Susquehanna River Basin Commission

SRBC

2012 Annual Report

Featuring SRBC Information Products

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EXECUTIVE DIRECTOR'S MESSAGE


Paul O. Swartz

Accurate, factual information is essential to making informed decisions, both for the Susquehanna River Basin Commission and others with a stake in the water resources of the Susquehanna River Basin. This annual report features information products available to the public from the Commission. It is our intention to take full advantage of our website to keep the public informed to the greatest extent possible of available water resource data and information.

The Commission has a wealth of water quality, biological, and habitat data available from the monitoring activities we conduct throughout the basin. These data are useful for a wide variety of interests, including the academic community, researchers, local watershed organizations, and many others.

Water quality data in areas of the basin undergoing natural gas development are of particular interest to the public. In 2010, the Commission established the Remote Water Quality Monitoring Network to monitor water quality in those areas and determine potential water quality impacts. This network may be the most extensive water quality monitoring instrumentation anywhere in the nation.

Other valuable information available from the Commission includes flood stage forecast maps in certain areas of the basin. These maps depict areas of select communities that will be inundated at different flood stages, enabling homeowners, businesses, and emergency responders to make appropriate decisions about whether to evacuate properties to safeguard life and property.

The public is increasingly interested in proposed water withdrawal and consumptive water use projects that require the approval of the Commission. Interested persons can access a variety of project information from the Water Resource Portal on the Commission's website.

Thanks for your interest in the activities of the Susquehanna River Basin Commission – and for taking the time to read our 2012 Annual Report.

STAFF AWARDS

SPOTLIGHT AWARDS

Aaron Henning
Aquatic Biologist

Matthew Elsasser
Environmental Technician

Dave Haklar
Environmental Technician

Andy Leakey
Environmental Technician

Chuck Frank
Web Application Developer

Kimberly Dagen
Environmental Scientist

ANNUAL EXCELLENCE AWARD


John W. Balay, P.H.
Planning and Operations

2012 COMMISSIONERS

Maryland: Dr. Robert M. Summers, Chair

Secretary
Maryland Department of the Environment

United States: Colonel Kent D. Savre, Vice Chair

Commander
North Atlantic Division
US Army Corps of Engineers

New York: James M. Tierney

Assistant Commissioner for Water Resources
New York State Department of Environmental Conservation

Pennsylvania: Michael L. Krancer, Chair

Secretary
Pennsylvania Department of Environmental Protection

COMMISSIONER ALTERNATES

Maryland

Jay G. Sakai

New York

Kenneth P. Lynch

Peter Freehafer

United States

Colonel J. Richard (Trey) Jordan, III

David J. Leach

Amy M. Guise

Pennsylvania

Kelly J. Heffner

Andrew C. Zemba

Randal D. (Duke) Adams

HERBERT M. SACHS AWARD

Lifetime Achievement in Watershed Management

Herbert M. Sachs
SRBC Alternate Commissioner, Maryland
(1988-1992 and 2007-2012)

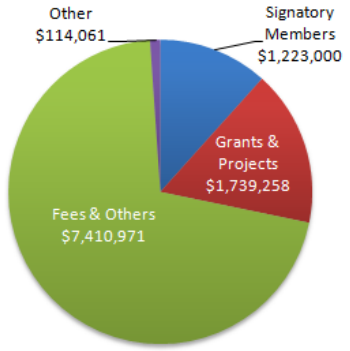
In honor of individuals who have devoted a lifetime of outstanding service to the cause of watershed management consistent with the principles and purposes set forth in the Susquehanna River Basin Compact, the Commission created the Herbert M. Sachs Award and honored its namesake in 2012.

Mr. Sachs played a critical role in creating and directing both the MD Department of Water Resources and the MD Department of Natural Resources. For 30 years, he served in positions at the MD Department of Planning and the MD Department of Water Resources as well as Director of the Water Resources Administration and Assistant Secretary at the MD Department of Natural Resources.

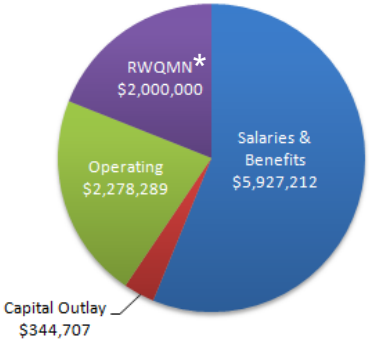
Mr. Sachs was a witness to and directly involved in the enactment of the Susquehanna River Basin Compact by the State of Maryland and the subsequent creation of the Susquehanna River Basin Commission.

He served as Executive Director of the Interstate Commission on the Potomac River Basin (1992-1997), supervising efforts related to the coordination of water supply and activities between Maryland, Virginia, West Virginia, Pennsylvania, and Washington, D.C.

