MEMO TO: Wm. Weiss, Institute for Water Quality Research

FROM: T. KELLY

SUBJECT: Shanty Creek Streams Project, Second Sampling.

I made the second sampling of Shanty Creek area streams on Oct. 24 - 25 1983. A heavy rain occurred on Oct. 25 and Stream No. 1 (at the old RR depot) was very turbid. Others streams were not affected, at least when seen on that day. Discharge measurements were added this sampling and will repeated next week.

My original field notes and typed results are attached.

cc: Peterson/Comfort
Field Work by T. M. Kelly
Sampling sites are the same as previous week unless noted.
Sample (125 ml.) for chemistry taken at each site. Sample frozen.

24 OCTOBER 1983

Station No. 5: Shanty Creek at Grass River Road

Time: 1710 EDT
Air Temp: 8.4 C
Water Temp: 11.5 C
pH: 8.2 + .06 = 8.26
Turb: 0.74 NTU
Weather: Heavy overcast, wind light NE
Water is clear, few leaves entrained (about 1/sec. passing downstream)
Photos: B&W No. 12-looking upstream into culvert
      Color #25-same as 12 above
      #26-looking downstream towards pond
Discharge (Q): Insufficient data on shape of culvert (irregular)
Velocity: 3.1 ft/sec (through culvert)
Depth at center of culvert discharge: 12.75 inches

Talked with Norm Klintworth of Terrace Villa Cabins. He reported
that the stream always (past 20 yrs.) has had a sandy bottom. Has
flooded several times and washed out dams upstream. Pond below
sampling site has filled with sediment during the time he has lived
here.

25 OCTOBER 1983

Visited Antrim County ASCS Office and Planning Department to look
at Shanty Creek Site Development Plans. Plans showed detailed
topography and locations of proposed sewer and sanitary sewer
lines, sediment retention ponds and other construction, but did
not show present surface drainage (creeks) or wet areas.

Purchased Xerox copies of aerial photography of study area.

Station No. 1: Depot Creek at M-88 crossing

Time: 1012 EDT
Air Temp: 10.4 C
Water Temp: 8.3 C
pH: 8.20 + .06 = 8.26
Turb: 125 NTU

13224 W. Bay Shore Dr.
Traverse City
Michigan 49684
(616) 946-7905

* I have taken the liberty to name the nameless creeks.

(Continued)
RESULTS OF SHANTY CREEK AREA STREAMS, SECOND SAMPLING, Page 2.
OCTOBER 25, 1983

Station No. 1. Continued.

Weather: Heavy overcast, occasional rain, heavy rain earlier today.
Water: Very turbid, light brown color, visibility about 1.5".
Water level higher than first sampling—over top of culvert
by 0.75". Some leaves in stream (about 5 leaves/sec. passing).
Velocity through culvert: 2.9 ft/sec surface x 0.85 = 2.5 ft/sec average.
Q=0.35 cfs (cubic feet/sec) (Q measured at 5656 Fisherman's Par. Rd.)
Photos: B&W #13,14
Color #28,29,30,31

1115 EDT.
Stopped at a small stream that runs parallel to Stream No. 1, about
half mile north. This creek crosses a dirt N-S road off Fisherman's Paradise Road just beyond a sign reading "Private
Drive, No Outlet, McClelland & Faulkner". Stream has sand bottom
and clear water. Raining. Color photo #32 looking downstream
toward Lake Bellaire.

