REPORT ANNOUNCEMENT

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ASSESSMENT OF INTERSTATE STREAMS IN THE SUSQUEHANNA RIVER BASIN

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The Susquehanna River Basin Commission (SRBC) monitors and submits an annual report on the water quality of the interstate streams in the basin that flow across the New York and Pennsylvania state line or the Pennsylvania and Maryland state line. As part of the Interstate Stream Monitoring Program, SRBC periodically collects water and biological samples at selected stations. The data are used to:

- assess compliance with state water quality standards;
- characterize stream quality and seasonal variations;
- build a database for future assessment of water quality trends;
- identify streams for reporting to the U.S. Environmental Protection Agency under Section 305(b) of the Clean Water Act;
- provide information to signatory states for 303(d) listing and possible Total Maximum Daily Load development; and
- identify areas for restoration and protection.

Methods

The methods section describes sampling frequency, stream discharge, water samples, field chemistry, data synthesis, and macroinvertebrate and physical habitat sampling.

Sampling frequency. The interstate streams are divided into three groups according to the degree of water quality impairment, historical water quality impacts, and potential for degradation. Group 1 streams are sampled quarterly for water chemistry and annually for biology. Group 2 streams are sampled annually in July and August for water quality and biological conditions. Group 3 streams are sampled annually in the month of May for biological conditions.

Stream discharge. Stream discharge data were obtained from U.S. Geological Survey gages or were measured, unless high streamflows made access impossible.

Water samples. Samples were collected at each of the sites, and nutrient and metal concentrations were measured in the laboratory.

Field chemistry. Temperature, dissolved oxygen, conductivity, pH, alkalinity, and acidity were measured in the field.

Data synthesis. Results of laboratory analyses for chemical parameters were compared to state water quality standards. In addition, a simple water quality index was calculated. Every five years, trend analysis will be performed on Group 1 streams through use of the Seasonal Kendall nonparametric test.

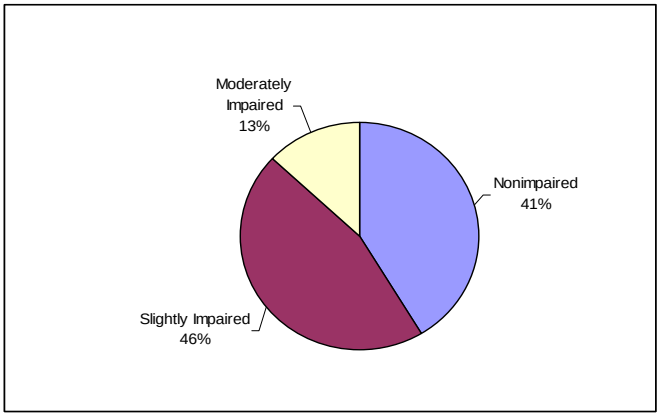
Macroinvertebrate sampling. Benthic macroinvertebrates were collected from Group 1 and 2 stations between July 21 and August 13, 2003 and from Group 3 stations May 10-12, 2004.

Physical habitat sampling. Eleven habitat parameters were field-evaluated at all stations where a macroinvertebrate sample was collected.

Results

Water quality in most interstate streams appeared to decrease slightly in 2003 and 2004. Of the 1,001 possible total observations, 99 exceeded water quality standards. The parameter that most frequently exceeded water quality standards was total iron.

Figure 1. Summary of Biological Assessments



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NY-PA BORDER STREAMS AND RIVERS WITH MODERATE CONDITIONS INCLUDE:

Denton Creek, Dry Brook, and White Branch Cowanesque River – all Group 3 streams – were designated moderately impaired due to upstream impoundments, agriculture, urban impacts, and channelization. Denton Creek was downstream of Lake Hawkins and had low alkalinity and pH. Dry Brook is located in an urbanized area in Waverly, N.Y. White Branch Cowanesque was located in the middle of a pasture. Most impairments in Group 3 streams were due to agriculture pollution or habitat degradation.

PA-MD BORDER STREAMS WITH MODERATE CONDITIONS INCLUDE:

Ebaughs Creek, Long Arm Creek, and Scott Creek were designated moderately impaired. Ebaughs Creek is located downstream of a wastewater treatment plant. Long Arm Creek was moderately impaired due to nonsupporting habitat. This site was located in a cow pasture and could be improved with streambank fencing and forested vegetation in the riparian zone. Scott Creek, while still impacted, improved slightly from a severely impaired rating for the first time in the past several years.

NY-PA BORDER STREAMS AND RIVERS THAT EXCEEDED WATER QUALITY STANDARDS:

Appalachin Creek; Bentley Creek; Cascade Creek; Cayuta Creek; Deep Hollow Brook; Denton Creek; Little Snake Creek; North Fork Cowanesque River; Prince Hollow Run; Seeley Creek; South Creek; Troups Creek; Trowbridge Creek; Chemung River; Cowanesque River; Susquehanna River at Sayre, PA; Susquehanna River at Kirkwood, NY; Susquehanna River at Windsor, NY; and Tioga River.

PA-MD BORDER STREAMS THAT EXCEEDED WATER QUALITY STANDARDS:

Big Branch Deer Creek; Conowingo Creek; Ebaughs Creek; Falling Branch Deer Creek; and Octoraro Creek.

Conclusions

The 2003/2004 biological indexes of the:

New York-Pennsylvania border streams and rivers sampled indicated:

- 15 streams were nonimpaired;
- 19 were slightly impaired; and
- three were moderately impaired.

Five of the sites on the Chemung, Cowanesque, Susquehanna, and Tioga Rivers could not be sampled due to high flow conditions. The most common sources of water quality degradation in the remaining streams were due to high metals concentrations.

High river flows, rechannelization of the streambed, and removal of instream habitat may have resulted in poor conditions for macroinvertebrate colonization in several streams.

Pennsylvania-Maryland border streams and rivers sampled indicated:

- four streams were nonimpaired;
- two were slightly impaired; and
- three was moderately impaired.

The Susquehanna River at Marietta, Pa., could not be sampled due to high river flows. The most common source of water quality degradation in the remaining streams was excess nutrients. Streambank erosion and sedimentation impacted the instream habitat at sites along the Pennsylvania-Maryland border.

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This report is available on the
Susquehanna River Basin Commission website at:
www.srbc.net/techreports237.htm
It also is available on compact disc.
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