FISCAL YEAR 2012 SUMMARY



Total Revenue $10,487,290



Total Expenditures & Designations $10,550,208

* Remote Water Quality Monitoring Network

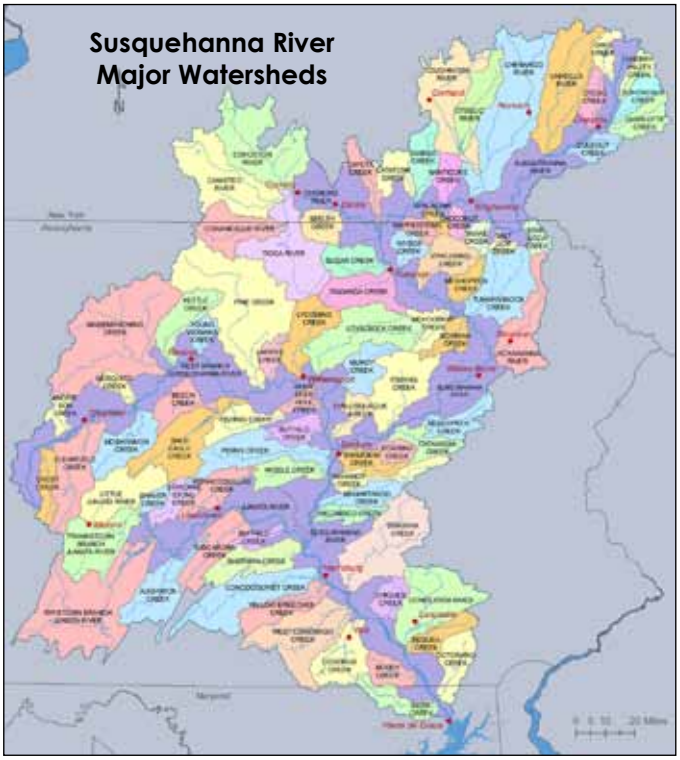
MAPS

▶ SRBC's Maps and Data Atlas include maps based on the latest Geographic Information Systems (GIS) data. GIS allows technicians to explore relationships between geographically-referenced information — natural features, social features, and man-made resources — which aids in decision-making.

BASINWIDE MAPS

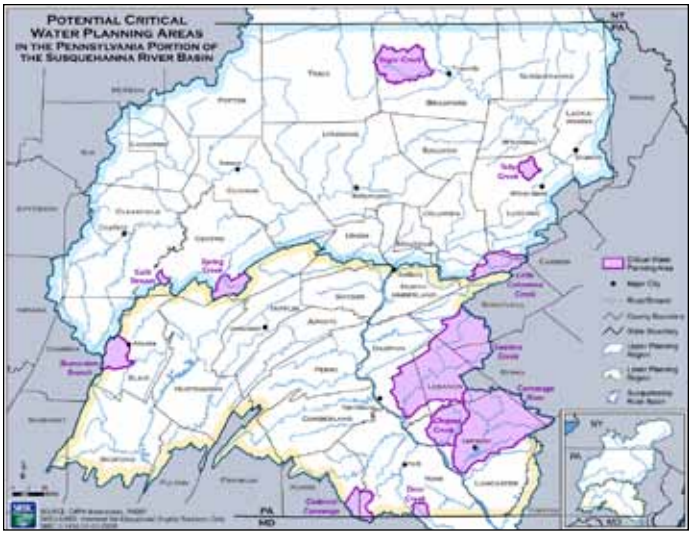
Twenty-three maps and associated GIS data are available for the entire Susquehanna River Basin. Maps include:

- River Basin Map
- Subbasin Map
- 30-Year Precipitation
- Physiographic Sections
- Land Use/ Land Cover
- Soils
- Geology
- Ecoregions
- Elevation
- Major Watersheds
- 10-Digit Watershed Boundary Dataset
- Counties
- Potentially Stressed Areas
- Water Trails
- Recreation
- Fish Consumption Advisories
- Natural Gas Shales Extent
- Toxic Release Inventory
- Flood Insurance
- Congressional Districts
- State Senatorial Districts
- State House Districts
- Abandoned Mine Drainage Impaired Streams



RIVER BASIN PROJECTS

SRBC projects occurring throughout the basin can be found in SRBC's Maps & Data Atlas. Examples include TMDL projects, various maps for the upper and lower region of the basin relating to Act 220 State Water Planning, and impaired waterways in selected counties.



Sample Project Map: Potential Critical Water Planning Areas in the Pennsylvania portion of the river basin.

