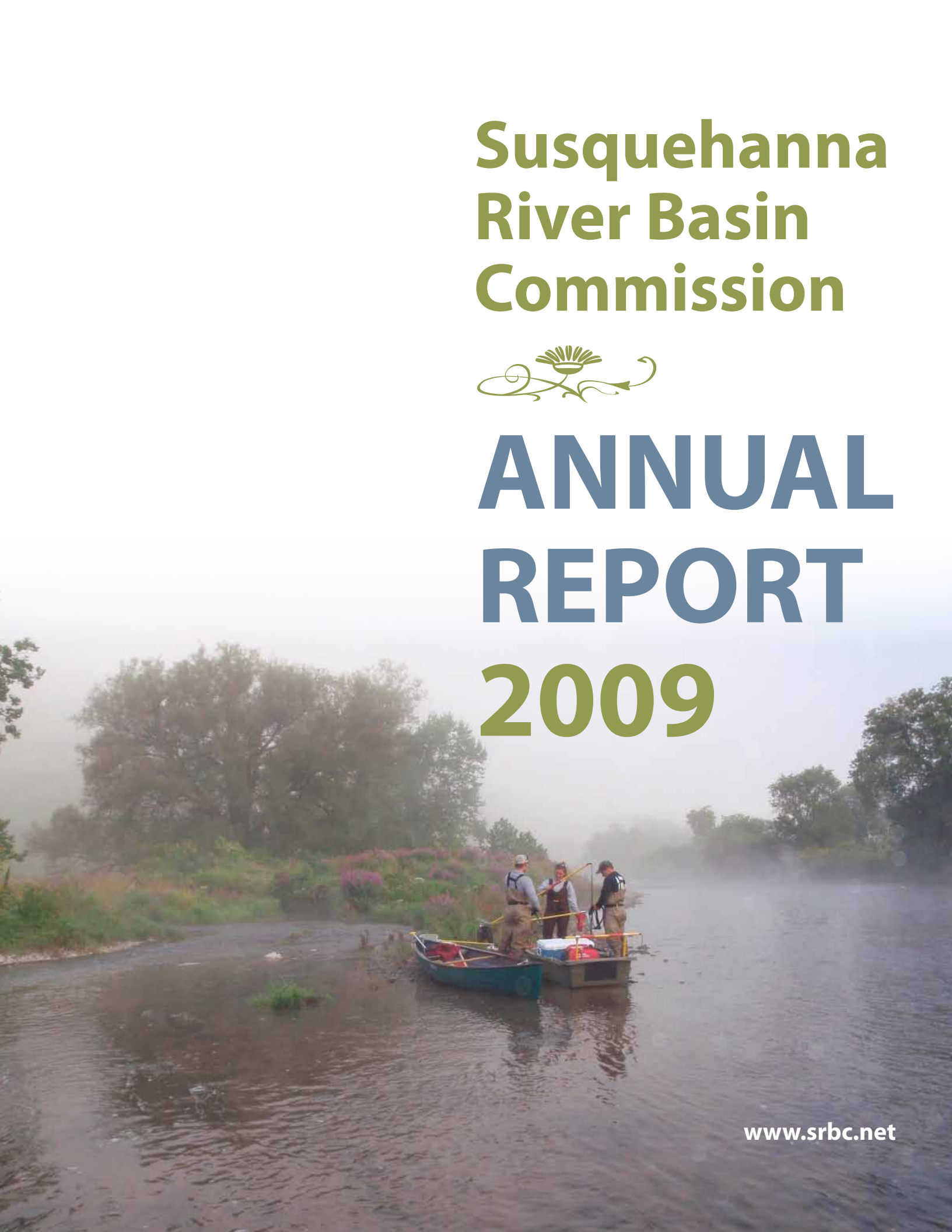
Susquehanna River Basin Commission

ANNUAL REPORT 2009



www.srbc.net

Executive Director's Message

Paul O. Swartz

2009 was marked by significant challenges and rewards.

One of the greatest rewards came when federal funding for the commission, as well as for the other Mid-Atlantic river basin commissions, was restored after an 11-year drought. Thanks to all the Members of Congress from the basin who provided support for this appropriation, and especially to Pennsylvania Congressman Tim Holden, who championed the request in the House of Representatives.

A significant activity for the Commission in 2009 was management of the natural gas boom in the Marcellus shale. While challenging, it made us an even better agency, as we worked to balance the promise of economic prosperity with environmental protection and the protection of public health and safety.

Throughout the year, whether we were dealing with the regulation of natural gas, monitoring water quality, undertaking low flow studies, producing reports, providing administrative services or undertaking other important functions, we never sacrificed our values – quality, professionalism and teamwork. We strive to uphold them at all times.

And as you can see from this page, we value and recognize excellence. Excellence in staff directly equates to excellent service to the public.

In this report, we highlight six major programmatic areas: Water Supply, Water Quality, Flooding, Ecosystems, Chesapeake Bay, and Coordination, Cooperation and Public Information. These six areas are what we call our Priority Management Areas. We first established them as part of our updated Comprehensive Plan – adopted in December 2008 – and then made them the foundation of our annual Water Resources Program.

