

TRIENNIAL STANDARDS REVIEW
LITTLE SUAMICO RIVER
JULY, 1990
TIM DOELGER

In May of 1990, a variety of physical, chemical and biological parameters were collected on the Little Suamico River between STH 32 and Jaworski Rd. The purpose of these collections was to evaluate the appropriateness of a water quality variance (NR 104.07(2)#39) in effect upstream of Jaworski Rd. and to determine if the Pulaski POTW was exerting any negative impacts on the system.

On May 1, a YSI Model 56 Continuous Recording Dissolved Oxygen Meter was put in operation approximately 50 yards above the Jaworski Rd. crossing. It was recalibrated on May 2 and allowed to run until the 4th. The charts have been photocopied and are attached. They show the pronounced diurnal swings that are characteristic of highly enriched algae dominated systems with nighttime D.O.S. below 5 ppm and daytime D.O.S. greater than 14 ppm.

Flows, water chemistries, and macroinvertebrates were collected on May 2 at both locations except that macros were not collected at Highway 32 due to unsuitable habitat. The information is tabulated on the back of the Stream Habitat Rating Forms.

Of note are the water chemistries which show very high chlorophyll A and nutrients at the Jaworski Rd. site, especially when compared to the upstream Highway 32 location.

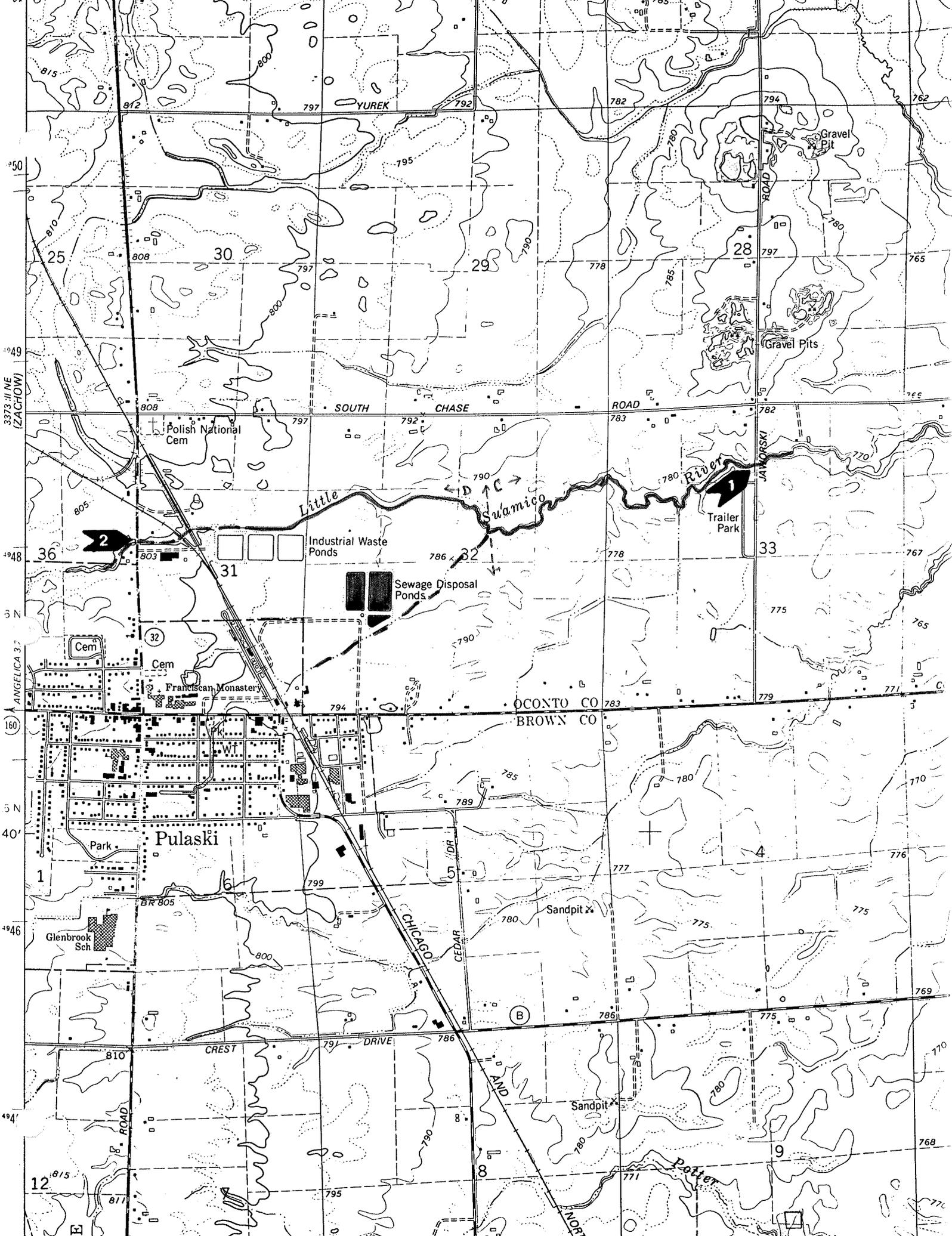
In June, a video tape was made of the general area and is available for viewing at the LMD. The Little Suamico River is approximately 17 miles long and flows through predominately agricultural land, but for most of its length, it is fairly well buffered by swamp hardwoods. The Pulaski area could be considered its headwaters. Chemical analysis and visual inspection in this area reveal clear water that is low in nutrients. There is a healthy growth of macrophyton and forage fish as well as clams being observed.