Station No. 2. Kernel Creek at K-88 crossing

Time: 1130 EDT
Air Temp: 10.5 C
Water Temp: 9.1 C
pH: 7.80+.06=7.86
Turb: 2.0 NTU
Weather: Heavy rain, hail
Water: Clear
Velocity: 2.2 surface, 1.9 ft/sec. average (through culvert)
Q: 0.32 cfs
Photos: B&W #15,16
Color #35-37

Station No. 3. Pumphouse Creek

Time: 1213 EDT
Air Temp: 9.8 C
Water Temp: 8.4 C
pH: 8.10+.06=8.16
Turb: 32 NTU
Weather: Occasional rain, overcast
Water: Slightly turbid
Deer tracks on stream banks. Hundreds of isopods moving upstream
along stream margins.
Velocity: 1.3x0.85=1.1 ft/sec. (through typical reach)
Q: 0.46 cfs
Photos: #17 B&W
#1,2 color, roll 2.

Continued
OCTOBER 25, 1983

Station No. 4. Fairway Creek, at Fairway 3, Bellaire Golf Club

Time: 1315 EDT
Water Temp: 8.5 C
pH: 7.97±0.06=7.96=8.0
Turb: 1.7 NTU
Weather: Rain has stopped, few breaks in cloud cover
Water: Clear, few leaves passing w/ current (1 every 2 sec.)
Velocity: 0.72 ft/sec x0.85=0.62 ft/sec average
Q: 0.38 cfs
Photos: B&W #18
Color #4.5

Submitted October 27, 1983

Thomas M. Kelly
Marine Consultant
Shorty Creek Stream

24 Oct 83

T. Kelly

Shorty Creek & Grass River Road

Time: 1710 EDT
HI: 8.10
Clarity Sample

Turb:
Water Temp:\n4.5\n
Water Temp:\n12.0\n
35"< not round!
12 3/4"

Culvert length: 60' 4"

Trial 1: 16 sec
2: 17 sec
3: Surface floats

Weather: heavy overcast [no shadows]

Wind: Slight S

Water clear, v. few leaves (1/4 tree leaves)

Photos:

BELOW: #12 3 looking upstream into culvert sample site
Color: #25

#26 Downstream towards pond from Grass R. Road

Tilhard by Norm Kringsworth - Terrace Villa Cabin - long term resident
250783 - Tuesday

Stream 1

Time 1012

Temp. air 10.4°F (10.49)
Water temp 85°F (8.31)

With heavy rain earlier
Curves and samples taken

Water: very turbid - light brown
Vis. 1/16" 1/2"

Water level higher than last time here - water over top of culvert pipe (34" over)

River: downstream looking N from "Do not pass" sign
14 - up stream, from 5.5 of metal post.

Color 28 - same as 13 above
29 - same as 14 "
30 - small pipe draining Sed. Pit, Pond - at creek
31 - small pipe entering Sed. Pit, Pond

Culvert at Fisherman Road

Triad
1 = 10 m
2 = 11 sec
3 = 10"
Z = 2 - 30"

Diam 30 B.P.

L = 32'= 8" = 30' 4"

50 o / 120 48

Photo 23, color - yellow
**St. 2 - 0.2 mile S. J. S. Fisherman Porichie Rd on 11:30**

- Time: 11:30
- Air: 10.5
- H2O: 91

**Ph:** 7.8

**Turbidity Sample:** 11

- Water: Clear

**Diagrams:**

- Diameter: 300" Width: 300" 29.5" Chord: 16"
25 OCT 83
TH KELLY

H_2O Temp 8.4°C
Air Temp 98°C - OC rel
pH 8.1

Turb/Chem samples UV

Water: Fairly clear - no milky/veneer - not as clear as St. 2.

Plate: Color = 1, 2 (charcoal bed in upper pond)
17 (same as 1 above) - stream into upper pond

Q - stream into upper pond, just below chem sample site

Hundred of 150 pills migrating up stream along stream bank Margin

Deer tracks
Tuesday 25 OCT 83

Time  13:15
Air temp  8.5°C
PH  7.9

Few beats in cloud cover
Stopped reading

Tur & channel

Water clear, few #/crow

L = 12 ft

Trail 1  16 sec
2  17 sec

Typical section

Upstream from sampling site
(bottom in stream)

Photos: Color #4, #5
Below #4, same as #4 above