In closing, I draw your attention to the photo of the Commission's headquarters and the flags of our four member jurisdictions. They distinguish our building along the Susquehanna River and serve to inform friends, neighbors and passers-by of the unique partnership we comprise and that has faithfully served the citizens of the Susquehanna River Basin for nearly forty years.

2009 SRBC Staff Awards

ANNUAL EXCELLENCE AWARD

Michael G. Brownell
Chief, Water Resources Management Division

QUARTERLY SPOTLIGHT AWARD

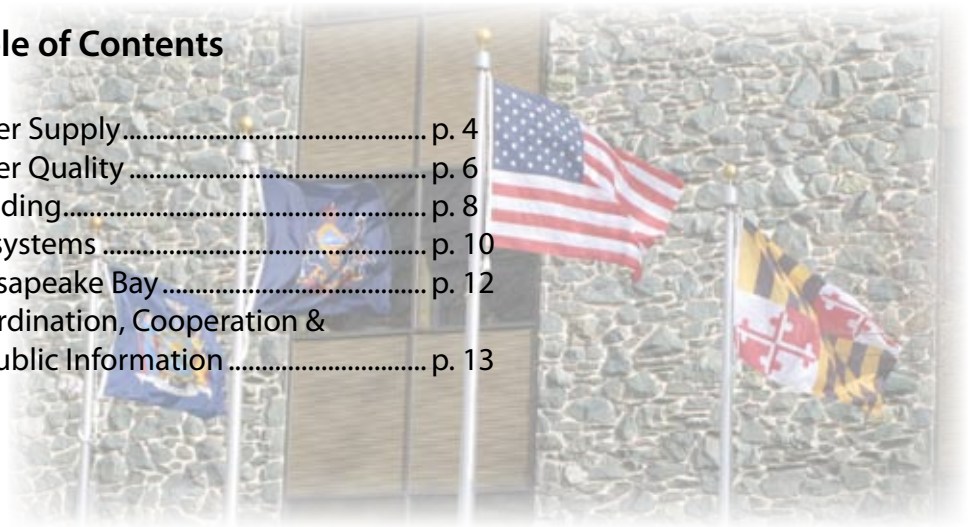
1st Quarter
Susan L. Buda
Aquatic Biologist

2nd Quarter
Wade J. Cope
Hydrologist

3rd Quarter
Hilary D. Hollier
Administrative Specialist

4th Quarter
Jason Zhang, Ph.D.
Hydrologist

Table of Contents



The Commissioners 2009

United States: Colonel Peter A. DeLuca, Chair

Commander & Division Engineer
North Atlantic Division, U.S. Army Corps of Engineers

Alternate: Colonel David D. Anderson, Baltimore District

Advisor:
Lloyd C. Caldwell
Advisor:
Amy M. Guise

New York: James M. Tierney, Vice Chair

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

Alternate: Kenneth P. Lynch

2nd Alternate:
Peter Freehafer

Pennsylvania: John Hanger

Secretary
Pennsylvania Department of Environmental Protection

Alternate: John T. Hines

2nd Alternate:
Susan K. Weaver
3rd Alternate:
Cathleen Curren Myers
4th Alternate:
Andrew Zemba

Maryland: Dr. Robert M. Summers

Deputy Secretary
Maryland Department of the Environment

Alternate: Herbert M. Sachs

Commission Staff

OFFICERS

Paul O. Swartz
Executive Director

Thomas W. Beauduy
Deputy Director & Counsel

Duane A. Friends
Chief Administrative Officer

Stephanie L. Richardson
Secretary to the Commission

Susan S. Obleski
Director of Communications

Brydon H. Lidle, III, *Section Chief, Information Technology & GIS*

Amy E. Myers
Human Resources Manager

Michael G. Brownell
Chief, Water Resources Management Division

Paula B. Ballaron, P.G., *Director, Regulatory Program, Water Resources Management Division*

Andrew D. Dehoff, P.E., *Director, Planning and Operations, Water Resources Management Division*

Eric R. Roof, *Director, Compliance Program, Water Resources Management Division*

David W. Heicher, *Chief, Watershed Assessment and Protection Division*

Andrew J. Gavin, *Section Chief, Restoration & Protection, Watershed Assessment and Protection Division*

Jennifer L.R. Hoffman, *Section Chief, Monitoring & Assessment, Watershed Assessment and Protection Division*

For a full staff listing, refer to the online staff directory at www.srbc.net.

water supply

Natural Gas Development

Comprehensive Plan Desired Result

Water Supply:
To meet immediate and future water needs of the people of the basin for domestic, municipal, commercial, agricultural and industrial water supply and recreational activities, in order to maintain sustainable economic viability, protect instream uses, and ensure ecological diversity through regulation and planning.

During 2009, SRBC received more than 600 applications from the natural gas industry to withdraw water from either surface waters or public water supply systems located throughout the Marcellus and Utica shale regions of New York and Pennsylvania. In order to effectively address this increasing demand for water by the natural gas industry, SRBC instituted a number of regulatory changes that allowed staff to more efficiently track all water activity associated with drilling and prioritize in-depth technical reviews.

