



# DELAWARE RIVER BASIN COMMISSION

2 0 1 0      A N N U A L      R E P O R T

The Delaware River Basin Commission (DRBC) is a federal-interstate agency created in 1961 by compact legislation signed into law by President John F. Kennedy and the governors of the four basin states with land draining to the Delaware River. The passage of this compact marked the first time that the federal government and a group of states joined together as equal partners on a regional body with the force of law to oversee a unified approach to managing a river system without regard to political boundaries. The DRBC and the Susquehanna River Basin Commission, created in 1971, are the only two federal-interstate compact agencies in the United States with the federal government and states as voting members.

The Delaware is the longest un-dammed river in the United States east of the Mississippi, extending 330 miles from the confluence of its East and West branches at Hancock, N.Y. to the mouth of the Delaware Bay where it meets the Atlantic Ocean. In all, the Delaware River Basin (DRB) contains 13,539 square miles, draining parts of Pennsylvania, New Jersey, New York, and Delaware. Over 15 million people (approximately five percent of the nation's population) rely on the waters of the DRB for multiple uses, but the watershed drains only four-tenths of one percent of the total continental U.S. land area. The population served by DRB water includes over seven million people in the New York City area and northern New Jersey who live outside the basin. New York City gets roughly half its water from three large reservoirs located on tributaries to the Delaware.

This publication, which covers calendar year 2010, was compiled and edited by DRBC Communications Manager Clarke Rupert and created by DRBC Graphic Designer Susan Owens. Numerous commission staff provided valuable assistance. It is available on the commission's web site at [www.drbc.net](http://www.drbc.net). Copies are available upon request by contacting the DRBC (P.O. Box 7360, West Trenton, NJ 08628; 609-883-9500; [clarke.rupert@drbc.state.nj.us](mailto:clarke.rupert@drbc.state.nj.us)).

*Cover photo: Commercial Township Wetland Restoration Site, Bivalve, New Jersey. This site, an old salt hay meadow, covers approximately 4,200 acres in Cumberland County, and includes the preservation of 339 acres of upland buffer habitat and the restoration of nearly 2,900 acres of previously diked wetlands. It is a project of PSE&G's Estuary Enhancement Program. Photo taken by Katharine O'Hara.*





The Delaware Bay is the principal breeding grounds for American horseshoe crabs on the East Coast and among the largest staging areas for shorebirds in North America. Learn more by visiting DRBC's "Ed. Web" education page at [www.drbc-edweb.net](http://www.drbc-edweb.net). (Photo by Mark Binder, May 2010)

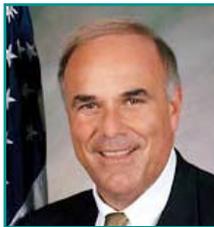
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# Signatory Members



Delaware Governor  
Jack A. Markell



Pennsylvania Governor  
Edward G. Rendell



New Jersey Governor  
Chris Christie



New York Governor  
David A. Paterson



Brigadier General  
Peter A. DeLuca

The ex officio members of the Delaware River Basin Commission include the four basin state governors and the Division Engineer (commonly referred to as the Commander) of the U.S. Army Corps of Engineers North Atlantic Division, who serves as the federal representative.

The five members appoint alternate commissioners, with the governors selecting high-ranking officials from their state environmental agencies. Each commissioner has one vote of equal power with a majority vote needed to decide most issues. Exceptions are votes on the commission's annual budget and drought declarations, which require unanimity.

## Delaware

Department of Natural Resources and Environmental Control (DNREC) Secretary **Collin P. O'Mara** (alternate) and Water Resources Division Director **Dr. Katherine E. Bunting-Howarth** (second alternate) continued to represent **Governor Jack A. Markell** on the DRBC.

## Pennsylvania

The alternates named by **Governor Edward G. Rendell** to represent him on the commission during 2010 continued to be Department of Environmental Protection (DEP) Deputy Secretary for Water Management **John T. Hines**, Water Use Planning Division Chief **Susan K. Weaver**, and Bureau of Water Standards and Facility Regulation Director

**Dana Aunkst**. Long-time alternate **Cathy Curran Myers**, who served as a commissioner representing Governor Rendell since April 2003 while holding several DEP positions, left the department in July 2010 to become the first executive director of the Bucknell University Environmental Center.

## New Jersey

**Chris Christie** was sworn in as the Garden State's 55th governor in January, succeeding **Jon S. Corzine** who had served for four years. Governor Christie initially appointed DEP Commissioner **Bob Martin** as his alternate, Assistant Commissioner for Land Use Management **Scott Brubaker** as second alternate, Water Supply Division Director **Michele M. Putnam** as third alternate, and Assistant Director of Water Supply Permitting **Fred Sickels** as fourth alternate. In June, Assistant Commissioner for Water Resource Management **John Plonski** replaced Mr. Brubaker as second alternate and Research Scientist **Dr. Joseph A. Miri** was appointed as fifth alternate. *(Editor's Note: In late-2010, Ms. Putnam was named Water Quality Division Director and Mr. Sickels took over her vacated position to lead the Division of Water Supply).*

## New York

Department of Environmental Conservation Commissioner **Alexander B. ("Pete") Grannis**, who served as alternate to **Governor David A. Paterson** since 2008, left

his state position in October 2010.

**James G. DeZolt**, the Director of Special Projects in the Office of Water Resources, along with Division of Water Director **Mark Klotz**, and Chesapeake and Delaware Program Coordinator **Peter Freehafer** continued to represent Governor Paterson on the DRBC as his second, third, and fourth alternates, respectively.

New York City DEP Commissioner **Caswell F. Holloway** continued to serve as advisor to the New York State DRBC commissioner during 2010.

#### Federal Government

**Brigadier General Peter A. (“Duke”) DeLuca** continued to serve as DRBC federal representative during 2010. **Colonel Christopher J. Larsen** (North Atlantic Division Deputy Commander), **Lieutenant Colonel Thomas J. Tickner** (Philadelphia District Engineer), and **Henry W. (“Hank”) Gruber** (Basin Planning Section Chief)

continued to serve as Brig. Gen. DeLuca’s alternate, second alternate, and third alternate, respectively, for the first half of 2010. As a result of Col. Larsen’s deployment overseas and Lt. Col. Tickner’s reassignment to the Pentagon to serve on the staff of Assistant Secretary of the Army (Civil Works) Jo-Ellen Darcy, Brig. Gen. DeLuca in July appointed **Lieutenant Colonel Philip M. Secrist III**, the new Philadelphia District Engineer, as his alternate and North Atlantic Division Acting Director of Programs **David J. Leach** as second alternate, with no third alternate.

#### Commission Officers

The Delaware River Basin Compact requires the annual election of a chair and vice chairs, which historically has been based upon rotation of the compact’s five signatory parties. The following members served as commission officers during calendar year 2010:

The current list of commission members and their alternates can be viewed at [www.nj.gov/drbc/about/commissioners/](http://www.nj.gov/drbc/about/commissioners/).

*January 1, 2010 through June 30, 2010 (one-year term began July 1, 2009)*

**Chair:** Governor Paterson (New York)

**Vice Chair:** Governor Markell (Delaware)

**Second Vice Chair:** Brigadier General DeLuca (Federal Representative)

*July 1, 2010 through December 31, 2010 (one-year term to end June 30, 2011)*

**Chair:** Governor Markell (Delaware)

**Vice Chair:** Brigadier General DeLuca (Federal Representative)

**Second Vice Chair:** Governor Rendell (Pennsylvania)



(From left to right) Commissioner Mark Klotz (N.Y.), Commissioner John Hines (Pa.), Executive Director Carol Collier, Commissioner Dr. Katherine Bunting-Howarth (Del., chair), Commissioner Brig. Gen. Peter DeLuca (U.S.), and Commissioner John Plonski (N.J.) consider an agenda item at one of the five annual business meetings. (Photo by Katharine O’Hara)

## In Memory of Two Former DRBC Members



### **Stewart L. Udall** (1920-2010)

Stewart Udall, Secretary of the Interior when the Delaware River

Basin Compact was signed into law and appointed by President John F. Kennedy as the commission's first federal member, died March 20, 2010 at his home in Sante Fe, New Mexico. He was 90 years old.

Mr. Udall was Interior Secretary under both President Kennedy and President Lyndon B. Johnson, and served as the commission's federal member from 1961 to 1968. The Wild and Scenic Rivers Act was signed into law by President Johnson

during Secretary Udall's cabinet career. Today, three-quarters of the non-tidal Delaware River has been included in the national system.