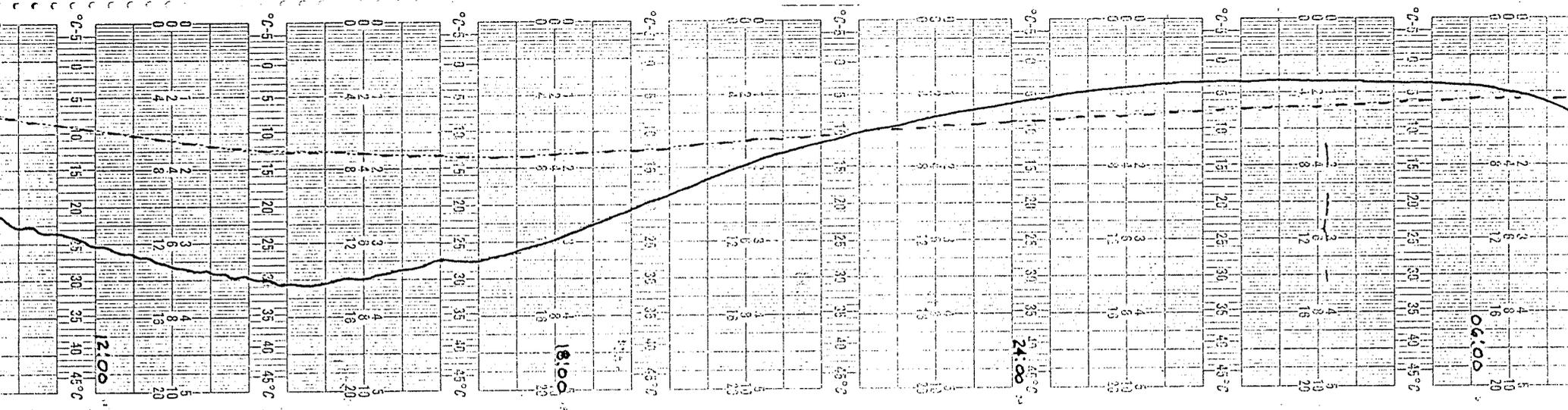
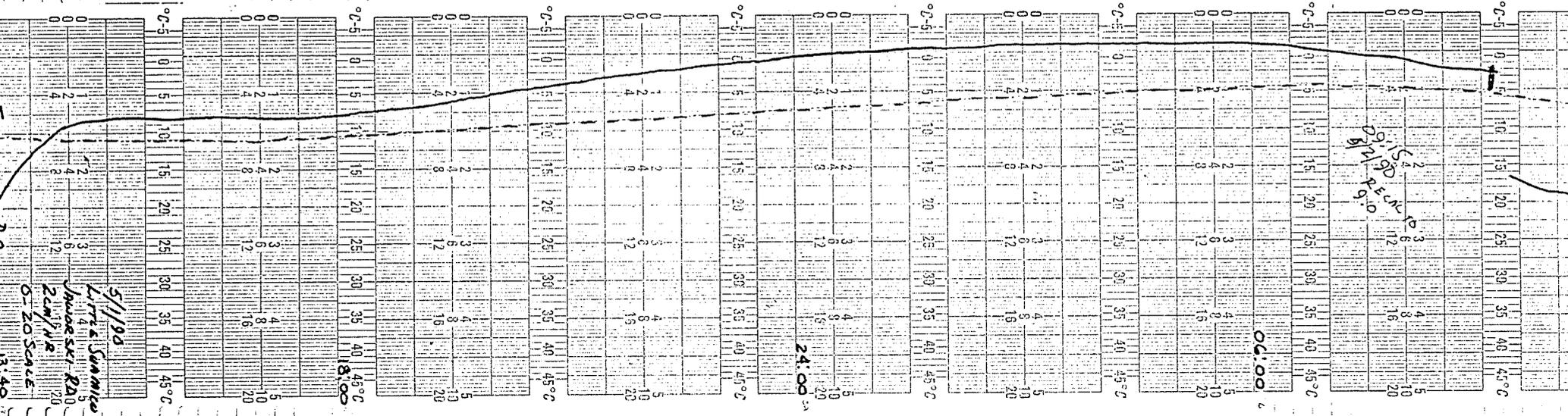
The substrate is composed of gravel and rock; however, low flow conditions and lack of other suitable habitat preclude the establishment of a viable fishery. A 1983 Fisheries Management Report (attached) is in agreement, but speculates that during wet high water spring, northern pike could be present in this area.