Key changes in SRBC's regulations included:

- Instituting a simplified Approval-by-Rule process for all requests for consumptive water use by the natural gas industry. The expedited Approval-by-Rule process is used by companies interested in using a source of water that has already been approved for use (e.g., a public water supply) or a source that is of lesser quality (e.g., wastewater discharge, mine water).
- Regulating projects on a drilling-pad basis, which allows SRBC to track all water activity associated with a drilling pad.
- Requiring project sponsors to certify compliance with state and/or federal laws for the treatment and disposal of flowback fluids or produced brines.
- Limiting SRBC's approval to five years versus the standard approval of 15 years for other types of projects.
- Allowing for source sharing; natural gas drillers that move from site to site may use water from any SRBC-approved water source at any of their approved drilling pads in the Susquehanna basin.

In 2009, most natural gas companies complied with SRBC's regulations; however, violations by three natural gas companies resulted in settlement agreements with SRBC. One gas company failed to get Commission approval prior to targeting the Marcellus shale unit of an existing well.

Drilling wells for natural gas development in the Marcellus and Utica shale formations in the Susquehanna River Basin involves a process known as "hydraulic fracturing."

The process requires large volumes of water mixed with sand and chemicals that are pumped into the shale under high pressure to shatter the formation facilitating release of the gas. Approximately 15 percent of the fluids flow back to the surface to be reused in another well or to be treated and disposed of according to state regulations; the rest remains deep underground.

Such water use is considered "consumptively" used because it is withdrawn from the Susquehanna River Basin but not returned to the basin.

For more information on natural gas development, see www.srbc.net/programs/projreviewmarcellus.htm

2009 Activity
Natural Gas Development in the Susquehanna River Basin

Number of water withdrawal applications (dockets) to SRBC by natural gas industry: 613 (427 applications approved and 186 pending (as of 12/17/09). By comparison, 82 applications were approved by SRBC in 2008.

Total water withdrawn: 198 million gallons of water (48 percent from public water supplies and 52 percent from surface waters).

SRBC places protective conditions in its withdrawal approvals — known as passby flows — a prescribed quantity of stream flow that must be allowed to pass a specific point downstream from a water supply intake at any time a withdrawal is occurring. The intent of passby flow requirements is to protect streams during low flow conditions. For certain streams, SRBC oversees an aquatic resource survey to assess the condition of the aquatic community within the stream ecosystem.

Morrison Cove Water Resources Availability Study

During 2009, SRBC held a stakeholders' meeting, collected more than six months of continuous flow data at 15 stations, and gauged stream flow at more than 60 locations on streams during a period of low base flow. SRBC also produced a water table map based on measured groundwater levels in more than 200 wells during a period of low base flow.

SRBC is studying the watersheds within Morrison Cove to assess the area's water resource availability, challenges and potential conflicts. The Cove covers portions of Bedford and Blair counties and includes the Roaring Spring community, which was identified by SRBC as one of eight potentially stressed water resource areas in the Susquehanna River Basin.

Problems identified include reduced surface water and groundwater quality, water shortages during droughts in 2001 and 2002 and known conflicts from increasing water demand from industrial, commercial and residential growth. With funding from the Pennsylvania Department of Environmental Protection, SRBC initiated the two-year Morrison Cove Water Resources Study in early 2009.

The purposes of the study are to quantify the amount of groundwater available in the Morrison Cove area, identify which areas have larger or smaller groundwater reserves, determine the impact on water resources from increased demands and provide recommendations for managing the resources.

2009
Other Water Supply Activities

- Implemented program to conduct Aquatic Resource Surveys at proposed water withdrawal sites.
- Initiated review of current regulations regarding water conservation for water use projects.
- Completed identifying future baseline conditions for consumptive use mitigation and modeled and executed alternative water release options.
- Conducted an internal review of the basinwide Drought Coordination Plan to determine if updates are needed.

water quality

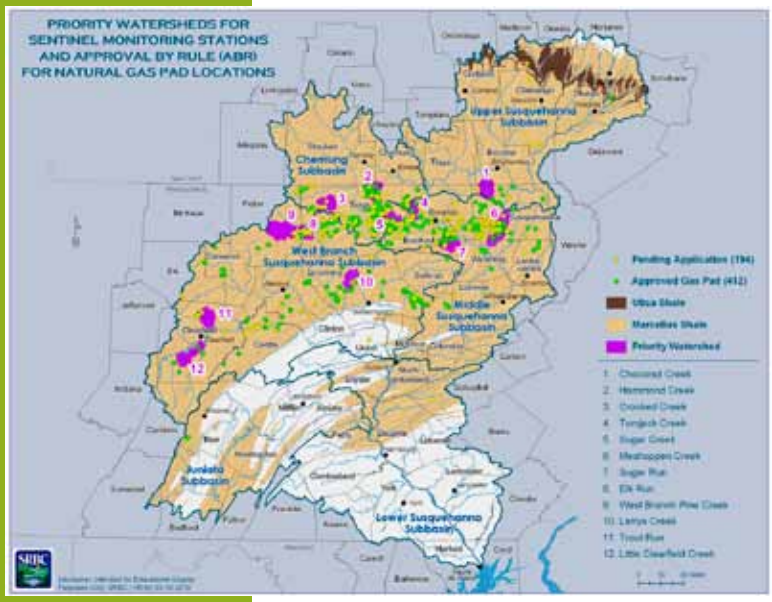
Remote Water Quality Monitoring Network

Comprehensive Plan Desired Result

Water Quality: To support the existing and designated uses of all water bodies by achieving water quality that meets or exceeds standards.

