria. Garners and Mud Creek were also monitored for chlorides due to their urban location. All samples were chilled on ice and sent to the State Lab of Hygiene for analysis. All chemistry samples, except July 29 on Mud Creek, were taken during runoff events.

Dissolved oxygen (D.O.) and temperature were measured with a YSI Model 54 D.O./Temperature meter. pH was measured with a Fisher-Scientific Accumet Model 1001 pH meter. Flows were obtained using a Marsh-McBirney Model 201 flow meter.

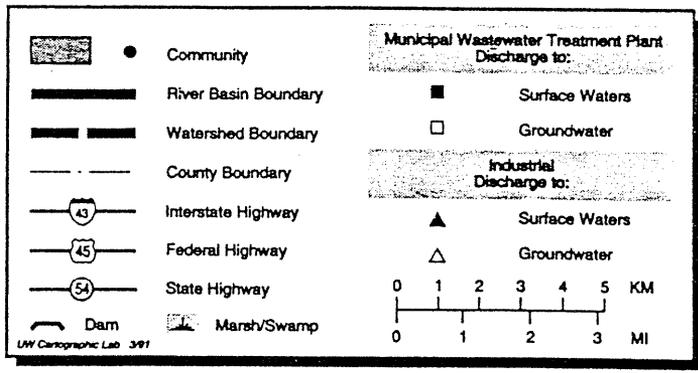
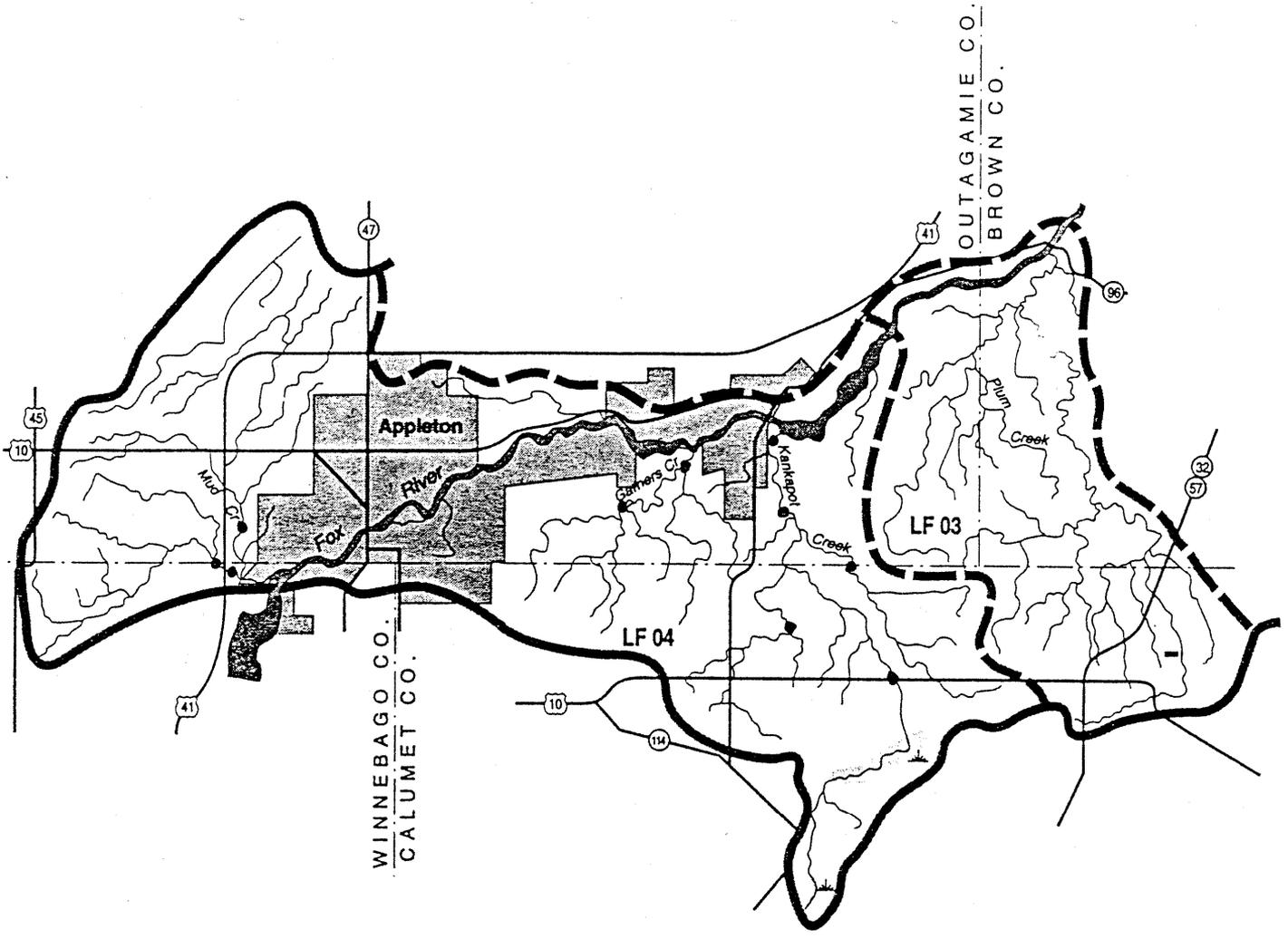
Stream habitat conditions were evaluated throughout the watershed in the spring, summer, and fall and recorded on the Stream Habitat Evaluation Form (Ball, 1982).