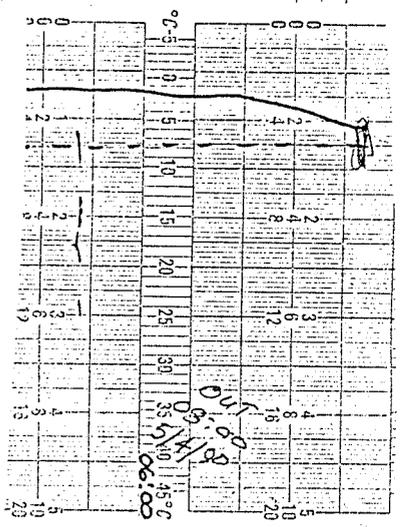
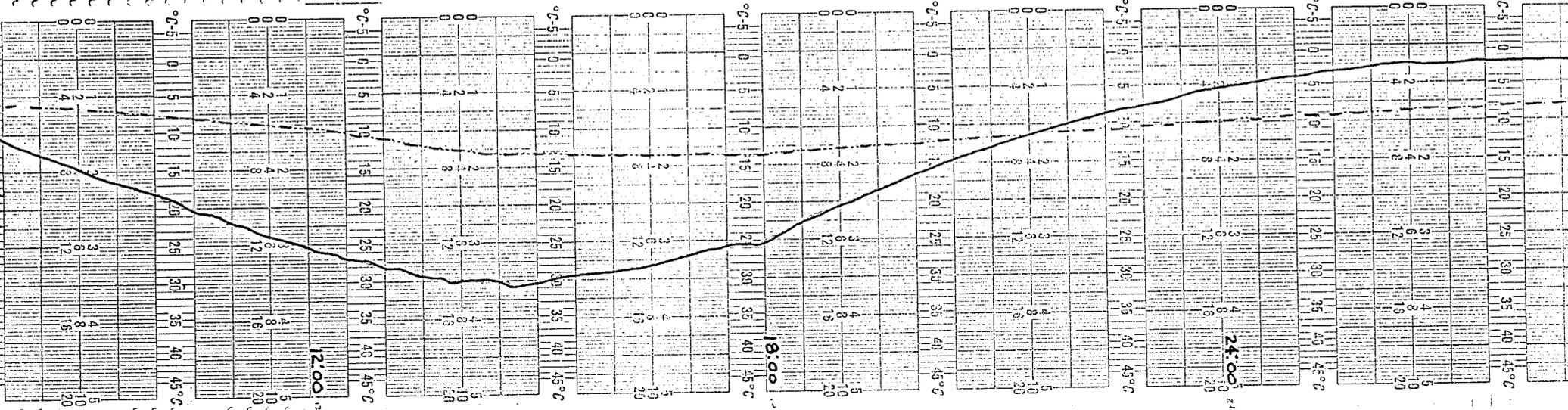
Below the first tributary (see map), the river has picked up enough flow to become perennial. It also begins to meander and has a good mix of pools, runs, and riffles. Bottom type is predominately rock, gravel and some mud and would provide fairly good cover if not almost completely covered with filamentous algae. The tributary is presently classified as noncontinuous marginal which is correct since its flow is composed almost entirely of effluent from the Pulaski POTW. There have been repeated complaints of "pollution" from the tributary downstream three to four miles. This is also mentioned in the FM report as having a negative influence in the establishment of a warm water fishery. Fish species in the current variance area are forage species on a year-round basis with white suckers, northern pike and smallmouth bass present seasonally.

The Little Suamico River from STH 32 downstream to the first tributary does not contain sufficient flow or habitat to sustain a year-round population of warm water fish (game or forage), but seasonally it is of value. It should be classified as Noncontinuous Limited Forage.

From the tributary downstream to Jaworski Rd. habitat and flow are sufficient to maintain forage species on a continual basis. This area is strongly impacted by the Pulaski POTW and has the potential for higher uses if better sewage treatment is provided. At this time, an appropriate classification is Continuous Warm Water Forage.







Stream LT SUAMICO Reach Location STM 32 Reach Score/Rating 168 / FAIR
 County SHAWANO Date 5/18/90 Evaluator [Signature] Classification NON CONTINUOUS - LIMITED FORAGE

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. <u>(8)</u>	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture) <u>(14)</u>	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. <u>(8)</u>	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. <u>(9)</u>	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. <u>(10)</u>	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. <u>(9)</u>	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. <u>(8)</u>	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. <u>(16)</u>	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. <u>(14)</u>	Stream does not enhance aesthetics. Condition of stream is offensive. 16
Column Totals:	<u>8</u>	<u>44</u>	<u>44</u>	<u>72</u>

() n Scores E 8 + G 44 + F 44 + P 72 = 168 = Score

FIELD MEASUREMENTS

D.O. 9.2 TEMP 9 PH AVG WIDTH 15'
AVG DEPTH .5' FLOW MEAS. .012 LENGTH OF SEGMENT

OBSERVATIONS SCARCE (S), COMMON (C), ABUNDANT (A)

SLUDGE 0 MUD S MACROPHYTES C-A SLIMES 0
FILAMENTOUS ALGAE 0 LITTER & DETRITUS C
PLANKTONIC ALGAE 0 IRON BACTERIA TURBIDITY 0
COMMENTS:

EXTERNAL IMPACTS SEVERE (S), MODERATE (M), LIGHT (L)

AGRICULTURAL M CHANNELIZATION M CONSTRUCTION L
STORM SEWERS L POINT SOURCES L
COMMENTS:

BIOTA HBI FBI OTHER

MACROINVERTEBRATES
FISH OBSERVED NUMEROUS MINNOWS
WILDLIFE USES MINIMAL

WATER CHEMISTRY

BOD5 TOT P CHLORIDE LEAD MFFC
DISS P .018 CADMIUM MAGNESIUM HARDNESS
MFFS TOT K N 2.6 CALCIUM MANGANESE
COPPER NH3N <.02 NICKLE SUSP SOLIDS
NO2-N+NO3-N ND ZINC IRON
CHLORO-A 9