The end of 2009 saw the launch of a state-of-the-art monitoring network that will continuously measure and report water quality conditions of smaller rivers and streams located in northern tier Pennsylvania and southern tier New York. SRBC will receive the data collected by the network and will make it available to other resource agencies and the public through its web site. The data will help agency officials track existing water quality conditions and any changes in them on an ongoing, real-time basis.

SRBC will initially set up 30 water quality monitoring stations in regions where drilling in the Marcellus shale is most active, as well as other locations where no drilling activities are planned so SRBC can collect control-data. The monitoring network will provide constant data collection with instruments sensitive enough to detect subtle changes in water quality on a frequency that will allow background conditions and any changes to them to be documented throughout the year.



Each of the monitoring stations will be equipped with water quality sensors and a transmitter to continuously monitor and report water temperature, pH, dissolved oxygen, conductance (ability to conduct electricity) and turbidity (water clarity). The water depth also will be recorded to establish a relationship with stream flows. The monitoring of conductance is key to detecting impacts associated with natural gas activities if they occur; this constituent in water produced by the natural gas industry is generally 200 times greater than normally measured in streams in the Susquehanna River Basin, allowing it to be a leading indicator.

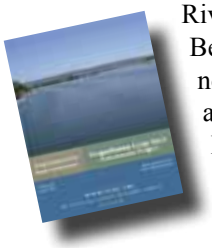
The monitoring network will provide early warnings and information to environmental protection officials and local communities.

In response to SRBC's public request for financial support and involvement from both the public and private sectors, East Resources, Inc., a natural gas company based in Warrendale, Pennsylvania, contributed $750,000 to SRBC for the water quality monitoring network. *Photo (l to r): Scott Blauvelt, General Manager and Terrence Pegula, President and CEO, East Resources; Paul Swartz, SRBC Executive Director.*

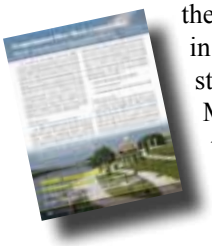
River Monitoring Results

In 2009, SRBC announced findings from four separate river monitoring programs providing biological and water quality data used to assess streams and rivers and identify changes in stream health over time.

Susquehanna Large River Assessment Project (publication #265) is an assessment of the mainstem Susquehanna River and a portion of the West Branch Susquehanna River. SRBC staff collected data at 17 stations between Great Bend, N.Y., and Marietta, Pa. For biological health, SRBC found nonimpaired conditions at two stations, slightly impaired conditions at ten stations, and moderately impaired conditions at five stations. For water quality conditions, only 6.9 percent of the values exceeded their respective limits, indicating fairly good water quality in the Susquehanna River.



Middle Susquehanna Subbasin: A Water Quality and Biological Assessment, June – October 2008 (publication #263) is an assessment of specific streams within the middle portion of the river basin, which includes 3,700 square miles in northeast Pennsylvania from Ulster to Sunbury. The report identifies stream impairments and makes comparisons with past surveys of the Middle Susquehanna Subbasin. The results of this report were similar to those found in the 2001 survey with the majority of streams (74 percent) having nonimpaired or slightly impaired conditions. Of the moderately and severely impaired stream sites, most were impacted by abandoned mine drainage or urban land uses.



Upper Susquehanna Subbasin Small Watershed Study: A Water Quality and Biological Assessment of the Watersheds Surrounding Whitney Point Lake, Broome and Cortland Counties, N.Y. (publication #264) is an overview of critical, baseline monitoring that was conducted to help evaluate the implementation of a large scale restoration project on Whitney Point Lake. The project involves water releases from the lake to augment low flow conditions downstream of the lake. The supplemental flows are expected to reduce stress on the river ecosystems, benefiting fish and macroinvertebrates. At least five years of additional project monitoring will be performed.

Assessment of Interstate Streams in the Susquehanna River Basin, July 1, 2007 – December 31, 2008 (publication #266) is a web-based report that includes interactive maps providing detailed water quality and biological data on streams that cross state lines. This interstate stream monitoring began in 1986 to collect data that were not available from monitoring programs in New York, Pennsylvania or Maryland. SRBC tracks 53 crossing points on 48 streams that cross state lines. In NY-PA streams, iron and aluminum most frequently exceeded water quality standards for the calendar year 2008 report. In PA-MD streams, nutrients continue to be the biggest concern. Biological and habitat health were also evaluated at 49 sites in 2008.