Aquatic macroinvertebrates were collected in spring and fall throughout the watershed and sent to UW-Stevens Point for sorting and identification. Sample results were evaluated using the Hilsenhoff Biotic Index (HBI) which provides a relative measure of organic loading to the streams (Hilsenhoff, 1987).

Fish surveys were conducted to determine fish communities in Garners and Mud Creeks. Using a backpack shocker, fish were collected and counted from a stream reach approximately 35 to 40 times the site channel width. Fish species were evaluated using United States Environmental Protection Agency "Rapid Bioassessment Protocols for use in Stream and Rivers: Benthic Macroinvertebrates and Fish" (1989) which gives the species relative ability to tolerate environmental degradation.

Plum Creek (LF 03) and Fox River - Appleton (LF04) Watersheds

Figure 1



III. RESULTS AND DISCUSSION

A summary of habitat evaluation results, biotic index results, and existing and potential stream classifications for the major streams in the Fox River - Appleton watershed are presented in Table 1. Event nutrient loading results are presented in Tables 2 through 4. Stream monitoring locations are indicated on Figure 1 and fish survey results are shown in Table 5. Following is a discussion of results for each of the major watershed streams.

Kankapot Creek and its tributaries:

Stream habitat in these creeks were rated as fair to poor. The heavy clay soils that cover the stream bottom provide very little habitat for fish and other aquatic life. Pools are generally filled in and riffles are uncommon. The stream banks are eroded and slumping in many places probably due to flooding. Gully erosion is common from roadway drainages.

Macroinvertebrate samples indicate fair to poor water quality with fairly significant to very significant organic pollution. Lack of suitable habitat is the most significant limiting factor for abundance and diversity of macroinvertebrates in these streams.

Kankapot Creek receives a considerable amount of nutrients, suspended solids, and bacteria as indicated by the high concentrations during each of the five runoff sampling periods (Table 2).

Based on these results and the streams characteristics, I do not believe Kankapot Creek's present stream classification of limited forage fish community could be upgraded with management practices. Low stream flow is a major limiting factor for aquatic life in Kankapot Creek.

Garners Creek and its tributaries:

Stream habitat in these creeks were rated as fair to poor. Streambank erosion and failure is common with frequent slumping and raw areas from bank flooding. Gravel, rubble, and other stable habitat lie under a layer of clay sediment and many of the pools are filled in. Filamentous algae covers the rocks and bottom substrate in shallow exposed areas.

In rural portions of the watershed, row crops border stream banks. Garners Creek travels a short distance through an urban area before entering the Fox River.

Macroinvertebrate samples indicate fair to poor water quality with organic pollution fairly significant to very significant.

Garners Creek watershed streams are very flashy. During rain events the creek flow increases and recedes very fast. Stream flows were practically non-existent in July and August (flows approximately 0.2 cfs). The water is generally not as turbid as Kankapot Creek.

A very brief fish survey was conducted in August in a stretch of creek near Hartjes Road. One large pollution tolerant rough fish (Carp) was found in a deep pool area and one tolerant sportfish (Green Sunfish) was present, but by far, the most abundant fish present was tolerant forage species such as Emerald Shiners, White Suckers, Bluntnose Minnows, and Creek Chubs (Table 5).

Garners Creek receives a considerable amount of suspended solids and bacteria during runoff events as indicated in each of the five runoff samples collected. Dissolved phosphorus and chlorides were slightly elevated on two occasions (Table 3).

Based on these results, I believe Garners Creek's existing and potential biological use should be classified as limited forage fish community.

Mud Creek and its tributaries:

The headwaters of Mud Creek originate in rural area but the creek travels a significant distance through urban area before discharging into the Fox River.

Stream habitat in these creeks were rated as fair to poor. Streambank erosion is infrequent, however there are some raw areas with high erosion potential during high flows. The stream substrate is mostly rubble, gravel or other stable habitat but covered with a layer of fine clay sediment.