CLASSIFICATION

GREAT LAKES COMMUNITY WARM WATER FORAGE
COLD WATER COMMUNITY LIMITED FORAGE FISH ✓ NON-CONTINUOUS
WARM WATER SPORT FISH LIMITED AQUATIC LIFE

Stream L. SUAMICO Reach Location JAWORSKI RD Reach Score/Rating FAIR +
 County OCONTO Date 5/18/90 Evaluator DJG Classification CONTINUOUS - WARM
WATER FORAGE

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. (8)	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). (10)	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. (4)	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. (6)	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 15	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. (10)	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. (9)	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (8)	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. (7)	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" (18)	<3" 24 <6" 24
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' (24)
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs (24)
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. (8)	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. (10)	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16

Column Totals:

Column Scores E 18 + G 54 + F 18 + P 48 = 138 = Score

FIELD MEASUREMENTS

D.O. 9.2 TEMP 9 PH _____ AVG WIDTH 25'
AVG DEPTH 5' FLOW MEAS. 69 LENGTH OF SEGMENT _____

OBSERVATIONS SCARCE (S), COMMON (C), ABUNDANT (A)

SLUDGE 0 MUD S MACROPHYTES S SLIMES _____
FILAMENTOUS ALGAE A LITTER & DETRITUS S
PLANKTONIC ALGAE C IRON BACTERIA _____ TURBIDITY _____
COMMENTS:

EXTERNAL IMPACTS SEVERE (S), MODERATE (M), LIGHT (L)

AGRICULTURAL L CHANNELIZATION L CONSTRUCTION L
STORM SEWERS L POINT SOURCES S
COMMENTS:

BIOTA HBI FBI OTHER

MACROINVERTEBRATES ABUNDANT GAMMARUS
FISH OBSERVED NONE
WILDLIFE USES ALL UPLAND TYPES -
SOME LIGHT WATERFOWL

WATER CHEMISTRY

BOD5 _____ TOT P 3.03 CHLORIDE _____ LEAD _____ MFFC _____
DISS P 2.7 CADMIUM _____ MAGNESIUM _____ HARDNESS _____
MFFS _____ TOT K N 2.6 CALCIUM _____ MANGANESE _____
COPPER _____ NH3N .05 NICKLE _____ SUSP SOLIDS _____
NO2-N+NO3-N 3.5 ZINC _____ IRON _____
CHLORO A 72

CLASSIFICATION

GREAT LAKES COMMUNITY _____ WARM WATER FORAGE
COLD WATER COMMUNITY _____ LIMITED FORAGE FISH _____
WARM WATER SPORT FISH _____ LIMITED AQUATIC LIFE _____

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

130 G.B.

LITTLE SWAMP
RECEIVED DNR

Date: November 14, 1983

File Ref: 3600

To: Tim Doelger

From: Greg W. Kornely *GWK*

Subject: Fishery investigation of the Little Suamico River immediately below Pulaski

→ Please
P.C.
4/3/84 Mike Russo
Gary Kincaid

MAR 30 1984

Lake Mich. Dist.

The fishery in the Little Suamico River below the City of Pulaski was investigated on November 8, 1983. This investigation was conducted to contribute data in this Water Quality Study Area.

Included is a partial copy of a fishery survey conducted in August and September, 1975. Basically, the text of that report would still apply to the Little Suamico River as a whole. The present survey only involves two small sections of stream. (These sections would correspond to Survey Stations #8 and #9 of the 1975 survey.)

An approximately 600' section of river downstream from Jaworski Road was surveyed with a backpack stream shocker. Fish species captured included central mudminnows, brook sticklebacks (both abundant), creek chubs (common), one 4" carp and one 4" green sunfish. Shocking efficiency was poor, and this, coupled with a seasonal difference in survey time, probably accounted for differences in the species makeup compared to the 1975 survey.

One major difference from this survey and the 1975 survey was the level of pollution present. While no visible pollution was observed in 1975, the water was visibly "whitish-gray" at this time. One could not see into the water more than a few inches, and an odor of sewage was present. The Pulaski sewage treatment facility is located over a mile upstream from the survey site, and there is also a nearby trailer park. Lesser evidence of this "polluted" condition could still be observed another one and a half miles downstream from the survey station.

A visual observation was made of the Little Suamico River as it goes through the City of Pulaski. This is not much more than a drainage ditch and has no real fishery potential. The water is clear, however, and a possibility exists that northern pike may turn up here in the spring during high water levels.

In general terms, the fishery potential in the area of the recent survey is limited, primarily because of the low volume of water in the upper reaches of the Little Suamico River. The substrate present does offer the potential for a good base of forage minnows and some young smallmouth bass. Natural reproduction of smallmouth in this area would be negligible, again because of the low water flow.

It should be noted, however, that the pollution observed at the time of the survey could only have a negative effect on what already is a marginal warmwater fishery area.

Attach.