2009

Other Water Quality Activities

- Implemented protocols for invasive species within SRBC core water quality monitoring programs.
- Completed 4 Total Maximum Daily Loads (TMDLs), continued working on 3 TMDLs, and initiated 10 new TMDLs.
- Coordinated with Trout Unlimited, PA DEP, Clinton County Conservation District, and Western Pennsylvania Conservancy to develop a monitoring program for Drury Run and Birch Island Run watersheds.

flooding

Flood Mitigation

Comprehensive Plan Desired Result

Flooding:
To prevent loss of life and significantly reduce future damages from floods within the basin through an integrated system of structural and nonstructural flood damage reduction measures.

The Susquehanna Flood Forecast and Warning System (SFFWS) utilizes radar and a network of stream and rain gages to provide real-time data used by the National Weather Service to forecast river levels and issue more timely and accurate early flood warnings. Community and emergency management officials rely on the Susquehanna System to make good flood preparedness decisions, including notifying residents of expected flooding and what actions are needed to protect themselves, and deciding if evacuation procedures need to be implemented. SRBC coordinates the federal and state interagency committee that maintains and operates the SFFWS.

In 2009, funding shortfalls by one of the System's cooperating agencies threatened to shut down 34 of the 100 plus stream and rain gages. The agencies were able to pool resources to keep the gages in operation but recognized the need to avoid future stop gap measures. In response, SRBC sent a resolution in January to President Obama and Congress to provide $2.4 million in Fiscal Year 2010 to fully fund the SFFWS. The System was funded as requested ensuring the continued communication of flood warning information to Susquehanna communities.

For every federal dollar invested in the Susquehanna Flood Forecast & Warning System, $20 are saved through reduced damages and reduced federal flood recovery payouts.

Flood photo courtesy of National Weather Service

Floods of the Past 100 Years

"Great Ice Jam" of 1899, Marietta, Pa. *Photo courtesy of Steve Bailey*

St. Patrick's Day Flood of 1936, Harrisburg, Pa.

Tropical Storm Agnes of 1972, Havre de Grace, Md.

Tropical Storm Agnes of 1972, Corning, N.Y.

Tropical Depression Ivan of 2004, Lycoming County, Pa.

June 2006 Flood I-88 Road Collapse near Unadilla, N.Y. *Photo courtesy of Scott Foti*

2009

Other Flood Mitigation Activities

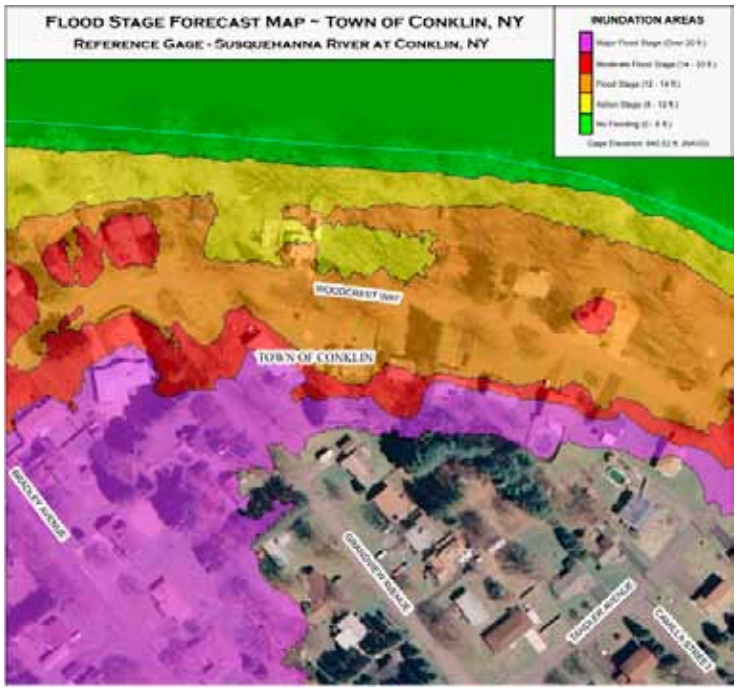
- Contracted the U.S. Geological Survey to cooperatively develop new flood stage forecast maps for Jersey Shore, Pa.
- Continued public outreach functions, including issuing public service announcements during National Flood Awareness Week and began the complete overhaul of the Susquehanna Flood Forecast and Warning System web site.
- Began digitizing existing flood inundation maps that were previously available in hardcopy format only.
- Identified target areas for new flood stage mapping.

Upper Susquehanna Subbasin Flood Stage Forecast Mapping and Gaging Enhancement

The record-setting June 2006 flood devastated many communities in the Upper Susquehanna region. Following the flood, New York State Senator Thomas Libous secured $500,000 for the development of a new, website-based flood inundation mapping system, installation of new stream and rain gages, and upgrade of existing gages. Selected to lead the mapping project, SRBC worked with its SFFWS partners to identify and prioritize locations where new or upgraded gages were needed. The objective of this initiative is to provide enhanced flood forecasts in this region, with the main beneficiaries being the residents of Broome, Chenango, Cortland, Otsego and Tioga counties.

