

PINE CREEK FISH KILL INVESTIGATION

GENERAL INFORMATION

Drainage Basin: Manitowoc - 070

Location: T-18N, R-20E, Sec. 17, Calumet County, Wisconsin

Study Reach: From Tecumseh Road down to Hayton Pond at Hwy 151. Study also included Jordan Creek from the New Holstein Sewage Treatment Plant to Pine Creek.

Investigation Dates: May 15, 1981 and May 28, 1981.

Survey Personnel: Michael D. Reif, Water Pollution Specialist

Author: Michael D. Reif

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OBJECTIVE

The objective of the study was to investigate a fish kill called into the Oshkosh Area office on May 15, 1981.

INTRODUCTION

Pine Creek is a 7.1 mile long, clear, hard water stream which enters Hayton Pond below Hwy 151 (Figure 1). The lower reaches of Pine Creek contain northern pike, black bullhead, carp and white suckers. Carp are very prevalent. Forage minnows and white suckers are the only common fish in the upper reaches. Macrophyte growth is very heavy in the lower reaches of Pine Creek (see photographs at the end of this report).

This study was generated by a fish kill complaint filed with the Oshkosh office on the afternoon of May 15, 1981.

DESCRIPTION OF STUDY AREA AND SURVEY METHODOLOGY

The reach of Pine Creek investigated in the study stretch from the highway above the New Holstein Publicly Owned Treatment (POTW) down to Hayton Pond at Hwy 151 (Figure 1). The west branch between Hwy X and Tecumseh Road is called Jordan Creek. Point sources include Tecumseh Products and the New Holstein POTW which discharge into Jordan Creek approximately half way between Hwy X and Tecumseh Road. Heavy agricultural land use typifies most of the study reach.

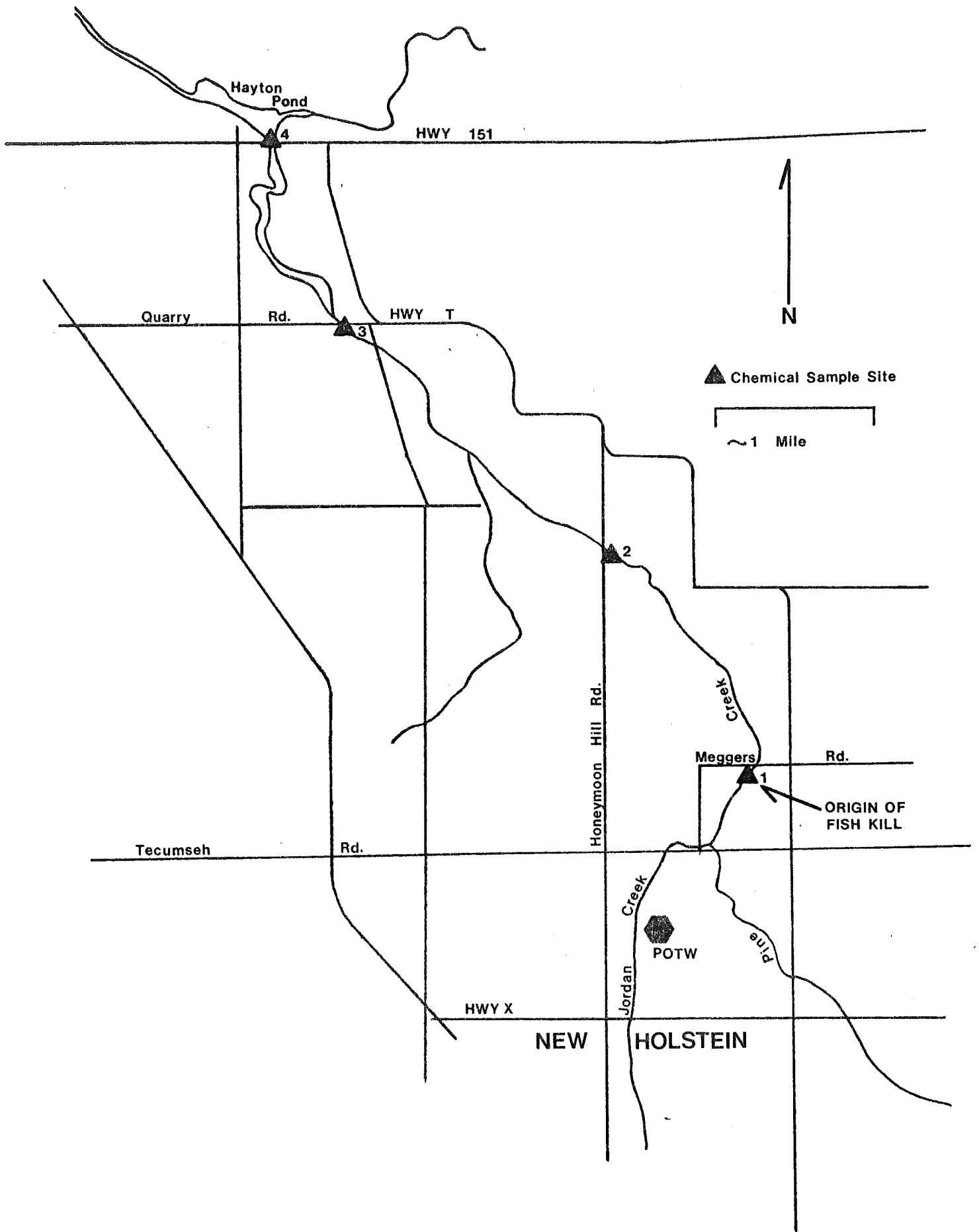
On the evening of May 15, I investigated the fish kill and observed the upper part of the stretch of Pine Creek described above. Dissolved oxygen (D.O.) and temperature readings were obtained at Honeymoon Hill Road. I observed Pine Creek at the bridges and walked a large part of it until I narrowed the origin of the fish kill to just above Megger's Road.