STREAM SURVEY STATION REPORT

DEPARTMENT OF NATURAL RESOURCES

FORM 3600-39

NAME OF STREAM LITTLE SAUMICO RIVER		Survey Station No. ....1.....	POINT OF EXAMINATION ≈ 600' downstream from Jaworski Rd.
COUNTY OCONTO			

Township 26N	Range 19E	Section 33	Distance Sampled (ft.) ≈ 600'	GEAR USED BACKPACK SHOCKER
Avg. Width (ft.) ≈ 10'	Avg. Depth (ft.) ≈ 1'	Vol. of Flow (c.f.s.) —	VELOCITY <input checked="" type="checkbox"/> Sluggish <input type="checkbox"/> Moderate <input type="checkbox"/> Rapid	
			Max. Flood Crest (ft.) 6'	

WATER <input type="checkbox"/> Clear <input type="checkbox"/> Stained <input checked="" type="checkbox"/> Dirty		CONDUCTANCE C _f C ₇₇	TEMPERATUREWater Air Time	pH —	M.P.A. —
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WATER LEVEL CONDITIONSIn. Below <input checked="" type="checkbox"/> Normal In. Above	PRIOR WEATHER CONDITIONS COOL - DRY
-------------------------------------------------------------------------------------------------------	----------------------------------------

POLLUTION WATER WAS MILKY WHITE IN COLOR AND HAD AN ODOOR OF SEWAGE.

STREAM BOTTOM TYPES (%)					POOL GRADE C
.....Bedrock	.....Hardpan	.....Boulder	...35...Rubble	...20...Gravel	POOL-RIFFLE RATIO 80 - 20
...20...Sand	...25...Silt	.....Marl	.....Detritus		

AQUATIC VEGETATION (Species)	Abund.	AQUATIC VEGETATION (Species)	Abund.	AQUATIC VEGETATION (Species)	Abund.
FILAMENTOUS ALGAE	A				

STREAM COVER	Scarce	Common	Abundant	Stable	Unstable	AQUATIC LIFE	Scarce	Common	Abundant
Overcut banks	X					Stonefly			
Rocks, boulders	X					Mayfly			
Logs, trees	X					Caddisfly			
Debris	X					Shrimp			
Aquatic Vegetation	X					Crayfish			

STREAM BANK VEGETATION

.....% Cultivated	.....% Upland Hardwood	.....% Swamp Conifer
.....% Firm Pasture	.....% Upland Conifer	...100...% Shrub Marsh
.....% Meadow Pasture	.....% Swamp Hardwood	.....% Open Marsh

STREAM COVER <input type="checkbox"/> Dense <input type="checkbox"/> Partly Open <input checked="" type="checkbox"/> Open	FISHABILITY <input checked="" type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
BANK EROSION <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Light <input type="checkbox"/> None	DAMS Man-made Number: 0 Height: Pool Area Above:
BANK HEIGHTS 3 - 5'	Beaver (active) 0
NEED FOR INSTREAM DEVICES <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input checked="" type="checkbox"/> None	Beaver (inactive) 0

REMARKS
THERE WAS A DEFINITE POLLUTION PROBLEM AT THE TIME OF THE SURVEY. VISIBILITY IN THE WATER WAS VERY POOR AND SHOCKING EFFICIENCY WAS ALSO VERY POOR.

(use back of sheet for additional remarks)

DATE OF SURVEY 11-8-83	INVESTIGATOR KORNELY
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STREAM SURVEY STATION REPORT

DEPARTMENT OF NATURAL RESOURCES

FORM 3600-39

NAME OF STREAM LITTLE SUAMICO RIVER		Survey Station No. <u>2</u>		POINT OF EXAMINATION WITHIN DR. U. J. SHIPPY PARK AND AREA NORTH OF BROWN/OCONTO COUNTY LINE.			
COUNTY BROWN							
Township 26	Range 19	Section 32	Distance Sampled (ft.)	GEAR USED VISUAL OBSERVATION			
Avg. Width (ft.)	Avg. Depth (ft.)	Vol. of Flow (c.f.s.)	VELOCITY <input checked="" type="checkbox"/> Sluggish <input type="checkbox"/> Moderate <input type="checkbox"/> Rapid			Max. Flood Crest (ft.)	
WATER <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Stained <input type="checkbox"/> Dirty		CONDUCTANCE C _f C ₇₇	TEMPERATURE Water Air Time			pH	M.P.A.
WATER LEVEL CONDITIONS.....In. Below <input checked="" type="checkbox"/> Normal In. Above		PRIOR WEATHER CONDITIONS COOL					
POLLUTION NONE OBSERVED							
STREAM BOTTOM TYPES (%)Bedrock Hardpan Boulder Rubble Gravel.....Sand Silt Marl Detritus					POOL GRADE 100' - 2'		
					POOL-RIFFLE RATIO		
AQUATIC VEGETATION (Species)		Abund.	AQUATIC VEGETATION (Species)		Abund.	AQUATIC VEGETATION (Species)	
STREAM COVER		Scarce	Common	Abundant	Stable	Unstable	AQUATIC LIFE
Undercut banks							Stonefly
Rocks, boulders							Mayfly
Logs, trees							Caddisfly
Debris							Shrimp
Aquatic Vegetation							Crayfish
STREAM BANK VEGETATION							
.....% Cultivated		.....% Upland Hardwood		.....% Swamp Conifer			
.....% Firm Pasture		.....% Upland Conifer		.....% Shrub Marsh			
.....% Meadow Pasture		.....% Swamp Hardwood		.....% Open Marsh			
STREAM COVER <input type="checkbox"/> Dense <input type="checkbox"/> Partly Open <input type="checkbox"/> Open				FISHABILITY <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor			
BANK EROSION <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input type="checkbox"/> None				DAMS Man-made		Number	Height
BANK HEIGHTS				Beaver (active)			
NEED FOR INSTREAM DEVICES <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input type="checkbox"/> None				Beaver (inactive)			
REMARKS Not much more than drainage ditch. Very little flow of water. Observations were made to determine the clarity of the water. Very limited fishery potential. Possible movement of northern pike up this far in the spring. (use back of sheet for additional remarks)							
DATE OF SURVEY 11-8-83				INVESTIGATOR KORNELY			

Department of Natural Resources

INTRA-DEPARTMENT

MEMORANDUM

.....Shawano.....
Station

Date ...February 15, 1977.....