The gaging component of the Upper Susquehanna initiative included work to: (1) install three new stream gages in Binghamton, Oxford and Oneonta; (2) install four new rain gages in Vestal, Waverly, Oneonta and near Cortland; and (3) upgrade numerous existing gages in Vestal, Conklin, Windsor, Chenango Forks, Lisle, Greene, Bainbridge, Owego, Waverly, Cortland, Rockdale, Unadilla and Sherburne. During 2009, stream and rain gage equipment was installed at all but one location.

The flood stage forecast mapping component of the upper Susquehanna initiative called on SRBC to develop and make new maps available online for access by emergency responders and the general public so they can track water levels and make appropriate decisions that will reduce fatalities and damages during floods. SRBC is producing the maps using data collected by the Federal Emergency Management Agency through Light Detection and Ranging technologies, also known as LiDAR. SRBC is on schedule to display selected flood stage forecast maps by spring 2010.



Flood State Forecast Map showing a limited cross section of flooded areas in the Town of Conklin, N.Y. Flood stage forecast maps show what areas will flood with each corresponding flood forecast issued by the National Weather Service. This is an extremely valuable tool for emergency response personnel and flood mitigation managers as they make decisions regarding evacuations, installation of temporary flood structures and floodwater retention at flood control reservoirs.

Stream gages measure the height of rivers and streams in real-time. Rain gages measure how much rain is falling in real-time. The real-time data allow the National Weather Service to determine when and where flooding will occur and how high flood waters will rise. The stream and rain gages in the SFFWS network are maintained and operated by the U.S. Geological Survey.

Rain gage (white cylinder-like unit on right)

Stream gage
Photo by Janet Thigpen

ecosystems

Low Flow Impacts

Comprehensive Plan Desired Result

Ecosystems:
To achieve healthy ecosystems that provide groundwater and surface water of sufficient quality and in adequate supply to support abundant and diverse populations of aquatic, riparian, and terrestrial organisms, as well as human use.

Low flow monitoring will help water resource managers adapt to low flow conditions. The data will also help make decisions regarding passby flows and surface water withdrawals.

Low Flow Monitoring Program

Low flow conditions can have a variety of impacts on plants and animals that live in streams and rivers, including less available habitat and food and poorer water quality. To better understand these impacts, SRBC adopted a low flow monitoring plan in 2009 that includes two components: establishment of a sentinel station system throughout the Susquehanna River Basin and a more detailed pilot project in the Juniata Subbasin.

Twenty-five stations are proposed for the pilot project in the Juniata Subbasin. As with the sentinel stations, macroinvertebrate, periphyton (microscopic plants and animals that are firmly attached to underwater surfaces), and water quality data will be collected. Data collection will begin in 2010.

The 19 outlets of the U.S. Geological Survey's Hydrologic Unit Code 8-digit (HUC-8) watersheds will be used as sentinel stations. These will be monitored annually for baseline conditions, as well as two weeks following a drought or when streamflow reaches the 7-day, 10-year low flow value. The sentinel stations will be implemented based on results from the Juniata pilot. SRBC staff will also be conducting public surveys to examine how drought conditions impact recreation, such as fishing, kayaking and wildlife observation.

Low Flow Management Study

SRBC and the U.S. Army Corps of Engineers (USACE) launched a basinwide study in 2009 aimed at assessing aquatic ecosystem needs during low flow conditions. The goal of the project is to provide essential information for use in considering long-term changes to flow release schemes for basin reservoirs, environmental restoration, flows to better sustain aquatic habitat, and conservation strategies to offset water demands.

SRBC and USACE are working with The Nature Conservancy (TNC) as the primary partner and with other key agencies. Following an October workshop, the TNC began compiling flow-habitat behavior relationship information. A full suite of critical flow alterations will be presented to the interdisciplinary team for development of final recommendations during 2010. The study is expected to last about 27 months at a cost of more than $380,000.

Whitney Point Lake Project

The Whitney Point Lake modification project was completed in 2009 after twelve years of analysis and adjustments made to the Broome County, N.Y., reservoir. As the non-federal partner, SRBC initiated the project to provide significant recreational, ecosystem and economic enhancements for Broome County and the region. Funding sources for the $7.6 million project included $5 million from U.S. Army Corps of Engineers (USACE) and $2 million from New York State.

Changes to the reservoir's operating plan will maintain the summer lake level year-round, allowing for water to be released from the lake during low flow periods when aquatic ecosystems are stressed. These new releases will relieve stresses on the Otselic, Tioughnioga, Chenango and Susquehanna rivers.

The lake's physical modifications included USACE's enhancement of an existing 20-acre wetland area in the north end of the lake. The USACE constructed escape channels and deep pools for fish, created waterfowl nesting areas, installed fish habitat structures and planted wetland vegetation.

The project also significantly enhanced recreational opportunities. New amenities in Dorchester Park include improvements to beaches, swim areas and boat ramps; restrooms and bathhouse; roads and parking lots; and electrical, water and waste treatment systems.

An Adaptive Management Plan for the project will be re-evaluated every year to make sure the project goals are being met. Monitoring will provide information to assess the chemical and biological conditions of the lake and the surrounding watersheds, document changes in stream quality over various flow regimes, assess fish and macroinvertebrate use of side channel/backwater habitats and assess submerged aquatic vegetation growth in the lake.