On May 28, 1981, I collected samples to evaluate the nitrogen levels in Pine Creek (see Figure 1 for sample sites) as a result of a concern land-owners of their cattle and horses being harmed by the source of the fish kill (annhydrous ammonia). All samples were iced and sent to the State Laboratory of Hygiene for lab pH, total phosphorous (T-P), total Kjeldahl nitrogen (T-Kjel-N), dissolved ammonia nitrogen (dis-NH₃-N), and dissolved nitrite plus nitrate nitrogen (dis-NO₂+NO₃-N). D.O. and temperature were measured on-site.

RESULTS AND DISCUSSION

While investigating the fish kill on May 15, I noticed several dead white suckers and minnows at the Honeymoon Hill Road bridge. D.O. and tempera-

FIGURE 1



ture were 10.6 mg/l and 19.8°C. respectively at Honeymoon Hill Road (the source of the fish kill complaint). Several minnows were noticed above the New Holstein POTW outfall and below Tecumseh Road. Most of the stretch of Jordan Creek below the New Holstein POTW outfall and above Tecumseh Road had no observable fish and no macroinvertebrates were found. This stretch was heavily chlorine scoured to the point where all rocks were algae free (algae covered the rocks above the outfall) and many had a white residue above the water line. The stream smelled highly of chlorine. However, since there were live minnows below Tecumseh Road, neither the New Holstein POTW nor Tecumseh Products were the cause of the fish kill at Honeymoon Hill Road.

Subsequent investigation narrowed the origin of the fish kill to a point approximately 100 feet above Megger's Road. I noticed a farmer spraying anhydrous ammonia in a field adjacent to Pine Creek (southeast) just above Megger's Road. I asked him if he knew anything about the fish kill. He said he didn't know for sure what caused it, but it was probably the 1,000 gallons of anhydrous ammonia he lost to the air near Pine Creek the night before. Apparently, a hose broke and the anhydrous ammonia (under pressure) sprayed into the air. This was apparently the cause of the fish kill which was extensive (it stretched to a marsh below Honeymoon Hill Road, a distance of about 2 miles).

A subsequent sampling investigation on May 28, 1981, showed Pine Creek to have dis-NH₃-N and dis-NO₂+NO₃-N concentrations below levels harmful to cattle and horses (Table 1). Local farmers were concerned that nitrite + nitrate-N levels might be high enough to be harmful to their cattle and horses.

On May 28, a large number of carp (spawning) were observed at Hwy 151. Macrophyte growth was very heavy at Quarry Road and the Pond at Hwy 151, covering approximately 80-90% of the bottom of the creek and pond.

Table 1. Chemical results from the May 28, 1981 survey.

Parameter	Site			
	1	2	3	4
Time	11:20	11:35	11:45	12:00
Water Temp. (°C)	14.2	16.0	16.1	20.1
D.O. (mg/l)	9.9	12.4	10.4	15.4
Lab pH (s.u.)	8.0	8.4	8.3	8.8
T-P (mg/l)	0.30	0.22	0.14	0.08
T-kjel-N (mg/l)	0.8	1.0	0.18	1.1
Dis-NH ₃ -N (mg/l)	0.15	0.08	0.04	0.05
Dis-NO ₂ -NO ₃ -N (mg/l)	7.9	7.9	2.8	0.65



Pine Creek looking upstream
from Honeymoon Hill Road.
(May 28, 1981).



Pine Creek looking downstream
from Honeymoon Hill Road.
Some dead fish can be seen
in this photograph (May 28, 1981).



Pine Creek looking south
from Meggers Road. (May
28, 1981).



Pine Creek looking upstream
from Hwy 151 (May 28, 1901).



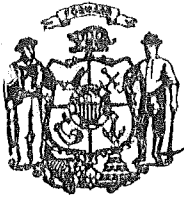
Pine Creek looking downstream
from Hwy 151 (May 28, 1981).



Pine Creek looking upstream
from Quarry Road. (May 28,
1981).



Pine Creek looking downstream
from Quarry Road. (May 28,
1981)



State of Wisconsin
P. O. Box 2565
Oshkosh, WI 54903

DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

June 18, 1981

File Ref: 3410

Mr. Harvey Meyer
Route 2
Chilton, WI 53014

Dear Mr. Meyer:

On May 15, 1981, I investigated a fish kill on Pine Creek which originated approximately 200 feet upstream from Meggers Road and extended downstream to the marsh below Honeymoon Hill Road. During this investigation, I talked to Dennis Meyer who was spraying the field south of Meggers Road and sounty of Pine Creek. I inquired about the source of the fish kill. He explained to me that on the previous evening (May 14) while spraying annhydrous ammonia on the same field, the hose broke and possibly up to 1,000 gallons of the annhydrous ammonia was lost to the air.

According to Section 311 of Public Law 92-500 and Chapter NR 158 of Wisconsin Administrative Code, spills such as this must be reported immediately to Emergency Government (608) 266-3232, or the nearest Department of Natural Resources office. Therefore, in the future please report similar spills immediately because annhydrous ammonia is potentially very toxic to people and wildlife.

If you have any questions, please contact me at (414) 424-4401.

Sincerely,

A handwritten signature in cursive script that reads "Michael D. Reif".

Michael D. Reif
Environmental Specialist

MDR:aep
cc - Tom Roberts - Green Bay
Walt Naab