IN REPLY REFER TO: 3610
C. L. Cline

TO: David Jacobson

FROM: Paul Brouha

SUBJECT: Stream survey report on the Little Suamico River T.26N., R.18-21E.,
Oconto and Shawano Counties and T.26N., R.18E., Brown County

The Little Suamico River has its source in a system of drainage ditches in the town of Angelica, Shawano County. From there it flows east across Oconto County to the village of Little Suamico where it joins Green Bay. The Little Suamico has an average width of 15.5 feet and a total length of 20.5 miles. Its watershed has a total area of 51 square miles. This survey was conducted during August and September, 1975.

The Little Suamico is a fertile, hardwater stream which has slightly alkaline light brown water. The stream bottom types of the survey sections combined average out to: 16% silt, 24% sand, 32% gravel, 23% rubble, 3% boulder and 1% each for bedrock and hardpan. The stream gradient is steep enough in most places for the water to wash away the silt that comes from the areas of heavy bank erosion. This bank erosion has been caused by cattle breaking down streambanks where they are pastured.

Because of the extensive drainage ditch systems in this watershed, runoff is rapid. Flood crests are 8 - 10 feet above normal flows and flows during dry periods are very reduced (the stream was 6 - 10 inches below normal during the survey). Stream water temperatures, except for the backwaters from Green Bay, warm above a range suitable for trout. No pollution is evident along the stream, except for an obviously "culturally enriched" section below the Pulaski sewage treatment plant.

A large amount of the Little Suamico River watershed is devoted to dairy farming. The rest of the upland area is private woodland. The lowland area near Green Bay is shrub, and open marsh that has great value for wildlife.

Aquatic vegetation is common in some areas of the stream. Species present include: yellow water lilly, water milfoil, filamentous green algae, canadian waterweed, coon-tail, pondweeds, and arrowhead. Food for fish is abundant: mayflies, and gammarus are common and caddisflies and crayfish are generally very abundant throughout the rocky sections of the stream. Darters and other small forage fish are abundant. Samples of these fish were sent to the fish distribution study for identification and their findings are attached.

The primary sampling tool used to survey the fish population was a 300 volt D.C. stream shocker with two electrodes. Although no population estimates were made, shocking efficiency seemed generally good except in deeper holes. The two gamefish species present are northern pike and smallmouth bass. A few large adults were captured, but the fish were generally too small to be of much interest to the angler. Small rockbass are

abundant; the other panfish species present include pumpkinseed and green sunfish. In the deep silty holes carp are abundant, but rough fish could not be considered to dominate the population either in numbers or biomass.

No prior fish management has been attempted on the Little Suamico. Waterlevels fluctuate greatly. Summer water temperatures rise above a range tolerated by trout. Deep holes and bank covers that provide living space for larger gamefish are rare, but where they do exist one can find larger northern pike and smallmouth bass. Good land conservation practices such as streambank contouring and stabilization, and fencing the river to exclude livestock would greatly benefit the warmwater fishery of this stream. Any A.S.C.S. cost-sharing project for these purposes should be encouraged and farmers actively recruited for it. The stream also might be considered for a salmon nursery/spawning area. It is suggested that the lower reaches be stocked with salmon and trout in order to develop a seasonal fishery for these species.

- cc: Area Water Files - Marinette (full report)
- District File - Green Bay (summary report: transmittal memo, Forms 3600-58 & 59)
- Jim Addis - Madison (summary report)
- Warmwater Research - Nevin (Forms 3600-39 & 58 and map)

Attach.

APPROVED:

CEH
C. E. Higgs

2/21/77
Date

NOTED:

_____ Date

PB:pc

SUMMARY

SITE		NO. OF SAMPLING		AREA SAMPLED	NO. MARKED FISH STOCKED		STOCKING DATES										
Little Suamico River				10.5 acres	0		0										
C. Mooshocker																	
O.V.D.C. Stream shocker																	
SPECIES	CODE	STATION NUMBERS														TOTAL	
		2	3	4	5	6	7	8									
Central Mudminnow	110				1			1									2
Crappie	134		1					2									3
Hornyhead Chub	142	11	32	39	41	18	2										143
Common Shiner	151	44	14	42	27	14	28	36									205
Surface Shiner	158	2	2		2	1											7
Northern Redbelly Dace	165				1	1											2
Bluntnose Minnow	168	20		1	11	9	20	4									65
Fathead Minnow	169							7									7
Blacknose Dace	171				2												2
Longnose Dace	172				15	7	2										24
Creek Chub	173		3	3	9	1		2									18
Pearl Dace	175							3									3
White Sucker	194				7		7	18									32
Black Bullhead	221	60	6	3													69
Madpole Madtom	227	1															1
Brook Stickleback	290							1									1
Rockbass	310			2													2
Longear Sunfish	316	2															2
Smallmouth Bass	318			3		4											7
Johnny Darter	340			5	2	2		2									11
Copperch	344	5															5
Bl. Side Darter	346					2											2
TOTAL																	
GRAND TOTAL		115	58	98	118	59	61	71									613