SUBBASIN MAPS

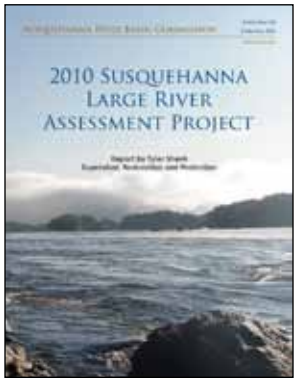
A wealth of information is available for each of the six major subbasins. You will find map packages specifically created to support non-profit organizations' efforts: maps illustrating subbasin monitoring results, small watershed studies, and remediation projects.

Sample Subbasin Map: Whitney Point Lake Environmental Restoration

TRENDS

▶ SRBC believes that long-term monitoring of the river basin's health is critical to accurately understanding the dynamics of large and complex river systems. SRBC monitors water quality, biological, and physical parameters of the river with an eye toward assessing the river as a large river network, as well as examining issues related to smaller watersheds.

LARGE RIVER MONITORING



The role of large river systems on industry, power generation, drinking water supply, recreation, and other uses makes monitoring of the Susquehanna River an important element of SRBC's work. For the past ten years, SRBC has applied and improved national protocols to monitor the mainstem Susquehanna River. Fish collection was recently added to the protocol and SRBC plans to develop protocols to properly assess the reservoirs in the lower reach of the river.

INTERSTATE STREAM MONITORING

The primary purpose of the Interstate Stream Monitoring program is to collect data that are not available from monitoring programs implemented by state agencies in New York, Pennsylvania, and Maryland. Since 1986, SRBC has collected water quality data, assessed biological conditions, and rated physical habitat for more than 50 streams that cross state boundaries in the Susquehanna River Basin.

SNAP

The Sediment and Nutrient Assessment Program (SNAP) provides a long-term database to track and better define nutrient and sediment loadings that the Susquehanna River contributes to the Chesapeake Bay. Twenty-three sites are now monitored and SRBC releases it findings annually to the Chesapeake Bay Program.

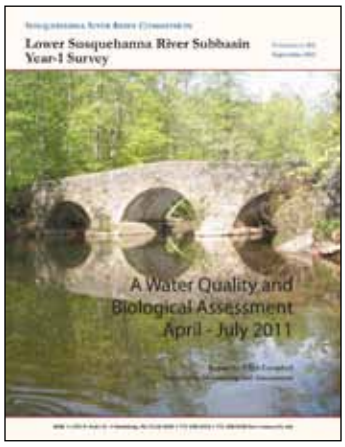
NEW: REPORT AND MONITORING VIDEOS

SRBC is bringing its monitoring results to life through a series of short videos viewable on YouTube. Researchers highlight methodologies and key findings of their studies. Check out these videos at http://www.youtube.com/SusqRiverBasinComm.

STATE OF THE SUSQUEHANNA

In 2010, SRBC launched the State of the Susquehanna, a periodic snapshot of river data and trends for seven overarching water resource indicators: (1) Water Use and Development, (2) Floods and Droughts, (3) Stormwater, (4) Mine Drainage, (5) Sediment and Nutrients, (6) Human Health and Drinking Water Protection, and (7) Habitat and Aquatic Resources. Criteria have been developed for each water resource indicator to assess changing conditions and trends over time.

SUBBASIN SURVEYS



The Subbasin Survey Program consists of two-year assessments in each of the six subbasins on a rotating schedule. Year-1 surveys assess approximately 100 stream sites in the selected subbasin. Year-2 surveys focus on a particular region within a subbasin, and typically consist of more intensive, repeated sampling at a smaller number of locations.

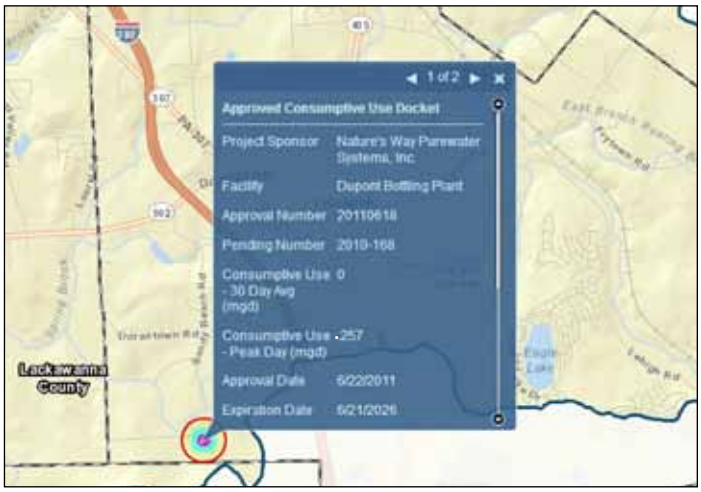
MANAGING WATER

▶ SRBC regulates groundwater and surface water withdrawals and consumptive water uses (water lost to the system) in the Susquehanna River Basin. In an effort to make its regulatory process transparent and up-to-date, SRBC has improved its online resources — the public can find projects and their status easily through a variety of search options. Opportunities for public input on pending applications are clearly outlined in SRBC's Public Participation Center.

