



**US Army Corps
of Engineers.**
Philadelphia District

Lehigh River Recreational Enhancement Study

Study Authority

Water Resources Development Act of 1974, Section 22, Planning Assistance to States.

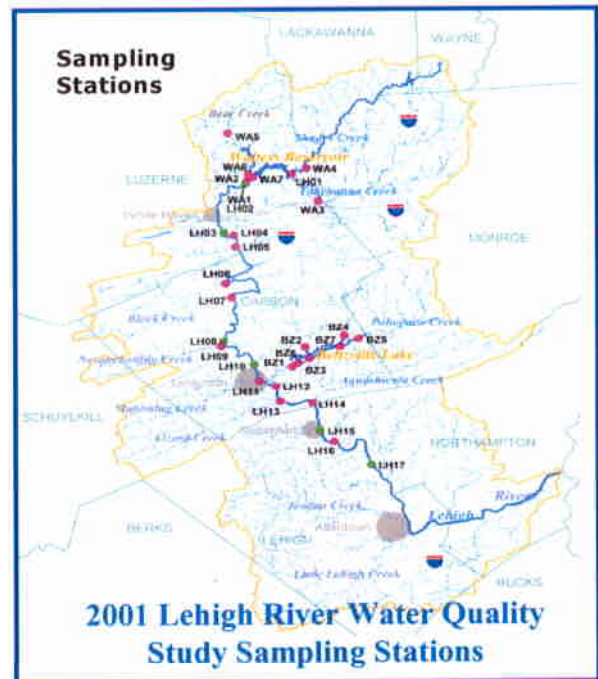
Objective

The objective of the Lehigh River Recreational Enhancement Study is to develop a water quality model for the Lehigh River, F.E. Walter Reservoir and Beltzville Reservoir. Project partners will develop six alternate reservoir operational scenarios. The model will simulate these scenarios and predict the corresponding changes in temperature and water quality in the reservoirs and the river. The results will be used to help evaluate the potential positive and negative impacts on flood control, recreational boating, and aquatic resources for each scenario. This information will be used to improve future management of the reservoirs.



Background

In 2001, the Lehigh River Water Quality Monitoring Study was conducted by the Philadelphia District Corps of Engineers, Delaware River Basin Commission, the Pennsylvania Fish and Boat Commission, and the Pennsylvania Department of Environmental Protection. The project partners believed a predictive water quality computer model was needed to evaluate water flows and release scenarios from the F.E. Walter and Beltzville Reservoirs. The objective of this study was to collect water quality data throughout a portion of the Lehigh River watershed most influenced by Corps reservoir operations in anticipation of the future development of a water quality model.





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The Lehigh River Recreational Enhancement Study (2007) is a continuation of the overall intent of the Lehigh River Water Quality Monitoring Study (2001). The data collected in 2001 will be used to develop the water quality model.

The non-Federal sponsor is the Commonwealth of Pennsylvania.

Description

The Lehigh River Recreational Enhancement Study encompasses 45 miles of the Lehigh, its major tributaries, F.E. Walter Reservoir, and Beltzville Reservoir.

Model development is divided into two phases. Phase 1 of the model will focus on temperature and flow factors. Phase 2 will address low dissolved oxygen, sulfide, reduced iron and manganese, nutrients, and other parameters.

The model proposed for this study is CE-QUAL-W2 Version 3, which is a two-dimensional hydrodynamic and water quality model for simulating surface water systems, including rivers, lakes, reservoirs, and estuaries. This model has been successfully applied to over 200 different systems throughout the U.S. and abroad. The U.S. Army Corps of Engineers' Engineer Research and Development Center (ERDC) will develop the model in cooperation with the Philadelphia District.

The products from this study will include:

1. Monthly progress reports provided to the project partners and sponsor;
2. Model input and output data files;
3. CE-QUAL-W2 version 3 executable code, source code, and documentation; and
4. Final project report published as an ERDC technical report.

Project Status

In FY 07, \$75,000 in Federal funds and \$75,000 in non-Federal funds (Commonwealth of Pennsylvania) were received and will be used to complete Phase 1 (estimated completion Summer of 2008).

If additional Federal and non-Federal funds are received, the study will progress to Phase 2.