MODAL SIZES OF THE PRIMARY SPECIES

NUMBER PER ACRE		ESTIMATED POUNDAGE PER ACRE	
TROUT	OTHER SPECIES	TROUT	OTHER SPECIES
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EVALUATION

Fish identified by fish distribution study - Warmwater Research

INVESTIGATOR	DATE
Paul Brouha	1-21-77

No Fish Sheet Attached

NAME OF STREAM Little Suamico River		Survey Station No. 8	POINT OF EXAMINATION 1000' below Jaworski Rd.
Township Range Section 26 19 33 (1 & 2)		Distance Sampled (ft.) 1000	GEAR USED 300 V.D.O. Stream Checker (2 electrodes)

Avg. Width (ft.) 10	Avg. Depth (ft.) .5	Vol. of Flow (c.f.s.)	VELOCITY <input checked="" type="checkbox"/> Sluggish <input type="checkbox"/> Moderate <input type="checkbox"/> Rapid	Max. Flood Crest (ft.) 6
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WATER <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Stained <input type="checkbox"/> Dirty	CONDUCTANCE C _f C ₇₇	TEMPERATURE 60° F. Water 75° F. Air 3:00 PM TIME	pH	M.P.A.
--------------------------------------------------------------------------------------------------------------------	--------------------------------------------------	-----------------------------------------------------	----	--------

WATER LEVEL CONDITIONS 2 In. Below Normal In Above	PRIOR WEATHER CONDITIONS Hot, dry
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POLLUTION none evident

STREAM BOTTOM TYPES (%)					POOL GRADE 100% B
.....BedrockHardpanBoulderRubble20...Gravel	POOL-RIFFLE RATIO 80% pool; 20% riffle
.....20...Sand	.....60...Silt	.....Marl	.....Detritus		

AQUATIC VEGETATION (Species)	Abund.	AQUATIC VEGETATION (Species)	Abund.	AQUATIC VEGETATION (Species)	Abund.
Witch Potato (Sagittaria)	C				
Filamentous Algae (Chlorophyceae)	A				

STREAM COVER	Scarce	Common	Abundant	Stable	Unstable	AQUATIC LIFE	Scarce	Common	Abundant
Uncut banks	X			X		Stonefly			
Rocks, boulders	X			X		Mayfly		X	
Logs, trees	X				X	Caddisfly	X		
Debris	X				X	Shrimp	X		
Aquatic Vegetation						Crayfish		X	

STREAM BANK VEGETATION			Diptera - common		
.....% Cultivated	.....% Upland Hardwood	.....% Swamp Conifer	
.....% Firm Pasture	.....% Upland Conifer	.....100...% Shrub Marsh	
.....% Meadow Pasture	.....% Swamp Hardwood	.....% Open Marsh	

STREAM COVER <input type="checkbox"/> Dense <input type="checkbox"/> Partly Open <input checked="" type="checkbox"/> Open	FISHABILITY <input checked="" type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
STREAM BANK EROSION <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input checked="" type="checkbox"/> None	DAMS Man-made 0 Beaver (active) 0 Beaver (inactive) 0
STREAM BANK HEIGHTS 3 ft. to 5 ft.	Number Height Pool Area Above
NEED FOR INSTREAM DEVICES <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input type="checkbox"/> None	

REMARKS Most of the water flow present here comes from Tulaski Sewage Treatment Plant 1.5 miles upstream
All fish captured were pickled for fish distribution study
Minnows abundant

(use back of sheet for additional remarks)

DATE OF SURVEY 8 - 6 - 75	INVESTIGATOR Paul Brouha
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OF STREAM: Little Suamico Riv. Survey Station: POINT OF EXAMINATION
 No. 9: 200' within Dr. U. J. Shippy Park

Color: Brown
 Township: Range 19 Section 32 (3) Distance Sampled (ft.): 200 GEAR USED: Visual Observation
 Width: 2 Avg. Depth (ft.): .07 Vol. of Flow (c.f.s.): VELOCITY: Sluggish Moderate Rapid Max. Flood Crest (ft.):

Water: Clear Stained Dirty CONDUCTANCE: C_f 77 TEMPERATURE: 71.0°F Water 70.0°F Air 3:00 PM Time pH: M.P.A.:
 In. Below Normal In Above

WATER LEVEL CONDITIONS: PRIOR WEATHER CONDITIONS: Hot and dry

POLLUTION: Small oil slick noticed

STREAM BOTTOM TYPES (%):
 Bedrock Hardpan Boulder Rubble 20 Gravel
 Sand 60 Silt 20 Marl Detritus
 POOL GRADE: 100% C
 POOL-RIFFLE RATIO: 100% flat

AQUATIC VEGETATION (Species)	Abund.	AQUATIC VEGETATION (Species)	Abund.	AQUATIC VEGETATION (Species)	Abund.
Black Potato (Sagittaria)	A				
Green Algae (Chlorophyceae)	C				

STREAM COVER	Scarce	Common	Abundant	Stable	Unstable	AQUATIC LIFE	Scarce	Common	Abundant
Undercut banks	X					Stonefly			
Rocks, boulders	X					Mayfly			
Logs, trees	X	Not really applicable				Caddisfly	None observed		
Debris	X					Shrimp			
Aquatic Vegetation						Crayfish			