WATER RESOURCE PORTAL

SRBC's Water Resource Portal was set up to enhance the public's access to information on projects regulated by SRBC. Through this portal, users can:

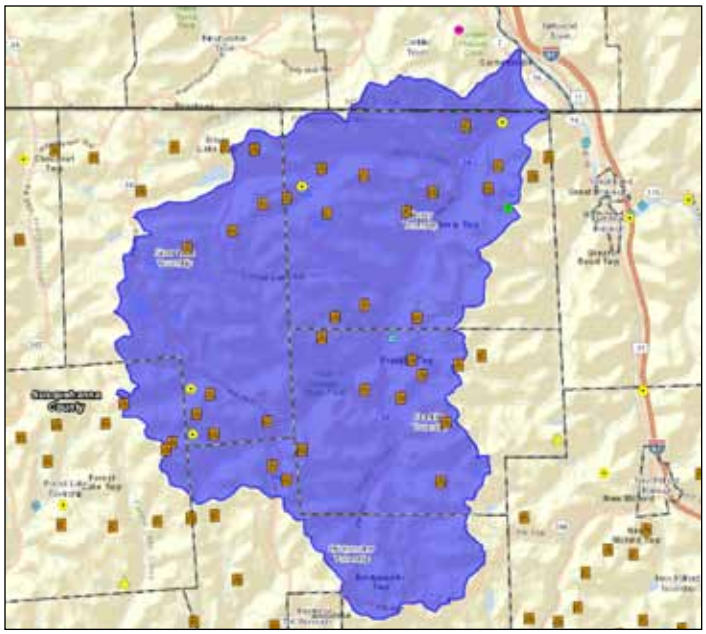
- Find the status of pending and approved projects;
- View and download certain pending applications;
- View and download all SRBC approvals;
- Find the list of approved water sources for the natural gas industry, by project sponsor; and
- Sign up to receive electronic notices of pending projects.



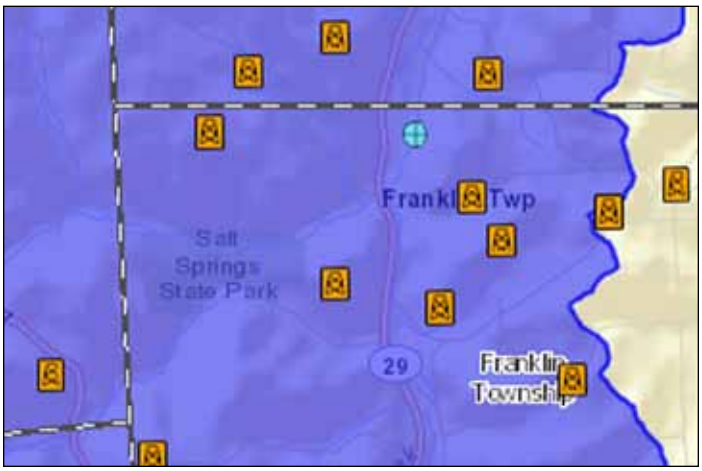
Searching the Water Resource Portal by Project Sponsor provides project details, a map of the project (as illustrated above for a consumptive use approval), and access to the application and project approval, which often includes Special Conditions.