At a luncheon attended by Secretary Udall on September 18, 1986 celebrating the DRBC's 25th anniversary, he touted conservation as the linchpin in any successful water resources

management program, noting that "the best things in life are free—friendship, love, natural beauty, clean air, clear water. You have to earn them in a way, but they are free, and they must be preserved."

Interior Secretary Stewart Udall participated in the historic first meeting of the Delaware River Basin Commission, which was held in Princeton, N.J. on December 13, 1961.

Attendees included (from left to right) New York Gov. Nelson Rockefeller, Pennsylvania Gov. David Lawrence, Secretary Udall, New Jersey Gov. Robert Meyner, and Alternate Delaware Commissioner Norman Lack.



### **Sherman W. Tribbitt** (1922-2010)

Sherman Tribbitt, Delaware's 72nd governor, died August 14, 2010 in

Milford, Delaware. He was 87 years old.

Gov. Tribbitt served as a DRBC member during his one-term as governor (1973-1977) and then as

a federal alternate commissioner during President Jimmy Carter's administration (1977-1981).

In perhaps his most important DRBC decision, Gov. Tribbitt joined New Jersey Gov. Brendan Byrne and New York's alternate commissioner in 1975 to cast votes against construction of the long-planned Tocks Island Dam project on the main stem of the Delaware River just upstream of the Delaware Water Gap. Pennsylvania Gov. Milton Shapp cast the

lone vote for construction while the federal government, as project sponsor, abstained.

The Water Resources Association of the Delaware River Basin saluted the DRBC's silver anniversary at its annual awards dinner in September 1986, with Gov. Tribbitt highlighting 25 years of commission accomplishments.

*The News Journal* reports that he is believed to be the only person in Delaware to ever lead both chambers of the state legislature and hold the office of governor.



Delaware Gov. Sherman Tribbitt (far right) is pictured here in 1973 along with the other DRBC members including (from left to right) New Jersey Gov. William Cahill, New York Gov. Nelson Rockefeller, Interior Secretary Rogers Morton (the federal representative appointed by President Nixon), and Pennsylvania Gov. Milton Shapp.

# Commission Staff

## New Employee

- **Donna Barnett** - Secretary; Planning and Information Technology Branch.

## Resignation

- **Robert Conway** - Geologist/Hydrologist; Water Resources Management Branch.

## Retirement

- **Edward Santoro** - The DRBC's Monitoring Coordinator in the Modeling, Monitoring and Assessment Branch retired in March with nearly 13 years of service.

## Other Staff Notes

- DRBC Executive Director **Carol R. Collier** testified at a Pennsylvania House of Representatives Majority Policy Committee hearing in Philadelphia on clean water issues. The hearing was held on July 29 at the Independence Visitor Center

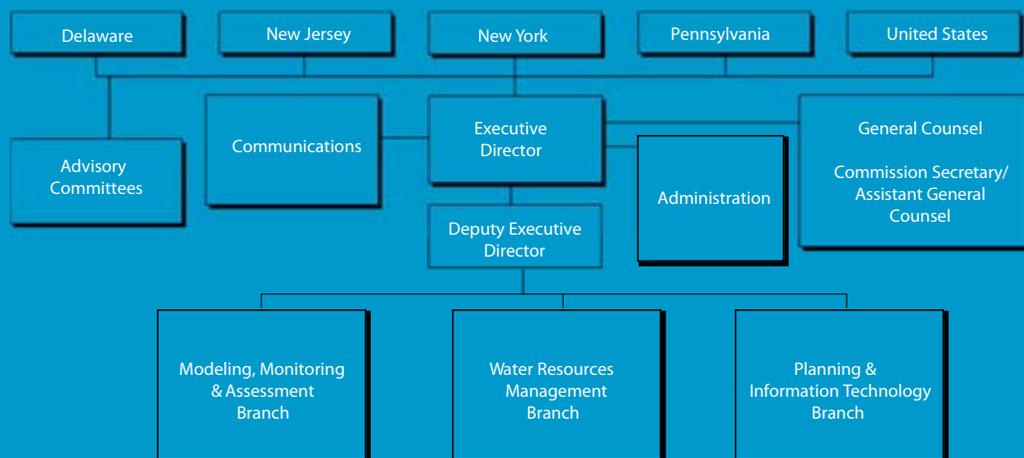
and was hosted by State Rep. Michael O'Brien (Philadelphia-175). On September 28, she testified before Philadelphia City Council's Joint Committees on the Environment and Transportation & Public Utilities at a hearing concerning Marcellus Shale natural gas drilling and Philadelphia's drinking water supplies.

- The American Water Resources Association (AWRA) held its 2010 Annual Water Resources Conference in Philadelphia. The following DRBC staff were moderators, panelists, presenters, and presentation co-authors during the four-day event in November that attracted attendees from across the nation: **Carol R. Collier; Robert Tudor; David Sayers; Kenneth Najjar, Ph.D.; Namsoo Suk, Ph.D.; Thomas Fikslin, Ph.D.; Robert Limbeck; Chad Pindar; Feng Shi, Ph.D.;**

The current list of DRBC staff members, including their phone number extensions and e-mail addresses, can be viewed at [www.nj.gov/drbc/about/staff/](http://www.nj.gov/drbc/about/staff/).

**Jessica Rittler Sanchez, Ph.D.; Robert Conway; Eric Engle; Amy Shallcross; Erik Silldorff, Ph.D.; Ronald MacGillivray, Ph.D.; and Gregory Cavallo.** A listing of the panels and sessions can be found on the AWRA web site at [www.awra.org/meetings/Philadelphia2010/index.shtml](http://www.awra.org/meetings/Philadelphia2010/index.shtml). Founded in 1964, AWRA is a non-profit professional association dedicated to the advancement of men and women in water resources management, research, and education.

DRBC's Organizational Chart



# Annual Hydrologic Conditions Summary

## The Year in Review

Mother Nature chose to repeat a familiar scenario in the Delaware River Basin (DRB) during 2010 with drought conditions spanning the late spring and summer months to be relieved by late-September storms that produced some flooding.

A dry weather pattern began in April and the lack of regular rainfall resulted in below-normal streamflow and declining groundwater conditions throughout the basin. These conditions triggered the following drought declarations in August and September for the first time since Delaware lifted a statewide drought watch in the spring of 2008:

- Concerned about the persistent hot and dry conditions, New Jersey on August 5 declared a drought watch and requested voluntary water conservation for the northeast region of the state. Only a small portion of the DRB in Morris County was impacted by this declaration.
- Prompted by record-high temperatures and water demands, combined with near-record precipitation lows, New Jersey on September 8 expanded the earlier drought watch to include the entire state.
- Continuing declines in groundwater and surface water prompted Pennsylvania on September 16 to declare drought watches and warnings and request voluntary water conservation for 17 counties in the DRB.
- On September 24, the DRBC

declared a lower basin drought warning after storage in both the Beltzville and Blue Marsh reservoirs dropped below their respective drought warning elevations.

Dry weather persisted into early autumn. As we approached the end of September, 90-day precipitation totals in a large portion of the basin were only 50-75% of normal, with some localities receiving only 25-50% of their normal precipitation.

Drought relief arrived during the last days of September from two back-to-back storm events. The first storm on September 27-28 produced less than two inches of precipitation in eastern Pennsylvania and New York, and less than one inch in the southern portion of the DRB. Due to the antecedent dry conditions and low runoff, this storm had little impact on streams and reservoirs in the basin. Within the same week, a tropical depression brought moisture up the east coast, through North Carolina, Virginia, and Delaware into eastern Pennsylvania, New Jersey, and New York. The system, which impacted the basin on September 30-October 1, produced high winds and three to seven inches of rain, with locally higher amounts of eight to 10 inches. Major flooding occurred on the West Branch of the Delaware River near Delhi, N.Y. and minor to moderate flooding took place at points along some of the Delaware's tributaries. The only points along the main stem Delaware River that experienced flooding were at Callicoon, N.Y.

(moderate flooding) and Barryville, N.Y. (minor flooding).

The two September storms replenished waterways and reservoirs throughout the basin. On October 31, the DRBC's lower basin drought warning automatically terminated after water levels in Blue Marsh and Beltzville reservoirs recovered and remained above their respective drought warning storage elevations for 30 consecutive days as required by DRBC's Water Code. Hydrologic conditions continued to improve as the basin received above-normal rainfall in October. This allowed New Jersey to end its statewide drought watch on October 26 for all but the Coastal North drought region, which was later lifted on November 9. On November 10, Pennsylvania lifted drought watches and warnings in its portion of the DRB.

