

Susquehanna River Basin Commission Information Sheet

Cumulative Water Use and Availability Study



Why is SRBC assessing cumulative water use and availability throughout the Susquehanna basin?

The Susquehanna River Basin Commission's (SRBC's) Comprehensive Plan – first adopted in 1973 and most recently updated in 2008 – calls for the agency to manage water resources at the watershed level to assure long-term balance between healthy ecosystems and economic viability. Given that water supply for human uses can affect aquatic ecosystems if not returned to streams undiminished in quantity, it is important for SRBC to quantify the potential impacts of these consumptive water uses on the basin's water resources and aquatic life – not only individually but also cumulatively. This involves determining how much water is available for local, sustainable development while protecting ecosystems and other instream flow needs in the Susquehanna basin.

SRBC will continue to evaluate cumulative water use related to project applications. However, with the demand for water continuing to increase for domestic use, power production, natural gas development, and other purposes, SRBC recently launched a multi-year water use and availability study covering the entire Susquehanna basin and considering all types of water uses. This study will build on SRBC's previous water use assessment efforts, including the 1980s low flow management framework plans, the 1996 Susquehanna River Basin Water Management Reconnaissance Study, the 2008 Consumptive Use Mitigation Plan, and the volume of water use data SRBC has amassed over the past 40 years.

Specifically, SRBC will develop an approach to comprehensively evaluate the potential cumulative impact of consumptive water use within the Susquehanna basin. SRBC will compile existing and projected water use data, quantify consumptive water use for all sectors at a watershed scale, determine water availability indices for basin watersheds, and develop an assessment tool to automate the water budget/use assessment evaluation process.

The end products of this study will be a technical report and a water use and availability assessment tool for water managers and the public to use.

What are the major steps to this study and when will it be completed?

SRBC initiated the study effort in early 2013 and anticipates completing it in 2015. Throughout the study period, SRBC will provide information and updates on study progress on its web site at www.srbc.net/planning/cwuas.htm.

The four major steps in the study process will include:

1. **Quantifying consumptive water use for basin watersheds.** SRBC will compile a comprehensive, basin-wide Geographic Information System (GIS) water use data library for all water use sectors by integrating available water use data (including SRBC and member jurisdiction databases) and water use estimates to fill data gaps. SRBC considers certain water uses, including irrigation, natural gas development and out-of-basin diversions, to be 100 percent consumptive. A standardized method will be developed for calculating existing and projected consumptive water use at the project (regulatory) and watershed (planning) scales.
2. **Determining water availability for basin watersheds.** Through literature review, SRBC will identify various methods used regionally/nationally to determine water availability indices for water resources management applications. SRBC will select and evaluate preferred method(s) that can be applied

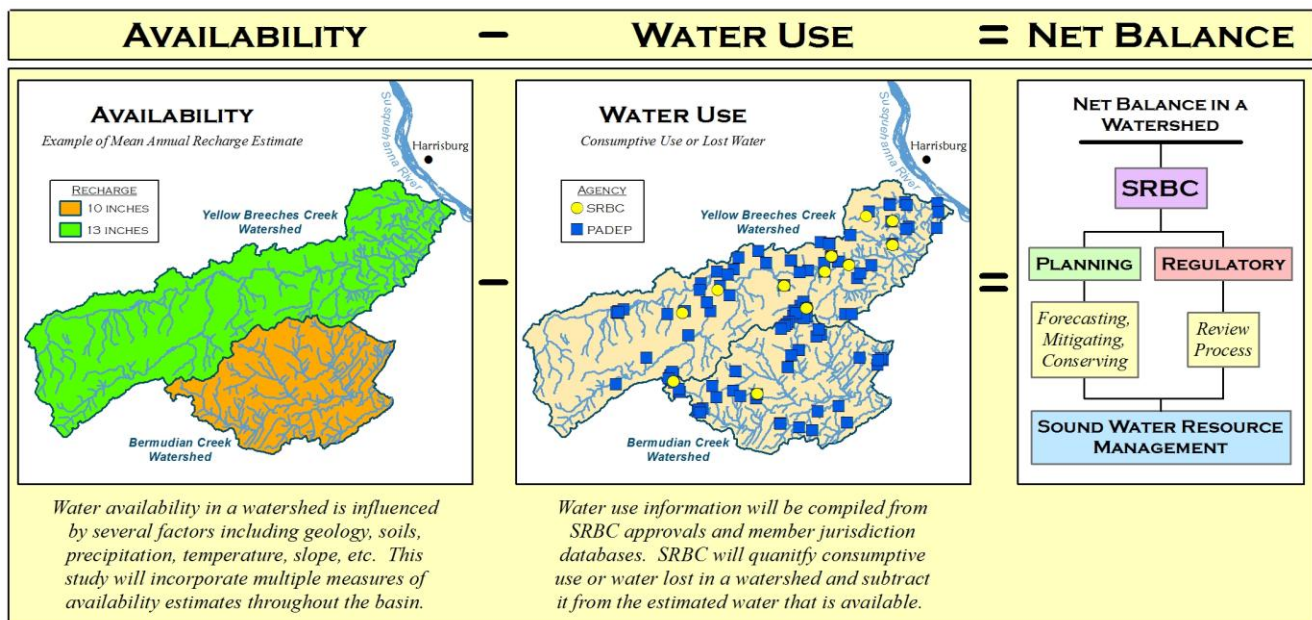
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uniformly across the basin to establish local sustainable limits for water use development. The preferred method(s) will be tested on pilot watersheds, validated, and applied to other basin watersheds. A completed GIS dataset will illustrate water availability for watersheds throughout the basin.

3. **Developing a GIS-based water use and availability assessment tool.** SRBC will design and develop a GIS-based tool that will automate the assessment of water availability versus cumulative consumptive water use at the project and watershed scales. This tool will use spatial analyses to simulate existing conditions and various modeled scenarios to help SRBC manage the basin's water resources.
4. **Documenting the study process and analysis results.** In addition to producing a technical report and user's manual for the assessment tool, the results of this study will establish sustainable limits for water use development and protection of aquatic ecosystems, and provide for evaluation of various mitigation/protection strategies including passby flows, mitigating releases and reducing consumptive uses.

For illustration purposes, the following conceptual formula and graphics generally depict how SRBC will assess water availability versus cumulative consumptive water use for basin watersheds:

$$\text{Availability} - \text{Water Use} = \text{Net Balance}$$



How will this study and assessment tool aid SRBC in its regulatory decision-making and planning, and enhance public awareness and understanding of the basin's water resources?

SRBC will use the tool that is developed during the study and the results of the study to evaluate existing, proposed, and projected water use against determined water availability indices at the project and watershed scales. SRBC will be able to more easily identify watersheds with existing or projected water use and availability conflicts and, where they occur, evaluate alternatives to mitigate individual and cumulative impacts of consumptive water use.

What is the schedule for this study?

- June 2013 – quantify consumptive water use for basin watersheds
- September 2013 – determine water availability for basin watersheds
- October 2014 – develop a GIS-based cumulative water use and availability tool
- December 2014 – evaluate protection, mitigation and enhancement measures
- February 2015 – prepare technical report and users' manual for assessment tool

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