Construction activities near the creek mouth appear to be contributing a significant amount of sediment to the creek. In July, a plume could be seen in the receiving waterbody from a particular construction site.

Macrophytes are abundant but generally not over abundant. Filamentous algae is common on the rocky bottom substrate where exposed to sunlight.

Macroinvertebrate samples indicate fair to poor water quality with fairly significant to very significant organic pollution.

A brief fish survey was conducted in August in a stretch of creek near Spencer Road. One tolerant sportfish (Green Sunfish), two intermediate tolerance fish (Johnny Darter), and abundant tolerant forage species (Emerald Shiners, White Suckers, and Brook Stickleback) were present.

Mud Creek receives a considerable amount of suspended solids during three of the five runoff events sampled. Chlorides are slightly elevated but ammonia and biochemical oxygen demand are within acceptable ranges (Table 4).

Based on these results, I believe these streams are currently meeting their potential biological use.

IV. CONCLUSION

Aquatic life is limited in the Fox River - Appleton watershed because of several factors. Flashy streams and very low flows in the summer prevent high quality habitat for aquatic organisms. The soil type in the area cause turbid waters and limits desirable rooted aquatic plants. Although nutrient runoff has contributed to the algae problems in the streams and sediment has blanketed the stream bed, I believe nonpoint source management practices would not significantly improve the aquatic life habitat because of the streams existing characteristics. However, a reduction of sediment, nutrients, and bacteria loading to the watershed streams would significantly decrease the pollutant loading to the Fox River.

V. REFERENCES

Ball, Joe. (1982). Stream Classification Guidelines for Wisconsin. Wisconsin Department of Natural Resources.

Wisconsin Department of Natural Resources. (1988). Field Procedures Manual: Sample Handling and Preservation Handbook. Draft 2nd Edition.

Wisconsin Department of Natural Resources, Lake Michigan District Water Quality Files.

Hilsenhoff, William. (1987). An Improved Biotic Index of Organic Stream Pollution.

Wisconsin Department of Natural Resources. (1991). Lower Fox River Basin Water Quality Management Plan.

United States Environmental Protection Agency. (1989). Rapid Bioassessment Protocols for use in Streams and Rivers: Benthic Macroinvertebrates and Fish.

Table 3.

Garners Creek Event Nutrient Loadings -- 1992

Date	Flow cfs	Tot-P mg/l	Ortho-P mg/l	Sus. Solids mg/l	Vol. SS mg/l	NH ₃ -N mg/l	NO ₂ +NO ₃ mg/l	TKN mg/l	BOD mg/l	Chloride mg/l	MFCC /100 ml	Fecal Strep /100 ml	Temp °C	D.O. mg/l	pH su
7/13/92	0.81	0.24	0.051	111	13	0.106	1.47	0.9	2.7	43	3600	14000	17.7	8.2	7.88
7/14/92	5.97	0.35	0.188	83	10	0.214	2.87	2.2	4.4	150	16000	10000	17.0	9.3	7.9
9/10/92	0.56	0.17	0.046	44	8	0.048	1.48	0.8	2.6	33	n/a	n/a	14.1	9.4	7.90
9/15/92	2.76	0.32	0.195	53	7	0.100	1.13	1.1	2.8	54	22000	6700	17.9	8.4	7.78
11/02/92	n/a	1.00	0.41	430	48	0.128	2.26	2.6	11.0	22	16000	52000	4.5	n/a	n/a

Date	Flow cfs	Tot-P lb/day	Tot-P lb/mi ²	Tot-P g/hect	Ortho-P lb/day	Ortho-P lb/mi ²	Ortho-P g/hect	Sus. Sol. lb/day	Sus. Sol. lb/mi ²	Sus. Sol. g/hect	O-P as % of T-P	Vol SS as % of TSS
7/13/92	0.81	1.05	0.09	0.16	0.22	0.02	0.03	485.51	42.97	75.26	21.25	11.71
7/14/92	5.97	11.28	1.00	1.75	6.06	0.54	0.94	2,675.75	236.79	414.78	53.71	12.05
9/10/92	0.56	0.51	0.05	0.08	0.14	0.01	0.02	133.06	11.78	20.63	27.06	18.18
9/15/92	2.76	4.77	0.42	0.74	2.91	0.26	0.45	789.91	69.90	122.45	60.93	13.21
11/2/92	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.00	11.16

Garners Creek at Hartjes Road drains approximately 11.3 square miles or 7232 acres.¹

¹Source: *Drainage Area Data For Wisconsin Streams*, USGS Open-File Report 83-933, pg 83.

Table 4.