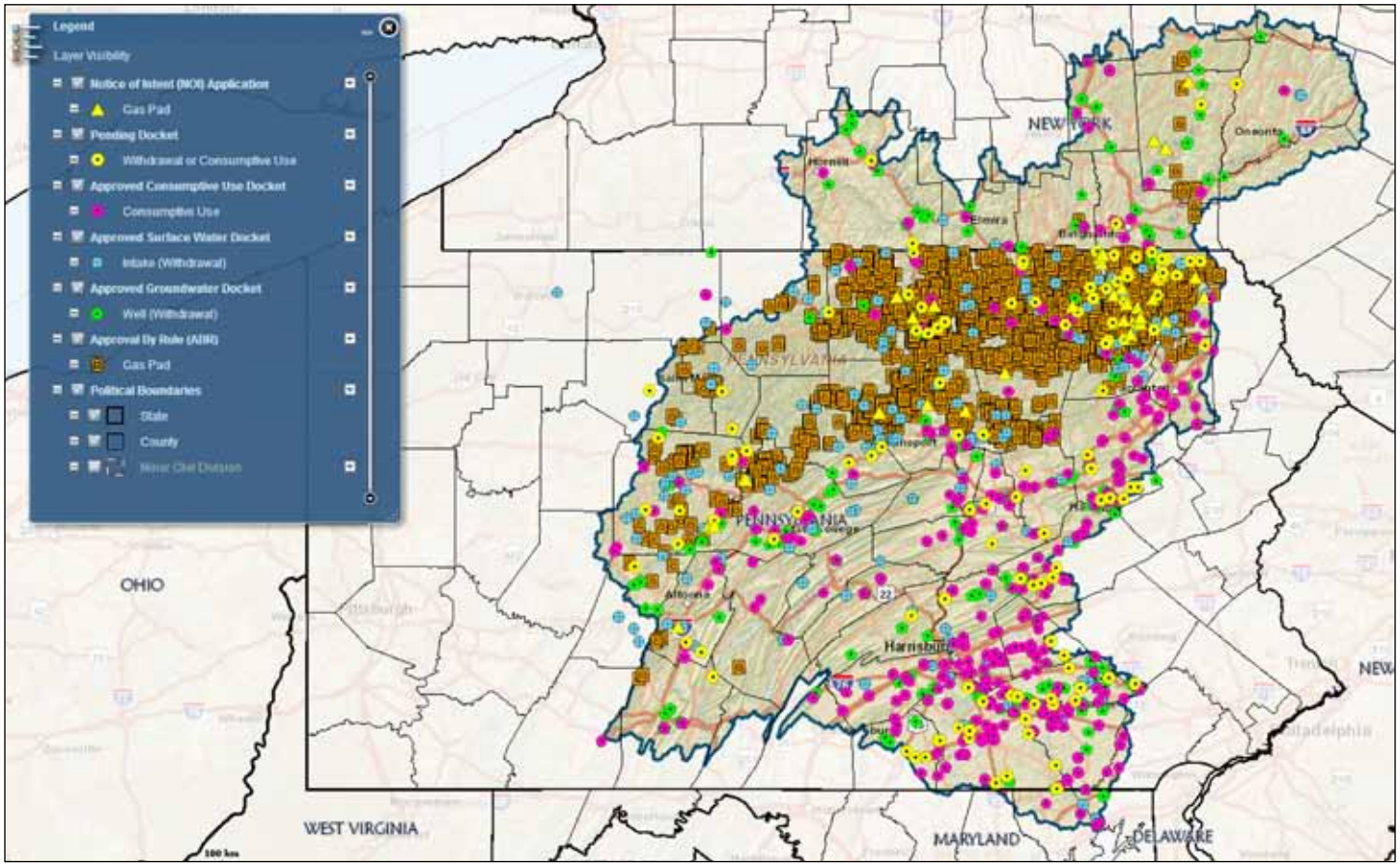
STREAMLINED APPLICATION PROCESS

Project sponsors now submit online applications for withdrawals, consumptive water use, and Approval By Rule requests. SRBC has also updated its Online Reporting Website to accommodate daily consumptive use reporting by source (prior regulations required reporting of water use by approved drilling pad).



Searching the Upper Susquehanna Subbasin and Snake Creek Watershed in the Water Resource Portal generated a map (ABOVE) showing the status of water withdrawal projects, natural gas pad sites (Approval by Rule), and water withdrawal approvals (surface or groundwater). (BELOW) - Zoomed-in view of eastern region of Snake Creek shows approved gas pads (orange icons) and approved surface water withdrawal (blue icon).





Sample project location map in SRBC's Water Resource Portal.

SPEAKING UP

A new online Public Participation Center informs the public of upcoming SRBC hearings, applications scheduled for action, and rules of conduct for public hearings and Commission meetings.

If you have comments on a particular application, you can provide input either orally at a scheduled public hearing or submit written testimony by a particular date.

Woman testifies at SRBC public hearing in February 2012.

You can submit written comments on selected applications prior to the hearing date by simply clicking on the "Add Comment" link on each application. Deadlines for submitting public comments are clearly noted in red.

If you have comments to make to SRBC (not related to a specific regulatory activity or business meeting), a form is available online for submitting questions or opinions of a general nature.

SMALL PUBLIC WATER SUPPLIERS OFFERED GUIDANCE

Smaller municipal systems that need to either renew their expiring SRBC groundwater withdrawal approvals or apply for withdrawals from new groundwater sources got an extra dose of assistance in 2012.

In fall 2012, SRBC started the Public Water Supply Assistance Program (PWSAP) to assist certain small public water supply systems in meeting SRBC regulatory requirements. In addition to targeted system-specific assistance, SRBC is also providing general outreach and education on SRBC's regulatory requirements and training on aquifer testing plan preparation to public water supply systems.

The program is intended to make the application process more efficient for project sponsors. Participation is voluntary and free of charge to eligible systems. The program is made possible by a grant from the Pa. Department of Environmental Protection (PADEP).

▶ Real-time data is information that is delivered immediately after it is collected. SRBC uses real-time data collection technology in two important ways: 1) to track and report existing water quality conditions in sensitive watersheds where natural gas production is active, and 2) to show the extent of flooding around National Weather Service river forecast points based on a selected flood stage.

