REPORTS:

Water Quality of The Upper Susquehanna River
Summer 1993

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INTRODUCTION

A study of the water quality of the Susquehanna River between Otsego Lake and its confluence with Oaks Creek was undertaken during the summer of 1993. This study was done as part of a long term project to determine the assimilative capacity of the Upper Susquehanna River. The 1993 data are compared with information from 1991 and 1992.

METHODS

Water was collected and analyzed from nine different sites along the river. The sites (1, 3, 6, 8, 12, 16, 16a, 17, and 18) are illustrated in Figure 1. At each site water was tested with the Hydrolab Surveyor II for temperature (Figure 2), pH (Figure 3), dissolved oxygen (Figure 4), and conductivity (Figure 5). At the Biological Field Station the water was subjected to tests to determine the total phosphorus (Figure 6), alkalinity (Figure 7), and chloride (Figure 8). The water was sampled every week between July 7 and August 25, biweekly to mid-November.

DISCUSSION

Dissolved oxygen was significantly lower during the summer of 1993 than during the summer of 1992 between sites 12 and 17 (Groff, et. al., 1993). This could have been due to higher summer water temperatures in 1993 and much lower average discharge rates: 17 cubic meters per minute (cm/m) in 1993; 187 in 1992. A similar situation was shown for total phosphorus. Alkalinity readings varied between 105 mg/l at Site 1 and gradually increased to 114 mg/l at Site 18.

Chloride concentrations on the studied section of the river fell between approximately 7 and 11 mg/l. There was an increase of approximately 3 mg/l of chlorides in the water between Susquehanna Avenue Bridge (Site 6) and the Sewage Treatment Plant (Site 12). This might be due to the fact that the county salt piles drain into the river between those two sites.

We also tested for the presence of fecal coliform bacteria (Figure 9). Fecal coliform bacteria live in the intestines of warm-blooded animals and are a sign of fecal contamination when present in water. These concentrations were very high in the spring, decreasing over the summer. Their significance is not understood.

REFERENCES

Figure 1. Susquehanna River Collection Sites
Figure 2.
Average Temperatures in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □

Figure 3.
Average pH in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □
Figure 4.
Average Oxygen Concentration in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □

Figure 5.
Average Conductivity in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □
Figure 6.
Average Phosphate Concentrations in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □

Figure 7.
Average Alkalinity in the Upper Susquehanna River
Summer 1993 □
Figure 8.
Average Chloride Concentrations in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □

Figure 9.
Fecal Coliform Concentrations in the Upper Susquehanna River
Summer 1992 ●, Summer 1993 □