## Precipitation

Annual precipitation totals in basin counties ranged from 39.50 inches in Lackawanna County, Pa. to 51.30 inches in Morris County, N.J. Annual precipitation departures-from-normal ranged from 4.70 inches (10.6%) below normal in Sussex County, Del. and Mercer County, N.J. to 6.70 inches (15.5%) above normal in Delaware County, Pa. Despite the lower basin drought, 26 of the 38 reported counties within the DRB ended the year with above-normal precipitation.

The observed precipitation above Montague, N.J. was 47.30 inches, or 4.04 inches above normal, in 2010.

Similarly, observed precipitation above Trenton, N.J. was 47.54 inches, or 2.65 inches above normal, and precipitation at Wilmington, Del. was 43.96 inches, or 1.15 inches above normal.

**Streamflow**

Monthly mean streamflow observations at select stations on the Lehigh River, Schuylkill River, and the main stem Delaware River were generally slightly below normal to above normal January through April 2010. Hot weather combined with drier than normal conditions produced below-normal flows during

May through September for the majority of these stations.

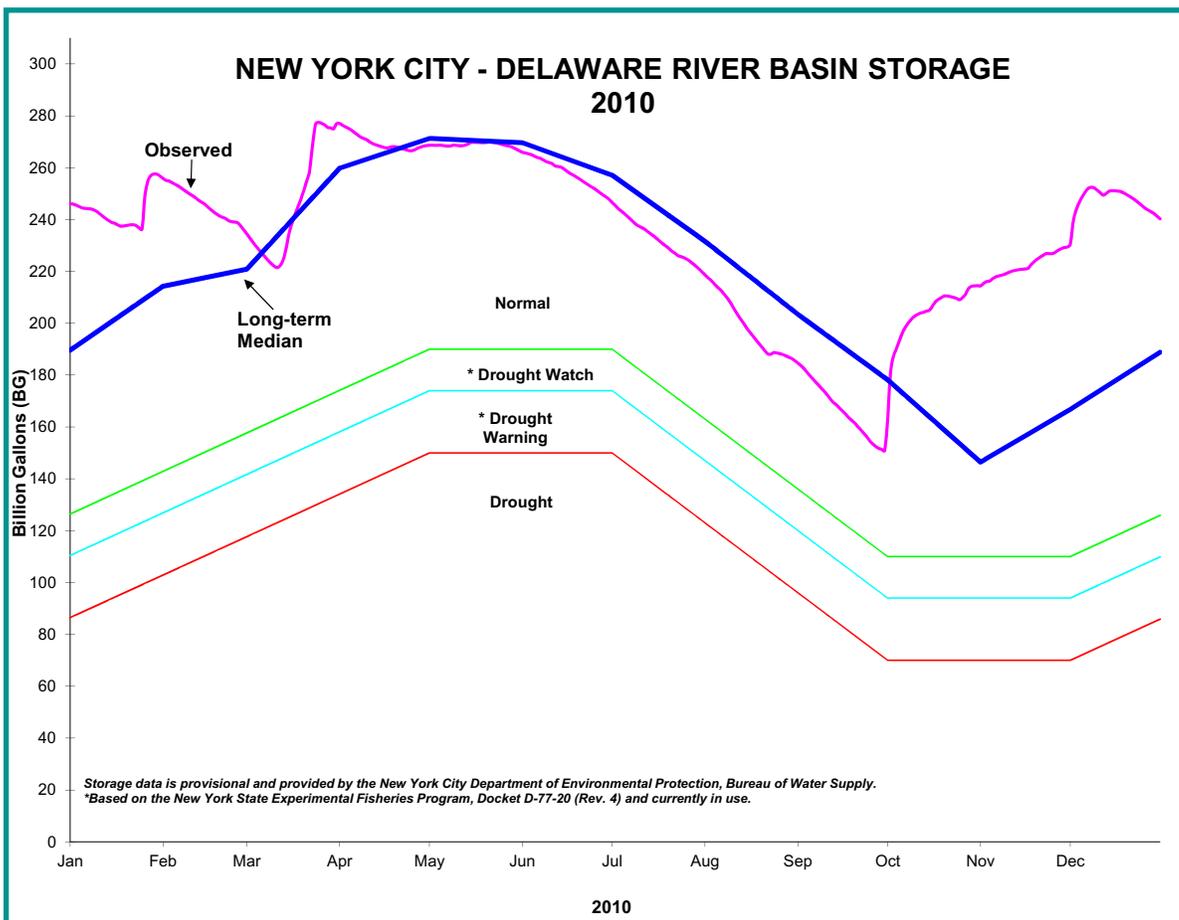
Streamflows recovered during October after the storms of late September and the above-normal rainfall during October. Monthly mean streamflow observations at select stations during October were the highest of any month during 2010. The Delaware River at Montague and Trenton averaged three to four times the normal October flow.

**Upper Basin Reservoir Storage**

Three New York City (NYC) reservoirs—Cannonsville, Pepacton,

More detailed information about the basin’s hydrologic conditions can be found on the DRBC web site at [www.nj.gov/drbc/hydrological](http://www.nj.gov/drbc/hydrological).

and Neversink—are located on headwater tributaries feeding the main stem of the Delaware River. On January 1, 2010, combined storage in these NYC-Delaware Basin reservoirs was 246.1 billion gallons (bg), which is 91% usable capacity and 56.5 bg above the long-term median for the date. Combined



This graph shows the observed combined water storage in the NYC-Delaware Basin reservoirs (Cannonsville, Pepacton, and Neversink) during 2010, as well as the long-term median and drought rating curves. The period of record represented by the long-term median values is June 1967 to November 1998.

storage remained above the long-term median through early March, when it briefly dipped below the median for a 10-day period, then refilled to 100% usable storage capacity by late March. The normal refill date for the NYC reservoirs is May 1. By early April, storage was again on the decline and by late April, below-normal rainfall caused the combined storage to drop below the long-term median, where it remained for the duration of the summer. As indicated in the graph on page 7, combined storage did not fall below the drought watch level during 2010; consequently, DRBC's basinwide drought operating plan was not triggered.

The Office of the Delaware

River Master directed releases from the NYC reservoirs totaling approximately 43.7 bg during the dry period from June through September to meet the normal flow objective of 1,750 cubic feet per second (cfs) for the Delaware River at Montague as required by the 1954 U.S. Supreme Court Decree. By comparison, directed releases totaled only 9 bg in 2009 and 101 bg during the drought year 2001. DRBC directed additional releases in 2010 totaling 4.09 bg from the Interim Excess Release Quantity (IERQ), a bank of water used to protect fisheries habitat and to meet the Trenton flow target.

The runoff from the previously mentioned heavy rain storms in late September replenished the reservoirs.

Combined storage was above the long-term median in early October, where it remained through the end of the year.

#### **Lower Basin Reservoir Storage**

The previously noted declining streamflows during the summer resulted in commission-directed releases from Beltzville Reservoir (located on the Pohopoco Creek, a tributary of the Lehigh River) and Blue Marsh Reservoir (located on the Tulpehocken Creek, a tributary of the Schuylkill River) to maintain the flow objective of 3,000 cfs for the Delaware River at Trenton. DRBC-directed releases began in early July and were required almost daily during August and September.

The three NYC-Delaware Basin reservoirs are being operated under the Flexible Flow Management Program (FFMP), a temporary operations plan unanimously approved by the parties to the 1954 U.S. Supreme Court Decree (four basin states and NYC). The FFMP agreement, which was originally adopted in September 2007 and amended in December 2008, continues to be implemented by the five decree parties through May 2011.

The decree parties again agreed to a summer habitat improvement program in 2010 calling for the same cold water releases from Cannonsville Reservoir as last year's program that were designed to benefit conditions for trout in the West Branch of the Delaware River. This three-month program, which revised reservoir operations in accordance with the FFMP's adaptive management provisions, took into consideration the recommendations of state fishery experts.

A Temporary Supplemental Release Program (TSRP) remained in effect by agreement of the decree parties. This adjustment to the FFMP provided temporary additional releases from the three NYC-Delaware Basin reservoirs as needed during the year in anticipation of a shutdown of the Rondout to West Branch Tunnel. The TSRP was implemented since water cannot be diverted from the three NYC reservoirs during the time when the tunnel is temporarily shut down to allow the city to perform necessary work in preparation of future tunnel repairs.