REALTIME DATA

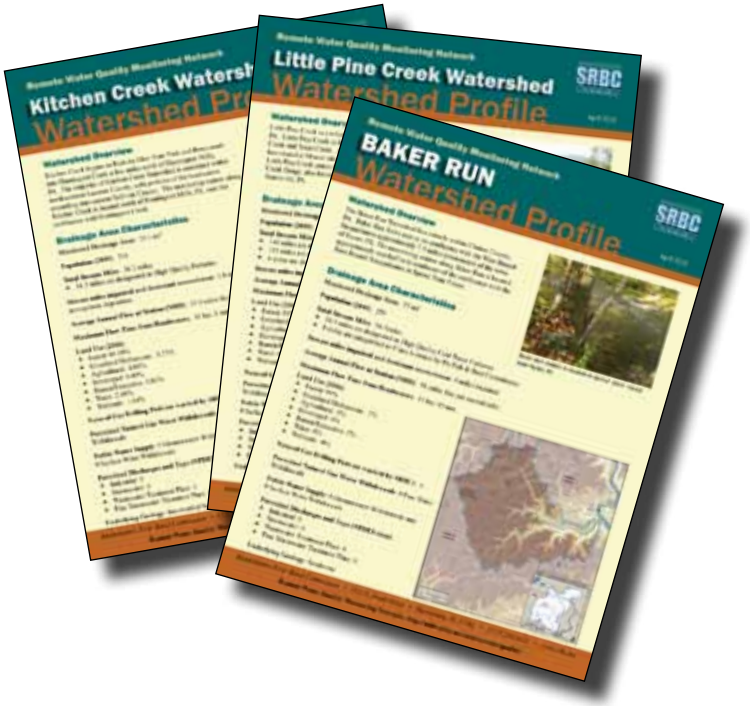
REMOTE WATER QUALITY MONITORING NETWORK

Public concern over the natural gas industry's impact on local water supplies, high quality streams, and coldwater fisheries led SRBC and its partnering agencies to establish the Remote Water Quality Monitoring Network (RWQMN) in 2010. The network consists of 58 monitoring stations that continuously collect water quality data in selected, sensitive watersheds in New York, Pennsylvania, and Maryland.

Every two to four hours, data about a stream's water quality (temperature, pH, conductance, dissolved oxygen, turbidity, and water depth) is transmitted to SRBC. If key parameters surpass normal levels, the station triggers an alarm to prompt an investigation.

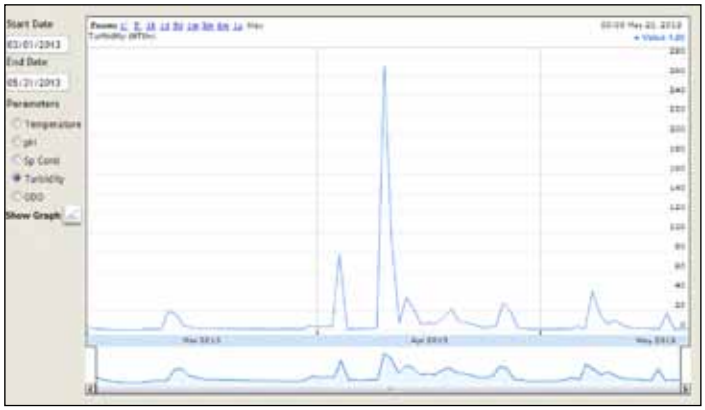
The data-rich website allows the public and regulatory agencies to view, download, graph, and determine basic statistics from the raw data. General project information and maps are also found on the website.

Watershed profiles are now available for all 58 RWQMN monitoring stations.



Water quality information is easy to access at SRBC's RWQMN website.

This Little Pine Creek watershed map shows the location of the RWQMN station and approved gas pads. State parks, forests, and gamelands can also be viewed.



Statistics on Little Pine Creek's water quality parameters can be graphed for selected time periods. This graph shows turbidity over a three-month period of time.

STREAM GAGES - CRITICAL TOOL IN RIVER BASIN MANAGEMENT

Reliable streamflow information is needed for many purposes: flood forecasts, drinking water management, power production, interstate transfers of water supplies, recreation, reservoir management, and ecosystem health, among others.

SRBC works in partnership with the U.S. Geological Survey to collect and analyze streamflow information at more than 140 stream gages throughout the Susquehanna River Basin. Yet many of these gages are threatened by federal funding cuts. SRBC is committed to ensuring the continued operation of the river basin's stream gages.

"Stream gages are the 'hidden infrastructure' that water resource managers rely upon extensively. If they are no longer operated and maintained, the result is that public health, safety, and welfare is likewise jeopardized."