STREAM BANK VEGETATION:
 100% Cultivated Upland Hardwood Swamp Conifer
 Firm Pasture Upland Conifer Shrub Marsh
 Meadow Pasture Swamp Hardwood Open Marsh

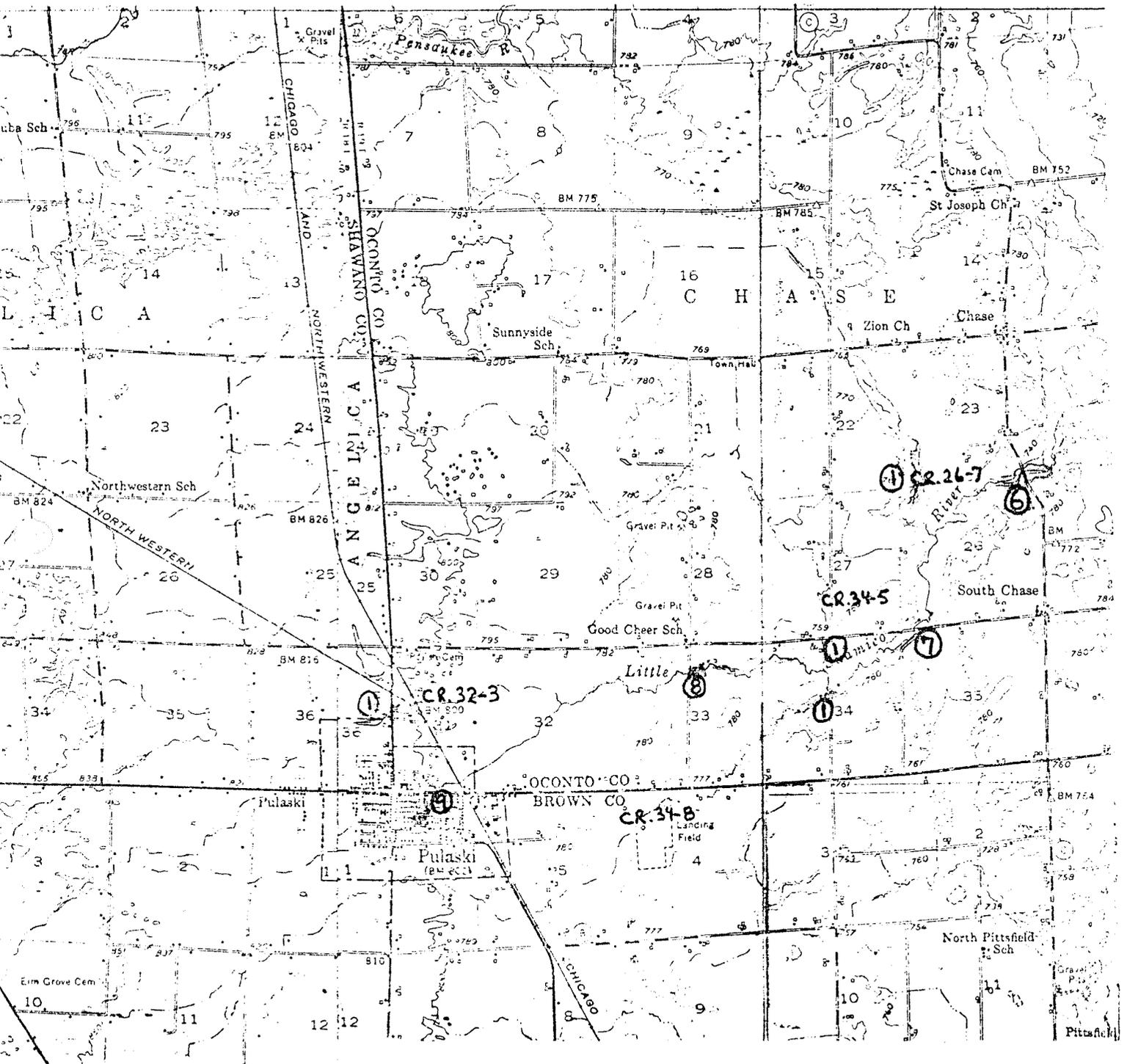
STREAM COVER	FISHABILITY
<input type="checkbox"/> Dense <input type="checkbox"/> Partly Open <input checked="" type="checkbox"/> Open	<input checked="" type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
BANK EROSION: <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input checked="" type="checkbox"/> None	DAMS: Man-made Number 0 Height Pool Area Above
BANK HEIGHTS: 4 ft.	Beaver (active) Number 0 Height Pool Area Above
NEED FOR INSTREAM DEVICES: <input type="checkbox"/> Heavy <input type="checkbox"/> Medium <input type="checkbox"/> Light <input type="checkbox"/> None	Beaver (inactive) Number 0 Height Pool Area Above

REMARKS: Drainage ditch through the middle of park in the City of Pulaski

DATE OF SURVEY: 8 - 4 - 75 INVESTIGATOR: Paul Brouha
 (use back of sheet for additional remarks)

LITTLE SUAMICO RIVER

Survey stations from the 1975 survey.
Stations 8+9 correspond to present survey.



STH 32 -FACING
DOWNSTREAM



JAWORSKI RD. FACING
UPSTREAM



JAWORSKI RD. FACING
DOWNSTREAM