The FFMP agreement can be viewed on the web site of the Office of the Delaware River Master, which administers the provisions of the 1954 Supreme Court decree, at [water.usgs.gov/osw/odrm/](http://water.usgs.gov/osw/odrm/).

Beltzville and Blue Marsh reservoirs were depleted to drought warning storage elevations by late September, prompting DRBC to declare a lower basin drought warning on September 24. As a result of this warning, the Trenton flow objective was decreased from 3,000 cfs to 2,500 cfs. In addition, New Jersey's diversion of water from the Delaware River near Bull's Island through the Delaware and Raritan Canal was reduced from 100 million gallons per day (mgd) to 85 mgd.

Nine billion gallons of stored water was directed from the two lower basin reservoirs to meet the Trenton flow objective from July through September. Releases continued until late September, when runoff from heavy rains allowed storage in both reservoirs to recover and remain above drought warning elevations. The DRBC's lower basin drought warning was lifted on October 31.

No releases were made from Merrill Creek Reservoir during 2010. Storage in this reservoir, located near Phillipsburg, N.J., is used to replace evaporative water losses ("consumptive use") caused by power generation when the basin is under DRBC-declared drought operations and the equivalent average daily flow target for the Delaware River at Trenton is below 3,000 cfs. Although the criteria for releases were met, significant rain was forecast at the time the release should have occurred so DRBC requested that Merrill Creek refrain from the action. Merrill

Creek releases were not required for the remainder of the lower basin drought warning since above-normal rainfall during October kept the flow of the Delaware at Trenton above 3,000 cfs.

#### **Groundwater**

The average monthly groundwater level in eight reported U.S. Geological Survey (USGS) observation wells in the Pennsylvania portion of the basin remained above the long-term average for the first four months of 2010. In response to drier conditions, the average monthly level declined to below the long-term average by May. This downward trend continued through September when conditions began to recover after above-normal rainfall returned to the basin. Despite significant gains during the last quarter of 2010, the average monthly groundwater level at these wells remained below the long-term average as the year ended.

The groundwater level in the New Castle County, Del. coastal plain well began the year above the normal range. By April, drier conditions caused the water level to decline into the normal range. Although this downward trend continued for the remainder of the year, the water level remained within the normal range at the end of 2010.

The groundwater level in the Cumberland County, N.J. coastal plain well began the year above the normal range. By May, water levels trended downward, responding to drier conditions during the spring

and summer months. The water level was in the normal range in September before increasing to above the normal range in October, where it would remain for the rest of the year.

#### **Salt Front**

The salt front or salt line is the 250 parts per million (or milligram per liter) chloride concentration. The seven-day average location of the salt front is used by DRBC as an indicator of salinity intrusion in the Delaware Estuary. The salt front's location fluctuates along the main stem Delaware River as streamflow increases or decreases in response to changing inflows, diluting or concentrating chlorides in the river. Long-term average mid-month locations range from river mile 61 in mid-April (0.5 miles below Pea Patch Island, Del.) to river mile 81 in mid-October (Marcus Hook, Pa.). The farthest recorded upstream location of the salt front, river mile 102, was measured during the 1960's drought of record.

During 2010, the salt front location ranged as far upstream as river mile 86 in late September, which is eight miles upstream of the Delaware-Pennsylvania state line and six miles downstream of the mouth of the Schuylkill River.

# DRBC To Review Natural Gas Projects After Adoption of New Regulations

*Proposed Rulemaking Published in December 2010*

## The Year in Review

The commissioners at their May 5, 2010 meeting unanimously approved a “Resolution for the Minutes” clarifying the DRBC’s intentions about the development of new natural gas regulations and consideration of pending applications for natural gas-related projects. Three points were specifically articulated by the commissioners in the adopted resolution: (1) DRBC staff was directed to develop draft regulations on well pads in shale formations for notice and comment rulemaking; (2) consideration of well pad docket applications would be postponed until regulations are adopted; and (3) DRBC will move forward with water withdrawal dockets in due course.

The process of drafting regulations was already underway at the time the resolution was adopted, but the commissioners’ directive prioritized and intensified those efforts. Over the months that followed, DRBC continued to closely consult with its state and federal agency partners to inform the process of drafting rules. As part of this effort, Brigadier General Peter DeLuca, the DRBC’s federal member, convened a two-day Federal Coordination Summit in October that was largely focused on natural gas well drilling in the basin (see the News Briefs article on page 16). In addition, DRBC staff researched regulatory efforts undertaken elsewhere in the nation and had discussions with various stakeholders, including property

owners who leased land for natural gas drilling, individuals with environmental concerns, and drilling companies.

Draft natural gas development regulations were published by DRBC for public review on December 9, 2010. The purpose of the proposed regulations is to protect the water resources of the Delaware River Basin during the construction and operation of natural gas development projects. The proposed new Article 7 to the DRBC’s Water Quality Regulations would apply to all natural gas development projects involving siting, construction, or use of production, exploratory, or other wells in the basin regardless of the target geologic formation, and to water withdrawals, well pad and related activities, and wastewater disposal activities comprising part of, associated with, or serving such projects. The draft regulations rely on the state oil and gas regulatory programs of Pennsylvania and New York where separate administration by the commission would result in unnecessary duplication. This Article would supersede the Executive Director Determinations issued on May 19, 2009, June 14, 2010, and July 23, 2010, which are briefly described later in this article. The complete text of the draft regulations can be found on the DRBC web site at [www.nj.gov/drbc/programs/natural/draft-regulations.html](http://www.nj.gov/drbc/programs/natural/draft-regulations.html).

Accompanying the release of the proposed rulemaking on December 9 was an announcement that written comments on the draft

Additional information can be found on the DRBC web site at [www.nj.gov/drbc/programs/natural/](http://www.nj.gov/drbc/programs/natural/).

regulations would be accepted through March 16, 2011 and three public hearings would be scheduled during the comment period, with details to follow (*Editor’s Note: The hearings were held in Honesdale, Pa. and Liberty, N.Y. on February 22, 2011 and in Trenton, N.J. on February 24, 2011; the deadline for written comments would be later extended to April 15, 2011.*) DRBC, for the first time, accepted electronic submission of comments using a web-based form available on its web site. This was made possible by the National Park Service, which allowed the commission to use its Planning, Environment and Public Comment (PEPC) online system.

While the commissioners’ May 5th resolution setting the course for future activities and publication of the draft regulations in December were the most important actions during 2010, the following natural gas-related items also are noteworthy.

## Executive Director Determination Extended to Include Natural Gas Exploratory Wells

DRBC Executive Director Carol R. Collier announced on June 14, 2010 that she supplemented her May 19, 2009 determination to include natural gas exploratory wells, except

for those exploratory well projects already approved by the states on or before June 14, 2010. The earlier 2009 determination expressly did not cover wells intended solely for exploratory purposes. By this supplemental determination, all natural gas well project sponsors, including the sponsors of natural gas well projects intended solely for exploratory purposes, must first apply for and obtain commission approval before commencing any natural gas well project for the production from or exploration of shale formations within the drainage area of Special Protection Waters in the Delaware River Basin.

In light of the commission's May 5, 2010 decision to finalize natural gas regulations before considering project approvals, this supplemental determination removed any regulatory incentive for project sponsors to classify their wells as exploratory wells and install them without DRBC review before the commission's natural gas regulations are in place.

#### **Executive Director Amends June 14 Supplemental Determination**

On July 23, 2010, Executive Director Collier announced that she amended her June 14, 2010 supplemental determination to allow two additional natural gas exploratory wells in Wayne County, Pa. to proceed. Collier already publicly announced her intention to take this action at the July 14 commission meeting. Both Hess Corporation vertical exploratory

wells, known as Davidson 1V and Hammond 1V, received Pennsylvania Erosion and Sediment Control General Permits prior to June 14, but the company's well drilling applications already filed with the state's Department of Environmental Protection (PADEP) were still under active review by PADEP and awaiting a permitting decision on that date. The July 23, 2010 amended supplemental determination covered only the Davidson 1V and Hammond 1V exploratory wells, both of which remained subject to all applicable PADEP regulatory requirements, including state well drilling permits. The state-approved general permits provide specific information regarding siting of these exploratory wells and set forth in detail the erosion and sediment control measures to be implemented during and after their construction to protect water resources. All other aspects of the May 2009 and June

2010 determinations remained in full effect. Exploratory wells may not be fractured or otherwise modified for natural gas production without prior DRBC approval.