Mud Creek Event Nutrient Loadings -- 1992

Date	Flow cfs	Tot-P mg/l	Ortho-P mg/l	Sus. Solids mg/l	Vol. SS mg/l	NH ₃ -N mg/l	NO ₂ +NO ₃ mg/l	TKN mg/l	BOD mg/l	Chloride mg/l	MFCC /100 ml	Fecal Strep /100 ml	Temp °C	D.O mg/l	pH su
7/13/92	2.85	0.20	0.044	48	10	0.113	0.400	1.1	3.2	56	4100	9200	18.8	7.4	7.90
*7/29/92	0.84	0.07	0.021	10	6	0.049	0.143	0.4	<1	48	n/a	n/a	19.0	7.2	8.1
9/10/92	1.89	0.08	0.017	17	5	0.091	0.284	0.5	2.3	51	n/a	n/a	16.0	8.7	7.87
9/15/92	13.57	0.19	0.087	49	9	0.083	0.403	0.8	2.3	49	5400	5600	18.4	7.8	7.73
11/02/92	87.52	0.36	0.189	112	18	0.077	1.00	1.2	5.7	36	4500	21000	5.5	11.0	n/a

Date	Flow cfs	Tot-P lb/day	Tot-P lb/mi ²	Tot-P g/hect	Ortho-P lb/day	Ortho-P lb/mi ²	Ortho-P g/hect	Sus. Sol. lb/day	Sus. Sol. lb/mi ²	Sus. Sol. g/hect	O-P as % of T-P	Vol SS as % of TSS
7/13/92	2.85	3.08	0.30	0.52	0.68	0.07	0.11	738.72	71.03	124.42	22.00	20.83
*7/29/92	0.84	0.32	0.03	0.05	0.10	0.01	0.02	45.36	4.36	7.64	30.00	60.00
9/10/92	1.89	0.82	0.08	0.14	0.17	0.02	0.03	173.50	16.68	29.22	21.25	29.41
9/15/92	13.57	13.92	1.34	2.34	6.38	0.61	1.07	3,590.62	345.25	604.77	45.79	18.37
11/2/92	87.52	170.14	16.36	28.66	89.32	8.59	15.04	52,932.10	5,089.63	8,915.40	52.50	16.07

Mud Creek at Spencer Road drains 10.4 square miles or 6656 acres.¹

¹Source: *Drainage Area Data For Wisconsin Streams*, USGS Open-File Report 83-933, pg 83. Note: Value is approximate as the source lists the nearest site as CTH "V" draining 10.4 mi².

*Note: Results from 7/29 can be considered non-event data.

Table 1. Water Resource Conditions for Stream in the Fox River - Appleton Watershed

Stream	Location	Habitat Rating ¹			Biotic Index ²		Stream Class ³	Potential use class ⁴	Meeting Stream Class ⁵
		Spring	Summer	Fall	Spring	Fall			
Kankapot Creek	CTH CE	fair/194	poor/217	poor/228	fairly poor/7.44	poor/7.98	LFF	LFF	yes
Kankapot Creek	CTH KK	fair/181	—	—	poor/7.98	—	LFF	LFF	yes
Kankapot Creek	CTH Z	fair/178	—	—	—	—	LFF	LFF	yes
Trib to Kankapot Creek	Military Road	fair/199	—	—	fair/6.42	—	Unknown	LFF	n/a
Trib to Kankapot Creek	Schmidt Road	poor/212	—	—	poor/7.70	—	Unknown	LFF	n/a
Garners Creek	Brookhaven Road	fair/198	poor/227	poor/239	fair/6.49	poor/7.96	Unknown	LFF	n/a
Garners Creek	Hartjes Road	poor/200	—	poor/223	fairly poor/7.12	fairly poor/7.17	Unknown	LFF	n/a
Mud Creek	Spencer Road	fair/177	fair/199	fair/197	fairly poor/7.14	fair/6.50	WWSF	WWSF	yes
Mud Creek	CTH BB	poor/209	—	—	—	—	WWSF	WWSF	yes
Trib to Mud Creek	Upstream of CTH BB	poor/213	—	fair/193	poor/7.91	poor/7.98	Unknown	LFF	n/a

1. Habitat Rating:

< 70 excellent habitat
 71 - 129 good habitat
 130 - 200 fair habitat
 > 200 poor habitat

2. Hiisenhoff Biotic Index (HBI):

Biotic Index	Water Quality	Degree of Organic Pollution
0-3.50	Excellent	No apparent organic pollution
3.51-4.50	Very good	Possible slight organic pollution
4.51-5.50	Good	Some organic pollution
5.51-6.50	Fair	Fairly significant organic pollution
6.51-7.50	Fairly poor	Significant organic pollution
7.51-8.50	Poor	Very significant organic pollution
8.51-10.0	Very poor	Severe organic pollution

3. Stream Class: This indicates the formal stream classification as listed in NR102 and NR104.

WWSF - warm water sport fish communities
 WWFF - warm water forage fish communities
 LFF - limited forage fish communities
 FAL - fish and aquatic life stream not formally classified, but assumed to be meeting Federal Clean Water Act goals

4. Potential Use Class: This indicates the biological use a stream could achieve if it was well managed and pollution sources were controlled.