Paul Swartz, SRBC Executive Director

FLOOD FORECAST TOOLS

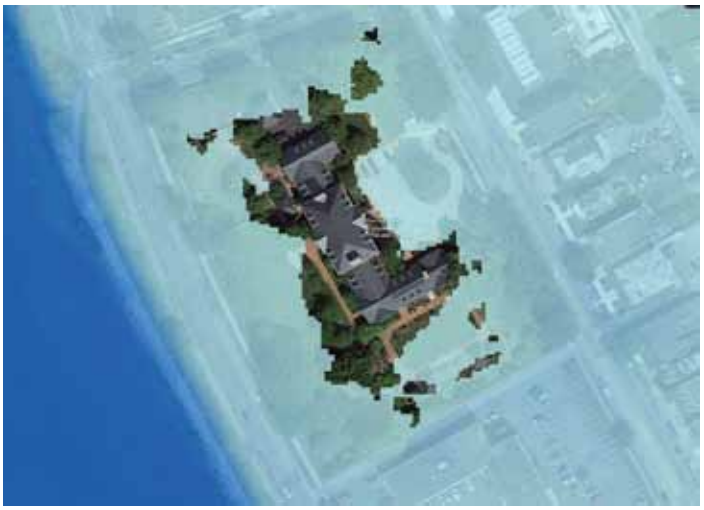
Stream and rain gages provide real-time data for predicting when and where flooding will occur. Since 1985, the multi-agency Susquehanna Flood Forecast and Warning System (SFFWS)has provided flood forecasts that have saved lives and reduced flood-related damage in the Susquehanna basin by tens of millions of dollars each year.

As coordinator of the SFFWS, SRBC has been leading the effort to provide emergency managers and the general public flood stage forecast maps (see map at right). These maps predict where flood waters will rise based on a flood forecast from the National Weather Service.

The Susquehanna Inundation Map Viewer (SIMV) is a web-based tool that allows users to select and zoom into an area of interest to view the extent of flooding for a selected flood stage. (See example below). The website offers a guided tour explaining the tool's features and functionality.

Currently, flood inundation maps are available for areas near 19 gage stations.

Work was completed in 2012 to generate the Harrisburg Flood Inundation Map that covers a 20-mile stretch along the river. SRBC secured funding in cooperation with the U.S. Army Corps of Engineers' Silver Jackets Program, a federal program that brings together multiple agencies to address risk management issues.

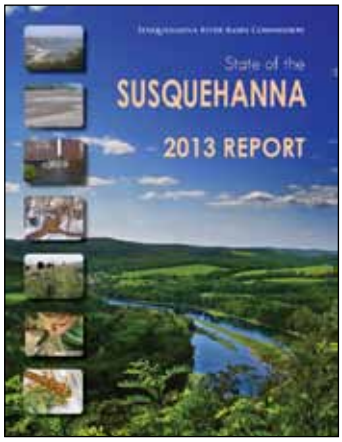


(LEFT) SIMV shows the extent of flooding around the Governor's Mansion along Front Street in Harrisburg at a river stage of 23 feet. (RIGHT) SIMV shows flooding around the same area when the river is at 27 feet.

2012 HIGHLIGHTS

STATE OF THE SUSQUEHANNA

SRBC released the second State of the Susquehanna report: State of the Susquehanna — 2013 Report, a snapshot of river data and trends for seven overarching water resource indicators.

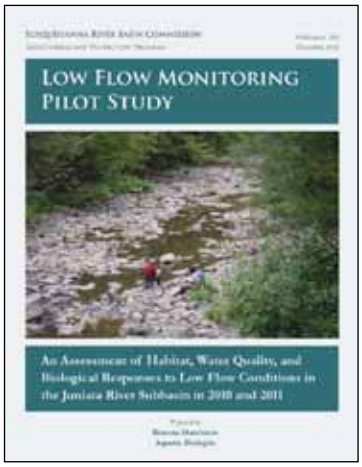


LOW FLOW PROTECTION POLICY ADOPTED

SRBC adopted the Low Flow Protection Policy (LFPP) and Technical Guidance in December 2012. This new policy provides implementation guidance to the Commission staff, project sponsors, and the public on the criteria, methodology, and process used in its review of withdrawal applications to evaluate potential adverse impact to streams during low flow conditions.

The LFPP is grounded in contemporary instream flow science and provides for seasonal flow recommendations based on the Susquehanna River Basin ecosystem. The LFPP will be used in concert with other tools to establish limitations or conditions such as passby flow or conservation release requirements on withdrawal approvals issued by SRBC.

LOW FLOW MONITORING PROGRAM



As the first step towards developing and implementing a basin-wide low flow monitoring plan, SRBC staff conducted a pilot study in the Juniata River Subbasin in 2010 and 2011. The Low Flow Monitoring Pilot Study provides valuable information to the scientific community as a whole in light of the fact that managing for ecological flows is still a relatively new concept in environmental science.