#### **Administrative Hearings Requested on Exploratory Well Determinations**

The commissioners at their July 14, 2010 meeting granted written requests submitted by several persons, a municipality, landowners' organizations, and environmental groups to schedule an administrative adjudicatory hearing on whether to modify the executive director's June 14, 2010 decision to require natural gas companies to obtain commission approval before installing natural gas exploratory wells, except for those exploratory wells that had received state drilling permits as of June 14, 2010. Some of the interested parties would like all exploratory wells to be excluded from commission review while other interested parties would like



The public packed the DRBC meeting on July 14, which was held at the West Trenton Volunteer Fire Company building in order to accommodate the expected large turnout.

all exploratory wells to be reviewed. The requests were consolidated and the Honorable Edward N. Cahn, a former U.S. District Court Judge for the Eastern District of Pennsylvania, was appointed as the hearing officer.

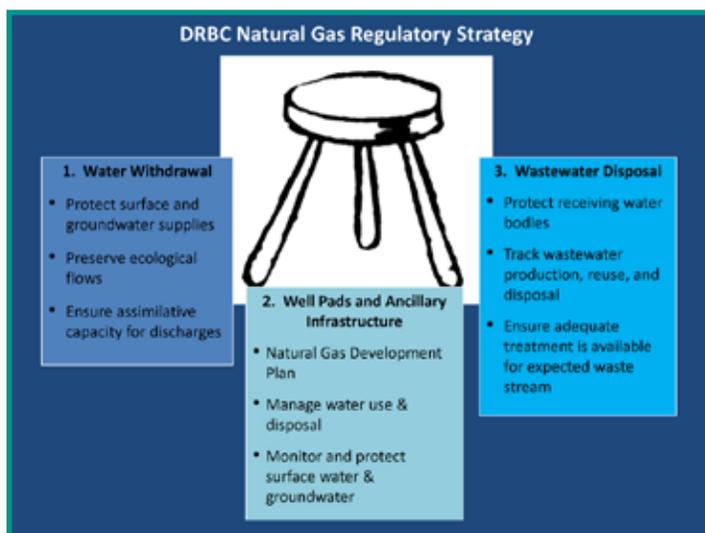
The commissioners at their September 15, 2010 meeting granted a written request submitted by the Delaware Riverkeeper Network and Damascus Citizens for Sustainability for an administrative hearing on the July 23, 2010 amendment to the supplemental executive director determination that allowed two exploratory wells sponsored by Hess Corporation to proceed without commission review; this request was consolidated with Judge Cahn's ongoing proceeding.

The hearing initially was scheduled for the week of December 13, 2010. Expert reports and witness affidavits were to serve as direct testimony at the hearing.

Counsel for several parties requested additional time to prepare expert reports. Judge Cahn determined that an extension of one month was appropriate to ensure the fairness of the hearing process and issued a revised scheduling order on November 2, 2010 announcing that the hearing would begin January 19, 2011. However, the hearing was terminated by action of the commission at its public meeting on December 8, 2010 in accordance with the recommendation of Judge Cahn and by fulfillment of a subsequent condition. Details can be found on the DRBC web site at [www.nj.gov/drbc/programs/natural/archives.html](http://www.nj.gov/drbc/programs/natural/archives.html).

### Stone Energy Water Withdrawal Approved

The DRBC at its July 14, 2010 public business meeting approved Stone Energy Corporation's proposed water withdrawal from the



The DRBC's natural gas regulatory strategy is often described as a "three-legged stool" because it addresses three water management areas of concern: water withdrawal, well pad and related activities, and wastewater disposal.

*for the natural gas well pad itself.*

The Stone Energy water withdrawal docket vote was three to one, with Delaware opposed and New York unable to attend due to out-of-state travel restrictions.

"This docket protects other water users and preserves ecological flows, key objectives for all surface water allocations," DRBC Executive Director Carol R. Collier said. Stone Energy must comply with several conditions contained in the approved withdrawal docket before it initiates any site preparation or construction at the withdrawal location. For example, it must submit to the DRBC and obtain the executive director's approval of a Non-Point Source Pollution Control Plan, an Operations Plan, and final site design plans and specifications.

The DRBC received over 1,700 written comments on Stone Energy's proposed water withdrawal project and its application for the Matoushek #1 natural gas production well located in Wayne County, Pa. In addition, a public hearing lasting over seven hours was held on February 24, 2010 in Matamoras, Pa. As indicated by the commissioners at their May 2010 meeting, consideration of Stone Energy's Matoushek #1 well pad project application will occur after new DRBC regulations are adopted.

West Branch Lackawaxen River in Wayne County, Pa. Because this water withdrawal is designed to support Stone Energy's natural gas activities, *the docket stipulates that the company cannot withdraw any water at the site until it receives separate DRBC approval*

# Water Quality Program Highlights

## DRBC Updates Toxic Criteria for the Tidal Delaware River and Bay

On December 8, 2010, the DRBC adopted modifications to its Water Quality Regulations, Water Code, and Comprehensive Plan that updated stream quality objectives for human health and aquatic life in the tidal portion of the Delaware River from the head of tide at Trenton, N.J. downstream to the Delaware Bay (Water Quality Management Zones 2 through 5). This action also extended the criteria to the mouth of the Delaware Bay at the Atlantic Ocean (Zone 6). These changes brought DRBC toxic pollutants' criteria into conformity with current U.S. Environmental Protection Agency (EPA) guidance while providing a consistent regulatory framework for managing the tidal portion of the main stem Delaware River and Bay. The revised toxics criteria became effective when the final notice was published on March 23, 2011.

Human health criteria revisions included changes to all current DRBC human health stream quality objectives, except PCBs, in freshwater and marine waters including criteria for carcinogenic as well as non-carcinogenic effects (i.e., systemic effects) of specific chemicals. A principal change is the use of an updated fish consumption rate by humans of 17.5 grams per day for both freshwater and marine stream quality objectives replacing a rate of 6.5 grams per day and 37.5 grams per day, respectively.

The updated aquatic life criteria

Stream quality objectives (also referred to as water quality criteria) are specifications of the condition of ambient water which are designed to assure the protection of the designated use of a water body. Examples of uses include wildlife, fish and other aquatic life; public water supply; agriculture; industry; recreation; and navigation.

that differ from previous DRBC stream quality objectives include 17 freshwater acute criteria, 13 freshwater chronic criteria, 16 marine acute criteria, and seven marine chronic criteria. For the purpose of determining compliance with stream quality objectives for the protection of aquatic life, the duration of exposure of aquatic organisms is one hour for acute objectives and four days for chronic objectives.

These updates were developed by the commission's Toxics Advisory Committee (TAC), comprised of representatives of the four basin states—Delaware, New Jersey, New York, and Pennsylvania—and members of the academic, agricultural, public health, industrial and municipal sectors, and non-governmental environmental community. The TAC charged its Toxics Criteria Subcommittee to evaluate recent data and methodologies for establishing water quality criteria with the following goals:

- To review the basis for existing DRBC water quality criteria and develop recommendations regarding revisions as needed to reflect the current science and risk assessment procedures; and

- To develop uniform criteria in shared waters of the basin that harmonizes DRBC criteria with basin states' criteria.

The proposed regulations were published in July and August 2010 and written comments were accepted through October 1, 2010. A public hearing took place on September 23, 2010, but no oral testimony was offered at that time. Two sets of written comments were received on the proposed amendments—one from the Delaware Estuary TMDL Coalition (a group of municipal and industrial dischargers) and one from the State of Delaware. After reviewing the comments, the TAC recommended that certain minor revisions be made to the draft that was eventually approved by the commissioners in December 2010.

The adopted modifications in this rulemaking did not include changes to the commission's criteria for PCBs in the Delaware Estuary and Bay since a rulemaking process to update the DRBC's human health criteria for PCBs is being undertaken separately.

Toxic pollutants are those elements and chemical compounds that have adverse effects on aquatic life and human health as a result

of both short-term and long-term exposure. These pollutants include metals such as copper, lead, and mercury, as well as a number of chlorinated organic compounds. They are regulated under the federal Clean Water Act (CWA) and in similar state statutes. The list of toxic pollutants established under the CWA contained 65 chemical compounds or groups of compounds. EPA subsequently identified 129 compounds for which the federal agency developed analytical methods and water quality criteria in the late 1970s and early 1980s. This list was subsequently reduced to 126 compounds, which are referred to as “priority pollutants,” and is the focus of regulation under the CWA.