5. Meeting Stream Class: This indicates if the stream is or is not meeting its formal stream classification. N/A means not applicable since the stream has not been formally classified.

Table 2.

Kankapot Creek Event Nutrient Loadings -- 1992

Date	Flow cfs	Tot-P mg/l	Ortho-P mg/l	Sus. Solids mg/l	Vol. SS mg/l	NH ₃ -N mg/l	NO ₂ +NO ₃ mg/l	Tot Kjel-N mg/l	BOD mg/l	MFCC /100 ml	Fecal Strep /100 ml	Temp °C	D.O. mg/l	pH su
7/13/92	0.36	0.44	0.154	72	12	1.04	0.624	1.7	4.0	5400	7400	18.4	6.5	7.66
7/14/92	6.12	1.16	0.73	122	18	0.362	10.8	4.2	7.2	>40000	27000	16.5	8.8	7.8
9/10/92	0.15	0.78	0.139	70	20	0.502	0.090	2.7	6.3	n/a	n/a	14.0	7.0	7.38
9/15/92	1.37	2.31	1.80	130	22	0.184	0.837	2.6	4.9	67000	17500	17.7	6.7	7.61
11/02/92	n/a	1.87	1.06	408	68	1.00	4.42	5.9	9.0	3900	400000	4.5	11.0	n/a

Date	Flow cfs	Tot-P lb/day	Tot-P lb/mi ²	Tot-P g/hect	Ortho-P lb/day	Ortho-P lb/mi ²	Ortho-P g/hect	Sus. Sol. lb/day	Sus. Sol. lb/mi ²	Sus. Sol. g/hect	O-P as % of T-P	Vol SS as % of TSS
7/13/92	0.36	0.86	0.03	0.06	0.30	0.01	0.02	139.97	5.60	9.81	35.00	16.67
7/14/92	6.12	38.34	1.53	2.69	24.13	0.97	1.69	4,031.86	161.27	282.50	62.93	14.75
9/10/92	0.15	0.63	0.03	0.04	0.11	0.00	0.01	56.70	2.27	3.97	17.82	28.57
9/15/92	1.37	17.09	0.68	1.20	13.32	0.53	0.93	961.74	38.47	67.39	77.92	16.92
11/2/92	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.68	16.67

Kankapot Creek at County Trunk "CE" drains approximately 25.0 square miles or 16000 acres.¹

¹Source: *Drainage Area Data For Wisconsin Streams*, USGS Open-File Report 83-933, pg 83. Note: Value is approximate as the source lists the nearest site as CTH "Z" draining 25.4 mi² which is 1.5 miles downstream from CTH "CE".

Table 5.

FISH ASSESSMENT RESULTS

<u>Species</u>	<u>Number Present</u>		<u>Tolerance³</u>
	<u>Garners¹</u>	<u>Mud²</u>	
Emerald Shiner	55	40	tolerant forage fish
White Sucker	19	4	tolerant forage fish
Bluntnose Minnow	1	--	tolerant forage fish
Brook Stickleback	--	3	tolerant forage fish
Creek Chub	1	--	tolerant forage fish
Green Sunfish	1	1	tolerant sportfish
Carp	1	--	tolerant rough fish
Johnny Darter	--	2	intermediate tolerance fish

1 Garners Creek at Hartjes Road.

2 Mud Creek at Spencer Road.

3 Ability of species to tolerate environmental degradation and severe environmental conditions.

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

DNR - LMD

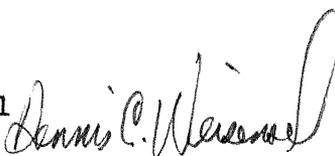
Date: July 27, 1978

File Ref: 3200

To: Central Office

Steve Skavroneck

From: Dennis C. Weisensel
District Biologist



DNR

AUG 1 1978

Subject: Effluent Limits for AMPI Sherwood Plant

Attached is a report on the stream classification of Kankapot Creek in conjunction with the effluent limits for AMPI Sherwood Plant.

Should you have any questions concerning this report, please contact me by August 11, 1978.

