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
RESULTS OF SHANTY CREEK AREA STREAMS SAMPLING

ANTRIM COUNTY, MICHIGAN, OCT. 24-25, 1983

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. As 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

(Continued)

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

Member of the American Fisheries Society, the International Association for Great Lakes Research and The American Boat and Yacht Council
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 ½ mile north. This creek crosses a dirt N-S road off off N. 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. Kennel Creek at M-88 crossing

Time: 1130 EDT
Air Temp: 10.5 C
Water Temp: 9.1 C
pH: 7.80 + 0.06 = 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 + 0.06 = 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: 1.3 x 0.85 = 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: 7.9+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 x 0.85=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