DRBC and the basin states adopted water quality criteria for these pollutants in response to amendments to the CWA in 1986. The DRBC’s criteria are also called “stream quality objectives,” a term that predates the CWA, and were adopted in 1996. Tables three through seven of the commission’s Water Quality Regulations list the numerical criteria for the protection of aquatic life and human health. The commission conducts monitoring programs to assess the levels of these pollutants in the ambient waters, sediment, and tissues of aquatic life for the purpose of identifying those toxic pollutants that may be impacting aquatic life and human health through the ingestion of water and fish caught in the Delaware River.

Additional information can be

found on the DRBC web site at [www.nj.gov/drbc/quality/toxics/](http://www.nj.gov/drbc/quality/toxics/).

#### **Other 2010 Water Quality News**

- **Antidegradation - Special Protection Waters Implementation**

Water quality models for the Neversink and Lehigh rivers were calibrated and utilized in docket evaluations to “Keep the Clean Water Clean” in the Special Protection Waters of the non-tidal Delaware River. In addition, DRBC made significant progress in 2010 toward improvements to the Lower Delaware model supported by a multi-year \$130,000 grant from the National Park Service.

- **Ambient Toxicity Studies**

The Ambient Toxicity Workgroup of DRBC’s TAC assisted in the design of toxicity studies for the Delaware Estuary. A narrative report on monitoring ambient toxicity in the estuary was submitted to U.S. EPA Region 3 in June 2010.

- **Establishing Biocriteria**

Working with the Biological Advisory Subcommittee of the commission’s Water Quality Advisory Committee (WQAC), an interim methodology for biological monitoring was developed that uses benthic macroinvertebrate data as a direct assessment of aquatic life conditions in the non-tidal Delaware River (197-mile stretch from Hancock, N.Y. to Trenton, N.J.). This interim methodology was used in the 2010 Integrated

Additional water quality-related information can be found on the DRBC web site at [www.nj.gov/drbc/programs/quality/](http://www.nj.gov/drbc/programs/quality/).

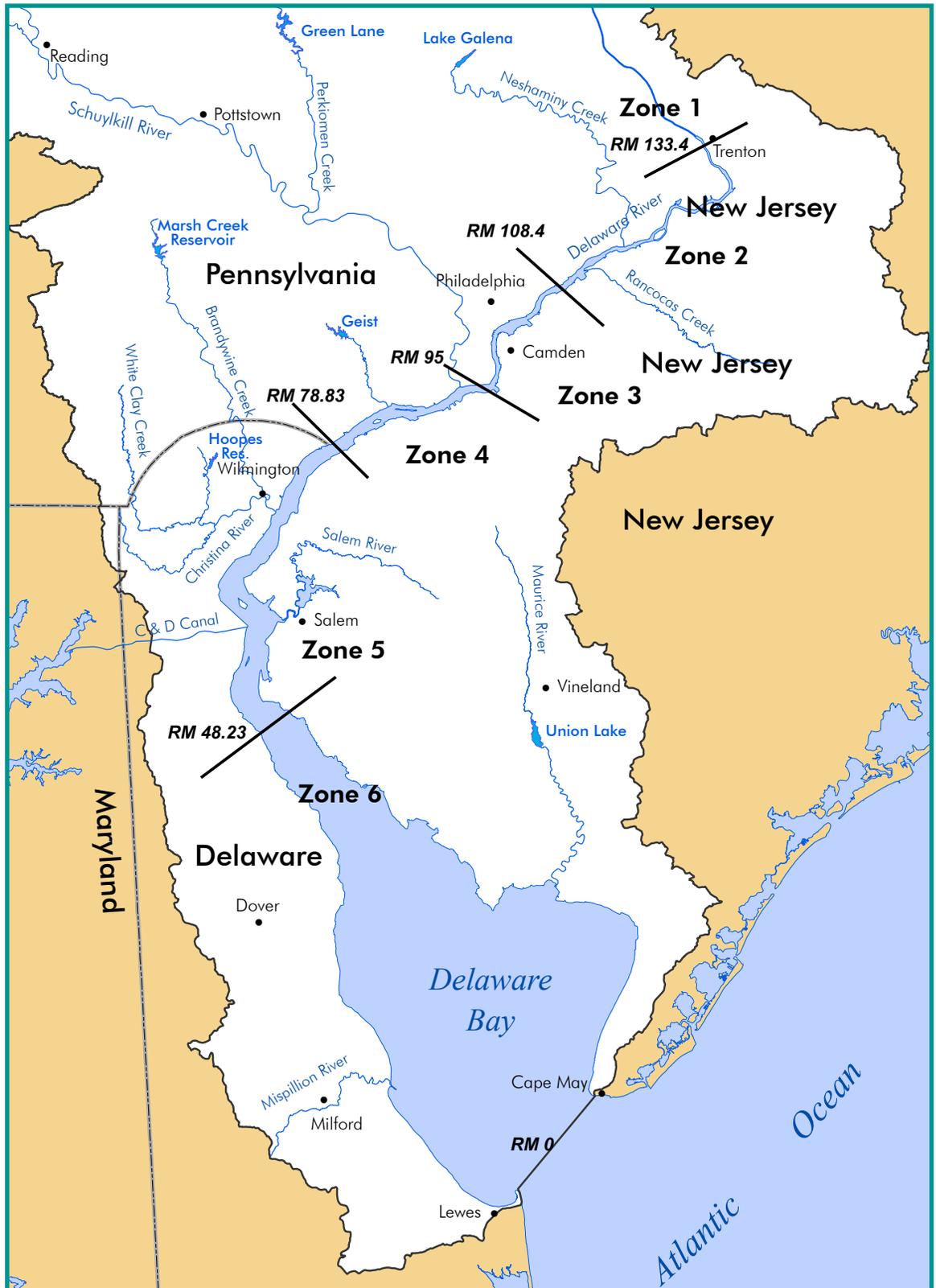
Assessment to evaluate aquatic life conditions in this section of the Delaware River, which found overall healthy conditions above the Lehigh River, but some signs of poorer health in the Delaware River below the Lehigh River.

- **Nutrients**

A summary report about commission studies on the effects of nutrients on phytoplankton growth in the lower portion of the non-tidal Delaware River was submitted to U.S. EPA Region 3 in June 2010.

- **Nutrient Monitoring**

The commissioners approved a WQAC-recommended strategy for nutrient monitoring of Delaware Estuary point-source discharges. This initial step will be critical for understanding the relative contributions of the varied nutrient sources and will provide the information necessary for evaluating options in the estuary’s nutrient criteria strategy.



The tidal portion of the Delaware River includes DRBC Water Quality Management Zones 2–5 and the Delaware Bay is Zone 6. Zones 2–6 encompass the Delaware Estuary. Zone 1 is the non-tidal Delaware River, which extends from Trenton, N.J. upstream to RM 330.7 at Hancock, N.Y. (RM = river mile)

## Basin News Briefs

### Third Federal Coordination Summit

Brigadier General Peter DeLuca, the federal representative on the commission, hosted the 2010 DRBC Federal Coordination Summit in Philadelphia, Pa. on October 6–7, 2010. The goals for the two-day summit, held at EPA Region 3 Headquarters and the Independence Seaport Museum, included:

- To provide an opportunity for improved coordination and information sharing between the federal commissioner and the federal agencies represented on the DRBC;
- To further the understanding of the Marcellus Shale play within the Delaware River Basin (DRB) and its impact on the federal government; and
- To identify action items necessary to better position federal agencies to engage in the planning for and potential implementation of Marcellus Shale-natural gas drilling within the DRB.

A total of 89 participants from 20 different federal, state, and other agencies participated in the summit.

During his opening comments beginning the second day of the summit, Brig. Gen. DeLuca stated that a sound federal partnership is the key to a successful commission. DRBC Executive Director Carol R. Collier echoed those sentiments and indicated that the federal summit marked the beginning of a yearlong celebration of the commission's 50th anniversary.

One of the key action item recommendations was to develop and implement an interagency team responsible for providing guidance to the federal commissioner pertaining to the federal government's position on DRBC actions. This team also will serve as an information conduit between agencies on DRBC issues and facilitate the formation of sub-teams for special projects.

The first and second federal coordination summits were

convened by Brig. Gen. DeLuca's predecessors: Major General William Grisoli in July 2006 and Brig. Gen. Todd Semonite in May 2008.

### New Administrative Agreement with Delaware

The State of Delaware signed a new agreement with DRBC in July 2010 that establishes practices and procedures for the submission and review of projects to promote intergovernmental coordination. It replaces the previous administrative agreement that had been in place since 1976 which no longer reflected current or best practices.

