ASSESSMENT OF INTERSTATE STREAMS IN THE SUSQUEHANNA RIVER BASIN

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ABSTRACT

The Susquehanna River Basin Commission (SRBC) used a water quality index (WQI) and the U.S. Environmental Protection Agency's (USEPA's) Rapid Bioassessment Protocol III (RBP III) to assess the chemical water quality, biological conditions, and physical habitat of 51 sample sites in the Interstate Streams Water Quality Network from July 1, 2001 to June 30, 2002. Only 25 out of 2,784 parameter observations exceeded water quality standards. Assessment results indicate that approximately 30 percent of the sites supported nonimpaired biological communities. Water quality impacts in the New York-Pennsylvania border streams tend to be mostly from metals, while most Pennsylvania-Maryland border sites have higher nitrogen and nitrate values.

A Seasonal Kendall Test was performed on water quality parameters to determine trends and their magnitude for the period 1986-2002. Overall, an increasing trend was found in total chloride, while decreasing trends were found for total ammonia, total nitrogen, total phosphorus, total iron, and total manganese.

A Pearson Product Moment Correlation was performed on WQI, RBP III score, and physical habitat score to determine any relationships between the parameters. A significant ($p<0.05$) positive correlation occurred between biological community score and physical habitat score for Group 3 sites, indicating that as the quality of the habitat increased so did the quality of the biological community. No other groups of streams had correlations that were significant. These relationships, while based on a small number of observations, are presented as subjects to be considered by resource managers, local interest groups, elected officials, and other policy-makers.

INTRODUCTION

One of SRBC's functions is to review projects that may have interstate impacts on water resources in the Susquehanna River Basin. SRBC established a monitoring program in 1986 to collect data that were not available from monitoring programs implemented by New York, Pennsylvania, and Maryland. The state agencies do not assess all of the interstate streams and do not produce comparable data needed to determine potential impacts on the water quality of interstate streams. SRBC's ongoing interstate monitoring program is partially funded through a grant from the USEPA.

The interstate water quality monitoring program includes periodic collection of water and biological samples from interstate streams, as well as assessments of their physical habitat. Water