Whitney Point Lake Dedication Ceremony

On May 28, 2009, SRBC and the U.S. Army Corps of Engineers were joined by N.Y. Senator Tom Libous (left photo), Assemblywoman Donna Lupardo, Assemblyman Gary Finch and Assemblyman Clifford Crouch to dedicate the Whitney Point Lake modification project.

2009

Other Ecosystems Activities

- Added a standard condition in SRBC Project Review approvals requiring that project sponsors for surface water withdrawals submit a disinfection plan regarding invasive species.
- Identified list of important stream and rain gages to encourage the maintenance of critical gages.
- Participated in the drafting and review of the revised Migratory Fish Management Plan for the Susquehanna River Basin.
- Continued coordination efforts to promote construction of a natural channel fishway around the west side of the dam at Sunbury, Pa.
- Worked on an anthracite restoration strategy to assist in abandoned mine drainage remediation efforts.

chesapeake bay

Paxton Creek Watershed Stormwater Demonstration

Comprehensive Plan Desired Result

Chesapeake Bay: To manage the water resources of the Susquehanna River Basin to assist in restoring and maintaining the Chesapeake Bay so it meets or exceeds applicable water quality standards and supports healthy populations of living resources, including oysters, crabs, fish, waterfowl, shore birds, and underwater grasses.

For the past three years, the Paxton Creek Watershed in Dauphin County, Pa., has been a hub of activity in demonstrating innovative stormwater management solutions for river basin communities. In cooperation with the Paxton Creek Watershed and Education Association and a host of local entities, SRBC completed a series of demonstration sites and outreach workshops that show how local governments, local businesses and homeowners can install low-impact stormwater control practices that ultimately protect our local streams, rivers and the Chesapeake Bay.

The project was supported by a $725,000 grant from the U.S. Environmental Protection Agency's Targeted Watershed Grant Program along with a contribution of $735,800 in cash and in-kind match from project partners, making this a $1.46 million stormwater demonstration project.

In addition to outreach, SRBC staff established 11 monitoring stations to characterize the effects of stormwater in the watershed, both watershed-wide and at a site-specific scale. Part of the monitoring includes documentation of pre- and post-restoration conditions at each demonstration site. Staff will analyze information on costs, resources, incentives, obstacles and opportunities related to implementation of the demonstration projects.

Raingardens are designed to remove nitrogen, phosphorus, sediment, as well as other pollutants, from stormrunoff. Before the installation of this raingarden at a residence in the Paxton Creek Watershed, rooftop runoff drained directly into a small stream downhill of the home. The cumulative impact of runoff on small streams from developed areas degrades the condition of streambanks and adds sediment and other pollutants to waterways.

The Farm Show Complex in Harrisburg, Pa., provided a mix of outreach opportunities in innovative stormwater management practices. A large raingarden at the main entrance to the complex (pictured above) was unveiled at a stormwater management workshop held in November 2009. The demonstration raingarden will educate thousands of visitors to the Farm Show every year.

In the works: a rainwater recapture and reuse system that will reuse water draining off the 20 acres of rootftop to wash the numerous farm show facilities.

2009

Other Chesapeake Bay Activities:

- Continued activities related to federal relicensing process of several projects in the Lower Susquehanna region.
- Provided hydrologic and consumptive use data as needed and technical input to the U.S. EPA Chesapeake Bay Program.

coordination cooperation & public information

2009 Activities

Comprehensive Plan Desired Result

Coordination, Cooperation and Public Information: To maximize available human resources and achieve common and complementary management objectives by the Commission, its member jurisdictions and others; to promote the planning and management of the basin's water resources in the most efficient manner possible; to inform the public on the Commission's water management responsibilities; and to enhance the public's access to Commission information and decision making procedures.

Water resource use, development and management in the Susquehanna River Basin involve the administration of programs of a large number of governmental agencies. While member jurisdictions remain the chief stewards of their own natural resources, they have the responsibility to do so in the most efficient and effective manner, working together under the coordinative oversight of the Commission.

In 2009, SRBC focused on the following activities in this program area:

- Coordinated with Pennsylvania and New York agencies on the **regulation of natural gas development** in the Marcellus shale.
- Partnered and participated in workshops related to the **Low Flow Management Study** that will determine the need for uniform standards for instream flows, aquifer testing, water conservation and flood plain management.
- Continued partnership efforts with non-profit organizations, including working closely with the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation on **anthracite region restoration strategy** and mine pool work to develop potential sources of water for consumptive use mitigation.
- Completed extensive coordination related to the **federal relicensing** process for projects in the Lower Susquehanna region, including technical discussions and data sharing.
- Updated and improved **online applications**, allowing for a more seamless submittal of water use data by approved projects.
- Continued the **partnership with the Susquehanna Heartland Coalition and Bucknell University** to develop the first-ever State of the Susquehanna Report, which will be completed and released in September 2010.
- Facilitated focused discussions on the draft low flow monitoring program and water quality aspects associated with natural gas well development projects at SRBC's **Water Quality Advisory Committee** meetings held in the spring and fall.