DCW:pk

NOTED:

Date

STREAM CLASSIFICATION AMPI SHERWOOD PLANT

SUBJECT: Stream Classification of Kankapot Creek in Conjunction with Effluent Limits for AMPI Sherwood Plant

DATE: June 19, 1978

History: Associated Milk Products, Inc., Sherwood Plant is a cheddar cheese manufacturing and whey concentrating facility located in the Town of Harrison, Calumet County, Section 24, T20N, R18E. The plant effluent is directed to a wastewater treatment facility consisting of two aerated lagoons, a polishing lagoon, a dissolved air flotation unit, and disinfection by chlorination. The treatment facility is located in Section 13, Town of Harrison, and discharges to a tributary of Kankapot, which flows into the Fox River at Kaukauna.

The survey was conducted by the following personnel:

Dennis C. Weisensel	District Biologist
Tim Rasman	Assistant District Biologist
Mark Corbett	LTE
Bob Lucas	District Engineer

Survey Results: Station #1 is located at the discharge point of AMPI Sherwood Plant. The water clarity above the discharge is clear. The stream is a ditched drainage way, draining area agricultural land. The morphology of the stream is a straight line non-meandering ditch with no riffle areas. Heavy growths of cattails and canary grass were present. I believe a strong influence from agricultural runoff is placed on the stream at this station. The flows in the stream were minimal and shortly above the station, the stream was dry. The discharge contributed most of the stream flow. The discharge contained heavy planktonic algae growths which grossly polluted the receiving stream.

Classification: The stream is classified as noncontinuous - marginal use.

Stream Classification - AMPI Sherwood Plant

Station #2 is located in the NE-1/4 of the NE-1/4 of Section 13, 500 feet south of the junction of STH 10 and 55 on STH 55. The stream at this location is 3 feet wide and 6 inches deep. It is a straight line and was ditched some time in the past. The water flowed moderately rapid at an estimated flow of .1 C.F.S. No distinct pool or riffle areas are present. The stream received agricultural runoff from the surrounding fields. Heavy periphyton growths were present on the rocks and substraight. Although the stream was heavily degraded from the discharge and heavy planktonic algae growths were present, one minnow was noted and chironomid larvae were present.

Classification: Noncontinuous - marginal use.

Station #3 is located on Smidt road. Kankapot Creek now becomes a naturally meandering water way with natural bank, pool and riffle areas. The stream flows through small wood lot areas and agricultural land. It has a maximum width of 10 feet and ranges in depth from 6 inches to 2 feet. Ascellus and leaches were found in the rock, fine gravel and clay substrate.

The pool areas were sufficient in size to support a foraging minnows population and seasonal fish population. Agricultural runoff is contributed to the stream outside the wood lot areas.

Classification: The stream remains noncontinuous at this location with an intermediate aquatic life classification.

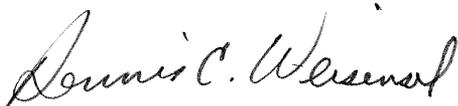
Stations 4, 5, and 6 were established at consecutive crossings downstreams as indicated by the attached map. Conditions in the morphology of the stream remained consistent. Defined pool and riffle areas were evident with flows estimated at between 1.2 to 1.6 C.F.S. The stream receives a substantial agricultural runoff. Aquatic macroinvertebrate population is at a minimal development. Foraging minnows were noted at these three stations.

Classification: Stations 4, 5, and 6 are classified as noncontinuous - intermediate aquatic life.

Stream Classification - AMPI Sherwood Plant

Conclusion: Kankapot Creek has a minimal to no flow during dry weather. Its headwaters consist of agricultural drainage ditches. After a short distance the ditches form a natural water way with meanders.

Kankapot Creek is an intermitten stream which contains no flow during parts of the year all the way to the Fox River.