The majority of the projects reviewed by the DRBC under the Delaware River Basin Compact involve groundwater and/or surface water withdrawals and discharges. Environmental laws, state regulations, DRBC regulations, and agency practices have changed following the creation of the commission in 1961 and

### The following offices and agencies were represented at the Federal Coordination Summit:

- City of New York
- City of Philadelphia
- Commonwealth of Pennsylvania
- Delaware River Basin Commission
- Federal Emergency Management Agency (U.S. Department of Homeland Security)
- Federal Energy Regulatory Commission
- National Park Service
- Natural Resources Conservation Service (U.S. Department of Agriculture)
- National Weather Service
- Partnership for the Delaware Estuary (National Estuary Program)
- State of Delaware
- State of New Jersey
- State of New York
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Department of Agriculture
- U.S. Department of Energy
- U.S. Department of the Interior Office of Surface Mining
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Forest Service (U.S. Department of Agriculture)
- U.S. Geological Survey
- U.S. Senate (Office of Sen. Frank Lautenberg [N.J.]

the execution of the original administrative agreements with the states that have been in place for over 30 years. As a result of these statutory and regulatory changes and the experience gained in implementing the existing administrative agreements and programs, the commissioners directed DRBC staff in consultation with state environmental agency staff and the DRBC's Water Quality and Water Management advisory committees to develop recommendations to revise the administrative agreements to promote intergovernmental cooperation and avoid unnecessary duplication of staff functions.

The revised agreement with Delaware will minimize burdens on the regulated community while allowing resources from both the state's Department of Natural Resources and Environmental Control (DNREC) and DRBC to be redirected to other critical basin priorities, including in particular those concerning interstate (shared) waters. The new Delaware administrative agreement was modeled after the recently updated December 2009 agreement with New Jersey.

Detailed information can be found at [www.nj.gov/drbc/about/regulations/agreements/index.html](http://www.nj.gov/drbc/about/regulations/agreements/index.html).

**Flood Warning Improvements Update**

Flood inundation mapping, a new preparedness tool, became available in September 2010 for several main stem Delaware River communities.

It is an interactive, web-based product that shows the extent and depth of floodwaters over given land areas, enabling public safety officials and residents to examine the threat of floodwaters and determine areas of highest flood risk.

"Flood inundation maps will assist emergency management and planning, and are among the first to be made available to the public in the Northeast," DRBC Deputy Executive Director Bob Tudor said.

Flood inundation mapping was one of the recommendations identified in the Delaware River Basin Interstate Flood Mitigation Task Force Report following the floods of 2004, 2005, and 2006 to improve flood warnings and aid in conveying an awareness of flood risk along the Delaware River.

The flood inundation maps were made possible by the partnership efforts of the National Weather Service (NWS), Philadelphia District of the U.S. Army Corps of Engineers (USACE), and DRBC. Thanks to congressional and grant funding secured by the DRBC, map sets for the following five flood forecast points are now available on the NWS Advanced Hydrologic Prediction Service (AHPS) web site:

- Trenton, N.J.
- Lambertville, N.J./New Hope, Pa.
- Stockton, N.J.
- Frenchtown, N.J.
- Riegelsville, N.J.

Four additional flood

The commission was saddened by the passing of Scott Steigerwald, who died unexpectedly in June 2010 at the age of 47. Scott, who worked for the Pa. Department of Environmental Protection, served on the DRBC Flood Advisory Committee, which he chaired in 2008. He also was an important contributor to the Interstate Flood Mitigation Task Force as co-chair of the Structural/Non-Structural Committee.

inundation map sets are planned to be completed in 2011 at these locations:

- Phillipsburg, N.J./Easton, Pa.
- Belvidere, N.J.
- Montague, N.J.
- Port Jervis, N.Y.



U. S. Rep. Charlie Dent (Pa.-15), one of the co-chairs of the Delaware River Basin Congressional Task Force, speaking to attendees of the Sept. 2010 Flood Warning User Forum in Easton, Pa.

It is hoped that the use of flood inundation maps will facilitate more detailed forecasts of impacts and will enable emergency personnel to make quick decisions about when and how to close roads and evacuate residents threatened by rising floodwaters. In addition, it could prove to be a strong planning tool used by both residents and communities. The ability to view inundation levels of past flood events allows communities and residents to better understand their flood risk and plan for a sustainable future.

In September 2010, the new flood inundation maps were

highlighted to over 130 county and local emergency managers at three Flood Warning User Forums convened by DRBC and its partners in Easton, Pa., Lambertville, N.J., and Narrowsburg, N.Y. Attendees heard presentations from the NWS, USACE, U.S. Geological Survey (USGS), Nurture Nature Foundation, and other experts about the latest flood warning advancements in the basin as well as available online tools and forecast products.

“A great deal of the information provided at the forum was interesting and useful; in particular

the online tools that are available, both weather and hydrology related, as well as the discussions on uncertainty in forecasting,” Mercer County Deputy Coordinator Robert Hartman said.

User forum presenters informed attendees that flood inundation mapping, combined with various flood alert products, provide critical information to emergency management officials and citizens enabling greater flood preparedness. Tools, such as iNWS Mobile Alerts ([inws.wrh.noaa.gov/](http://inws.wrh.noaa.gov/)) and USGS WaterAlert ([water.usgs.gov/wateralert/](http://water.usgs.gov/wateralert/)), create customized text messages or email alerts that provide real time data from stream gages and notify users when a critical threshold is reached or forecasted. Citizens can stay informed, and more importantly, stay safe with such accurate, up-to-date information.

NWS is the primary source of weather data, forecasts, and warnings for the United States.

Additional information can be found on the DRBC web site at [www.nj.gov/drbc/programs/flood/warning.html](http://www.nj.gov/drbc/programs/flood/warning.html).

### **DRBC Increases Surface Water Charging Rates for First Time Since 1978**

The commission at its September 15, 2010 meeting by a 4-1 vote approved an increase in the surface water charging rates for consumptive and non-consumptive use from \$60 and \$0.60 per million gallons, respectively, to \$80 and \$0.80 per million gallons. New Jersey cast the “no” vote. This rate increase

The Nurture Nature Foundation (NNF), one of the partners that worked with DRBC to organize the Flood Warning User Forums, has established the Nurture Nature Center (NNC), a non-profit organization in Easton, Pa. NNF through the center has been working with the National Oceanic and Atmospheric Administration (NOAA)/NWS to develop a comprehensive, replicable flood education campaign to help residents in the Delaware River Basin and beyond improve their flood readiness. This effort spreads general flood education messages and focuses particularly on increasing use and awareness of flood forecasting and warning tools developed by NOAA/NWS. NNF’s “Focus on Floods” project web site can be viewed at <http://focusonfloods.org>.

In 2010, NNC received an award from NOAA to install the “Science on a Sphere” exhibit and create a new program for this educational tool to teach the public about the connection between climate and flooding. NNC will be expanding its mission and programming through the opening of its science-based education center at 518 Northampton Street in downtown Easton.

Discussions between DRBC staff and NNF about the importance of flood education and to explore partnering opportunities originally began in 2007. NNF founder Theodore Kheel, an acclaimed labor negotiator and philanthropist who played an active role in the creation of the Easton center, passed away in November 2010 at the age of 96.

became effective January 1, 2011.

Surface water charges are used to maintain and ensure the financial stability of the Water Supply Storage Facilities Fund, which provides a revenue stream to repay the obligations the DRBC assumed to purchase capacity at the federal government's Beltville and Blue Marsh water storage facilities. The commission directs releases from one or both of these reservoirs to maintain the flow objective of 3,000 cubic feet per second for the Delaware River at Trenton, N.J. when necessary during dry conditions (see "Lower Basin Reservoir Storage" on page 8).

The notice of proposed rulemaking and public hearing to amend the DRBC's water charging rates was published in February 2010. The suggested rate modifications in that notice were as follows: the consumptive use rate was to increase from \$60 to \$90 per million gallons effective January 1, 2011 and from \$90 to \$120 per million gallons effective January 1, 2012. The non-consumptive use rates were proposed to increase from \$0.60 to \$0.90 per million gallons effective January 1, 2011 and from \$0.90 to \$1.20 per million gallons on January 1, 2012.

The DRBC held a public hearing on April 13, 2010 to receive testimony and written comments on the proposed amendments. The executive director, upon review of the public comments, asked the commissioners to consider modifying the proposed increases

appearing in the February 2010 notice to the levels that were eventually adopted at the September 2010 meeting.