OTHER 2012 HIGHLIGHTS...

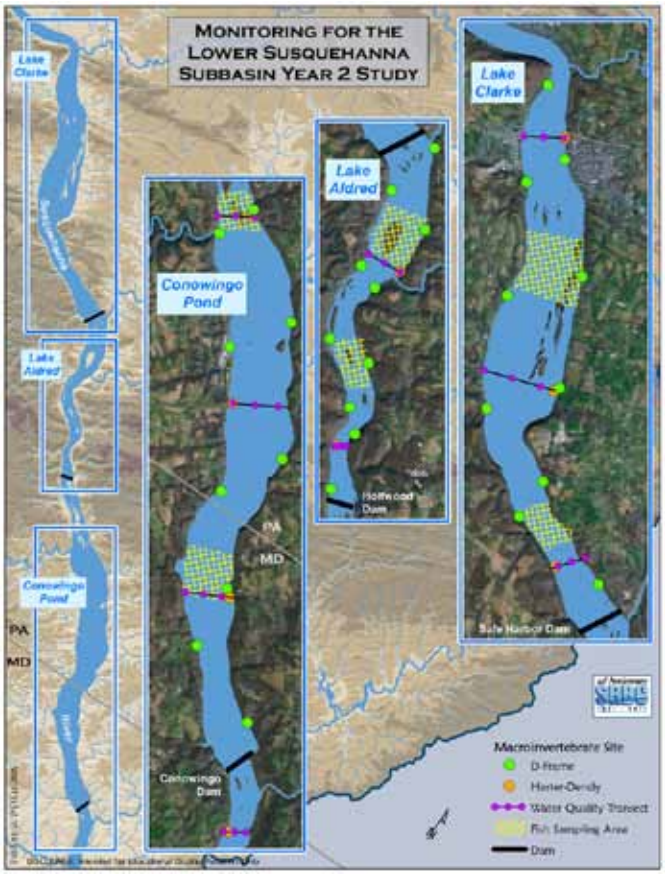
- RESTORATION SUCCESS - Over nine species of fish, including native brook and wild brown trout, are now present in previously degraded reaches of Bear Run as a result of the Bear Run Mine Drainage Restoration Project in Indiana County.
- MONITORING - SRBC staff made roughly 2,000 station visits resulting in 35,000 chemical, biological, and habitat analyses and the collection and identification of more than 90,000 fish.
- CONDUCTING BUSINESS - SRBC instituted security measures and rules of conduct for quarterly business meetings as well as a new public hearing process for business meeting-related matters, affording additional opportunity for public input and more time for commissioner consideration of comment.
- NEW HEADQUARTERS - SRBC began construction of a new office location in Harrisburg, Pa.

FIRST FULL BIOLOGICAL AND WATER QUALITY ASSESSMENT OF THE THREE LOWER SUSQUEHANNA RESERVOIRS

SRBC began a water quality and biological monitoring study in the lower reservoirs of the Susquehanna River, the first focused monitoring effort by SRBC on this portion of the river. The lower reservoirs are located in the final 45 miles of the Susquehanna River before the river empties into the Chesapeake Bay. Three large hydroelectric dam facilities within this reach of river create the three main reservoirs.

The project has the following objectives:

1. to seasonally assess water quality and document differences across the river along horizontal transects as well as assess any vertical stratification in the deepest sections of the river. Included in the assessment was *Chlorophyll a* analysis, which is an indicator of algal biomass that could indicate potential problem areas for water suppliers;
2. to characterize macroinvertebrate communities;
3. to document fish communities throughout each reservoir as well as below Conowingo Dam; and
4. to generally assess habitat and reservoir conditions and explore numerous protocols and methods to best do so in the long term.



SRBC launched the first focused monitoring effort by SRBC on the lower 45 miles of the Susquehanna River, home to three hydroelectric dam facilities: Conowingo Dam, Holtwood Dam, and Safe Harbor Dam.

COMING SOON

CUMULATIVE WATER USE AND AVAILABILITY STUDY LAUNCHED

SRBC continually evaluates 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 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.

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.

WATER QUALITY PORTAL

A new Water Quality Portal got underway in 2012. The portal will provide the public access to water quality through SRBC's website, similar to the existing Water Resources Portal, which includes information on water withdrawal applications and projects.

With the new Water Quality Portal, users will be able to view data by subbasin, county, watershed, and other parameters. Users will be able to verify what data may exist for any particular monitoring station and the total number of samples collected. Types of data in the portal will include chemistry, macroinvertebrates, fish, and habitat. The public will be able to view data in map or table formats and download data as well.

NY • PA • MD • USA

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