In October 2009, SRBC sponsored a field trip and workshop on the remote water quality monitoring network. The monitoring network will track water quality changes in smaller streams where water demands are increasing, particularly for natural gas drilling activities.

public information

Online Resources

Check it Out:

What's New

Forms & Applications

Planning

SRBC Regulations

Approved Water Sources for Natural Gas

River Ice Report

Nutrient & Sediment Monitoring

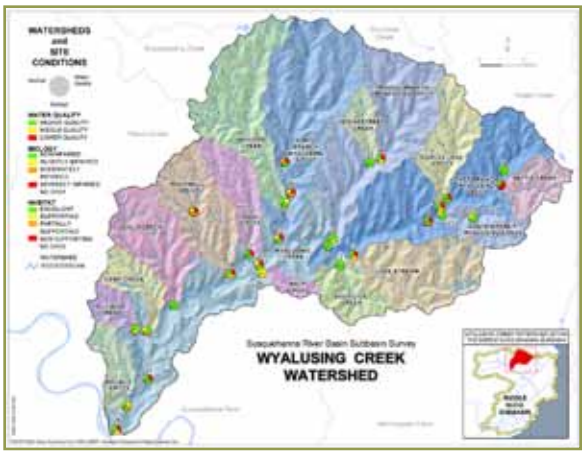
Press Releases

SRBC continues to enhance its internet-based communication resources, making increasing amounts of data and program information available electronically. For instance, users can view and hear video presentations on SRBC's regulation of water withdrawals for natural gas drilling, view real-time data on streamflow for hundreds of sites throughout the basin, access SRBC forms and applications, and download dozens of maps and technical reports.

SRBC's Online Map and Data Atlas

The SRBC Map and Data Atlas allows users to view and download Geographic Information Systems (GIS) products, including more than 200 maps and GIS data covering the entire Susquehanna basin and/or at subbasin levels.

Pages offer traditional base maps such as land use cover, soils, geology, precipitation and major watersheds. A Current Projects Map Gallery showcases maps from ongoing projects and project-specific GIS data under certain topics.



Example of a Current Projects Map: Wyalusing Creek Small Watershed Study

SRBC plays an invaluable role in the collection, organization and distribution of information needed to protect the water resources of the basin. Data sources include the U.S. Geological Survey, U.S. Environmental Protection Agency, Chesapeake Bay Program, New York State Clearinghouse and Pennsylvania Spatial Data Access. An ongoing task of the GIS program is to create seamless datasets that encompass the entire Susquehanna River Basin.

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Fiscal Year 2009 Summary

REVENUES		EXPENDITURES	
Signatory Members –	$ 2,398,780	Salaries & Benefits –	$ 3,715,402
Grants & Projects –	$ 2,264,240	Capital Outlay –	$ 358,403
Fees & Others –	$ 2,421,431	Operating –	$ 2,108,117
Total Revenue	$ 7,084,451	Total Expenditures	$ 6,181,922

Recognition

William W. Jeanes Award

In April, SRBC presented its sixth William W. Jeanes, Sr. Award for Environmental Excellence to **Robert E. Hughes** for his commitment to abandoned mine reclamation and abandoned mine drainage remediation. Robert Hughes is the executive director of the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation – a nonprofit organization covering 16 counties in eastern Pennsylvania.

In September, SRBC presented its seventh William W. Jeanes, Sr. Award for Environmental Excellence to **The Nature Conservancy** for its past and current work to protect water quality in the Susquehanna watershed. Mark Bryer (right), director of the Conservancy's Chesapeake Bay Program, accepted the award on behalf of the Conservancy.

Goddard Award

SRBC presented the 2009 Goddard Award to **David Nicosia** (center), Warning Coordination Meteorologist, National Weather Service, Binghamton, N.Y. Mr. Nicosia was recognized for his contributions to flood mitigation. SRBC has worked closely with Mr. Nicosia to enhance flood forecasting, to raise awareness on the dangers of driving on flooded roads, and to reach out to communities to help them better prepare for flooding. N.Y. alternate commissioner Ken Lynch (left) and Md. commissioner Dr. Robert Summers presented the award.

Volunteer Speaker Brings Susquehanna History to Life

Steve and Janey Runkle
SRBC Volunteers

SRBC extends its gratitude to **Stephen A. Runkle** for sharing his passion for local history as a volunteer with the Commission's Public Information and Outreach Program. In 2009, Runkle presented historical presentations on the civil war, area canals, coal mining and native Americans who once lived in the Susquehanna basin to roughly 50 organizations and public groups. His wife Janey often assists with the presentations.

Popular presentations include:

- *The Joller Story – Life in a Company Coal Mine and Village*
- *Canal Life in and around the Susquehanna River Basin*
- *Native American Life in the Susquehanna River Basin Region*
- *The Gettysburg Campaign to the Susquehanna River*

Runkle also authored a report for SRBC on the names and origins of Native American Indian names in the basin (available at *http://www.srbc.net/subbasin/subbasin.htm*). Runkle is a retired Hydraulic Engineer and served as an independent contractor with SRBC in water resources engineering.

Canal boats under construction on the Susquehanna River at Highspire, Pa., circa 1870. *Courtesy of the PA State Archives.*

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