Dennis C. Weisensel
District Biologist

DCW:ds

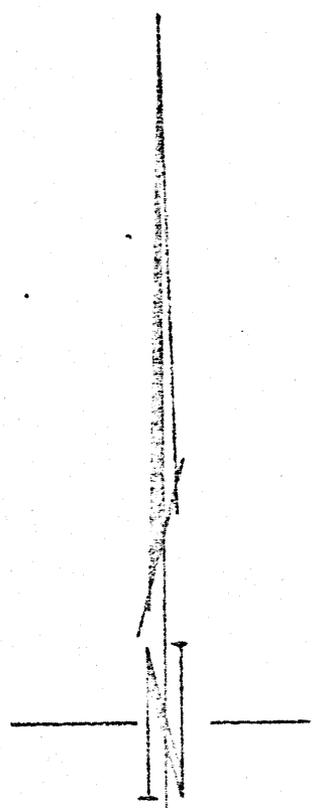
UNNAMED DRAINAGE DITCH

OUTFALL 001

LAGOONS

PLANT

S.T.H. '14



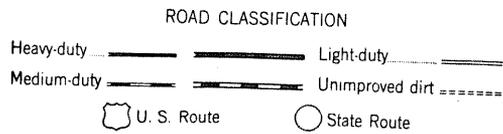
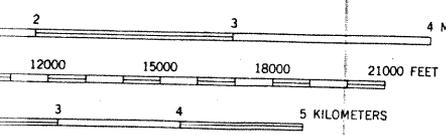
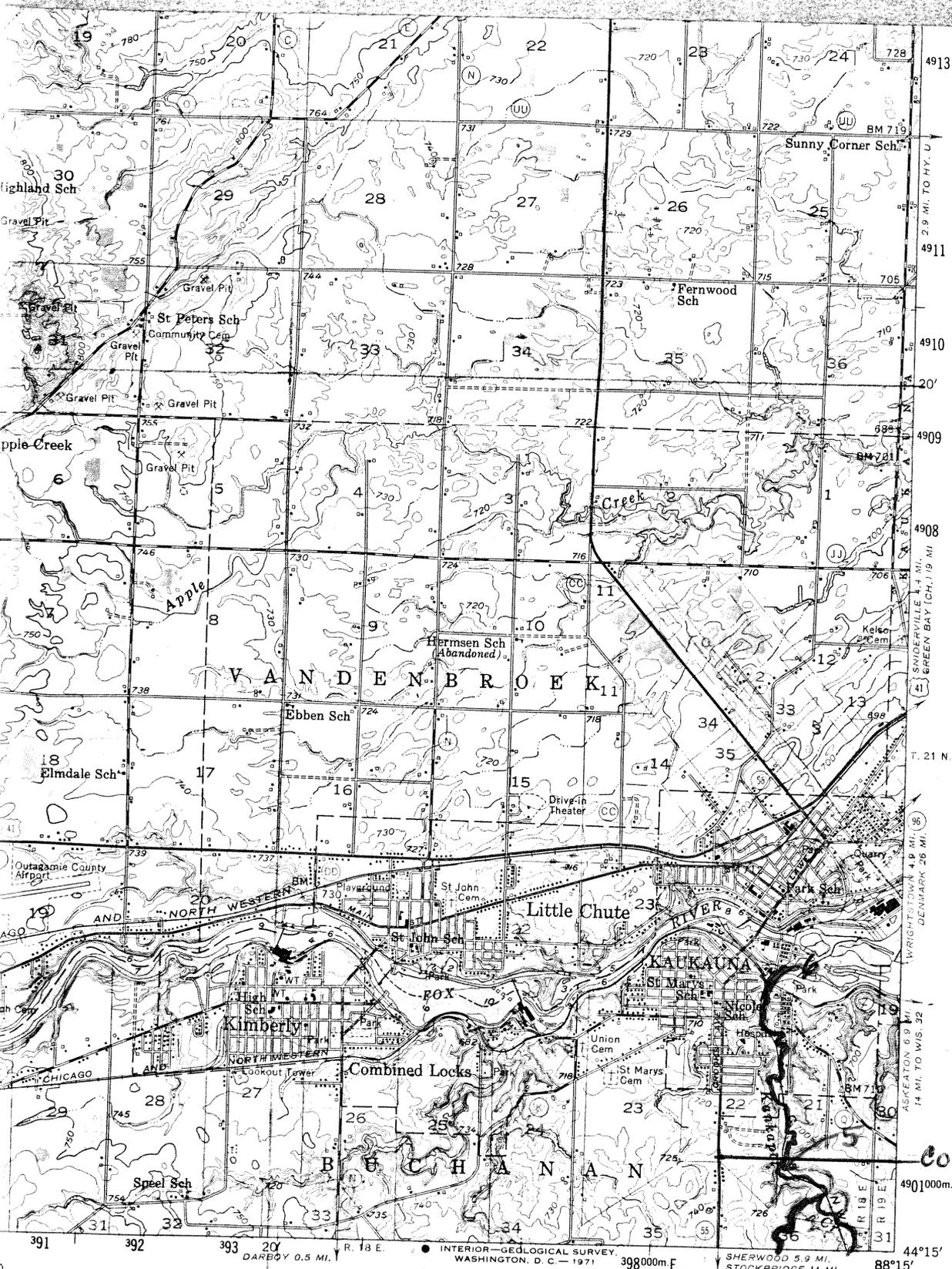
SCALE 1"=50'

ASSOCIATED MILK PRODUCERS INC.
SHEPWOOD, WISC. PLANT

DATE
CHECKED

7 of 2

MAN ON
SOCIALS
INC.



The SW/4 of this area also covered by 1:24000 scale map of Appleton, 7.5 minute quadrangle, surveyed 1955.

APPLETON, WIS.
N4415-W8815/15

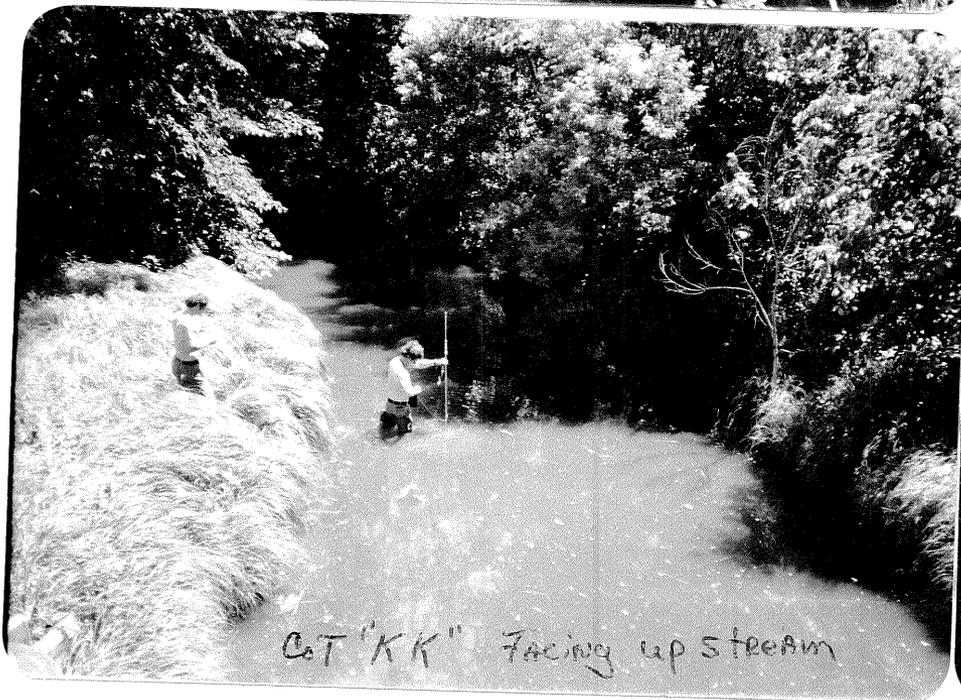
1955

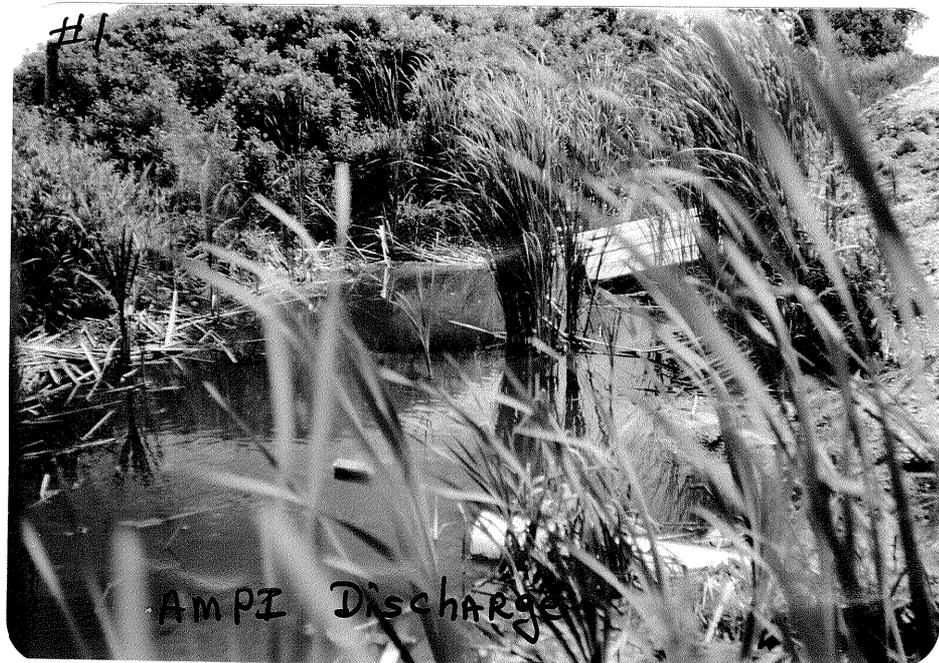
AMS 3372 IV-SERIES V761

COTCE

(CHLTON)
3572 II

Handwritten mark resembling the number 4.







#6

KAUKAONA FACING UPSTREAM