Resolution 2010-9 also authorized the executive director to establish a Water Charges Advisory Committee to advise the DRBC on the analysis and interpretation of studies that will be conducted to evaluate the various aspects of the commission's water supply charges program.

Additional information can be found at [www.nj.gov/drbc/about/advisory/charges/index.html](http://www.nj.gov/drbc/about/advisory/charges/index.html).

#### **16<sup>th</sup> Annual Delaware River Sojourn**

Themed "Bridging the Delaware Valley—Connecting Communities," the 2010 Sojourn celebrated the 75<sup>th</sup> anniversary of the Delaware River Joint Toll Bridge Commission as part of a commemoration with a focus on unique structural and historically significant bridges that cross the river, as well as ways in which the river connects us to one another and to the environment.

The Delaware River Sojourn is an annual event organized by a steering committee representing various organizations and government agencies in the basin. The 2010 committee was co-chaired by Sarah Berg (Pa. Department of Conservation and Natural Resources) and Kate O'Hara (DRBC).

Additional

information about the sojourn can be viewed at [www.delawareriversojourn.org](http://www.delawareriversojourn.org).

#### **NPS Upper Delaware Assistant Superintendent Retires**

Sandra S. Schultz retired from the National Park Service (NPS) in March after 37 years of federal government service, 27 of which were based in the Upper Delaware Scenic and Recreational River. The Pa. native was hired in 1973 by the U.S. Department of the Interior's Bureau of Outdoor Recreation and one of her duties was to assess recreation benefits for Wild and Scenic River studies. As an employee of the NPS Mid-Atlantic Regional Office, Sandy prepared the legislative support data package that led to the 1978 Congressional authorization of the Upper Delaware Scenic and Recreational River. She was among the first NPS staffers on the local scene as she worked with the Intergovernmental Planning Team



Sandy Schultz relaxing on the Delaware.

to draft the Upper Delaware's first River Management Plan.

Sandy also has played important roles with the Delaware River Sojourn, which she helped organize in 1995. She was presented a certificate by the sojourn steering committee in 2010 designating her as "The Duchess of the Delaware," which read, in part: "This honorary title is bestowed on Sandy for her role as a founding member of the Delaware River Sojourn Steering Committee and for her continued dedication and support—even in retirement—of the Sojourn. The Steering Committee would like to commend and thank Sandy for her tireless efforts, organizational and planning skills, and steadfast commitment. As Duchess, there are only a few responsibilities: relax, have a blast, grab your paddle, and RAFT UP!"

Sandy will be sorely missed by all who had the pleasure of working with her during her impressive public service career.

#### **Team Including DRBC Selected As Edelman Award Finalist**

A team consisting of Columbia University, The Nature Conservancy, Trout Unlimited, Delaware River Foundation, and the DRBC was among six finalists that competed for the INFORMS 2010 Franz Edelman Award for Achievement in Operations Research and the Management Sciences.

2010 marked the 39th year of the Edelman Award competition that looks at operational research in the

for-profit and not-for-profit sectors and how it helps move projects forward. A nomination for the award was submitted for the work of Dr. Peter Kolesar, a professor from Columbia University, with the assistance of the four other team members

to improve the design of releases from the New York City-Delaware Basin reservoirs to support multiple objectives. DRBC Deputy Executive Director Bob Tudor represented the commission at the awards ceremony held in Florida, where Inveval (the Mexican Central Securities Depository which handles operations averaging over \$250 billion daily) won first place. The other four contenders were Deutsche Post DHL, the New Brunswick Canada Department of Transportation, Procter & Gamble, and Sasol (a South African chemical and energy company).

The Institute for Operations Research and the Management Sciences (INFORMS) is an international scientific society with 10,000 members, including Nobel Prize laureates, dedicated to applying scientific methods to help improve decision-making, management, and operations. Members of INFORMS work in business, government, and academia.



DELAWARE RIVER BASIN COMMISSION

50<sup>th</sup> ANNIVERSARY CALENDAR • YEAR 2011

Additional information about the international competition can be found at [www.scienceofbetter.org/Edelman](http://www.scienceofbetter.org/Edelman).

#### **DRBC 50<sup>th</sup> Anniversary Calendar**

Commission staff created a commemorative 2011 calendar which was distributed during the final months of 2010 to honor the DRBC's 50<sup>th</sup> anniversary. In her message appearing in the front of the publication, Executive Director Carol R. Collier wrote, "This calendar was produced by the DRBC on the eve of its 50<sup>th</sup> anniversary, and we are grateful to the many contributing photographers. Much has been accomplished since 1961, and the DRBC looks forward to working with our many partners and stakeholders as we embark on meeting the challenges over the next 50 years."

The calendar features photos of basin scenes and themes, such as bald eagles, bridges, stewardship,

horseshoe crabs and shorebirds, recreation, and history. Each month also includes the front cover of a past DRBC annual report.

### **Grants for Schuylkill Watershed Restoration Projects Awarded**

The Schuylkill River Restoration Fund, initiated in conjunction with DRBC docket D-69-210 CP issued to Exelon Generation Company, LLC for its Limerick Generating Station, awarded \$222,500 to four projects in 2010 to mitigate abandoned mine drainage (AMD), stormwater runoff, and agricultural pollution. The four non-profit grant recipients included:

- Berks County Conservancy  
- \$52,500 for Martin Farm Agricultural Improvements.
- Lower Providence Township  
- \$40,000 for five stormwater basin retrofits.
- Schuylkill Headwaters Association  
- \$80,000 for the Glendower Breach AMD project.
- Greening Greenfield - \$50,000 for the schoolyard stormwater project at Albert M. Greenfield School in Philadelphia.

The projects will benefit the entire Schuylkill Watershed because they reduce the amount of runoff and pollution that enters creeks and ultimately the river, which is the source of drinking water for over one million people. The Schuylkill River is the Delaware's largest tributary.

Exelon has provided \$975,000 to the restoration program over the past five years. The Philadelphia Water Department (PWD) donated an additional \$100,000 to the fund this

year as a first-time contributor.

DRBC Executive Director Carol R. Collier attended the grant announcement, which took place at Aidenn Lair Park, in Upper Dublin Township, Pa., site of a recently completed stormwater improvement project from the 2008 grant round. "I am pleased to be here today, as we announce four, very deserving, non-profit grant recipients and to welcome the Philadelphia Water Department as a new funding partner," Collier said. "I encourage others in the Schuylkill River Watershed to join Exelon and PWD in making contributions to support this important work."

Also in attendance at the grant announcement were State Sen. Stewart Greenleaf (Bucks/Montgomery-12) and State Rep. Thomas Murt (Montgomery/Philadelphia-152), along with officials from Exelon, PWD, Schuylkill River Heritage Area (SRHA), and the four grant recipients.

The Schuylkill River Restoration Fund was previously known as the Exelon Schuylkill River Watershed Restoration Fund, but was renamed to indicate the expansion from a solely Exelon-funded initiative. The fund is administered by SRHA. The non-profit organizations and

government agencies that receive money annually from the fund are selected by a committee comprised of representatives from Exelon, DRBC, PWD, U.S. Environmental Protection Agency, Pa. Department of Environmental Protection, Partnership for the Delaware Estuary, and SRHA.

For more information, please visit [www.nj.gov/drbc/programs/project/wadesville/schuylkill.html](http://www.nj.gov/drbc/programs/project/wadesville/schuylkill.html).

### **Rain Barrel Workshops**

In partnership with Rutgers Cooperative Extension, Sustainable Lawrence, N.J. Department of Environmental Protection/AmeriCorps Watershed Ambassador Program, and DRBC, "Build Your Own" rain barrel workshops were held during March 2010 in Lawrence Township, N.J. and at the commission's headquarters building in West Trenton, N.J.

Rain barrels collect and store rainwater from roofs that would otherwise be lost to runoff and diverted to storm drains and



Rain barrels under construction at the March 2010 workshop held behind the DRBC building in West Trenton.

streams. They help to conserve water, reduce irrigation costs, and lower the impacts of stormwater on our waterways. According to U.S. EPA, lawn and garden watering make up nearly 40% of total household water use during the summer, so a rain barrel can save most homeowners about 1,300 gallons of water during the peak summer months.

N.J. Watershed Ambassador Angela Adams, who was hosted by DRBC, coordinated the rain barrel workshops. DRBC has hosted the ambassador for Watershed Management Area 11, which includes the Central Delaware River region, since 2001.

The AmeriCorps New Jersey Watershed Ambassadors Program is an environmental community service program administered by the state DEP to raise public awareness about water and watershed issues and to promote watershed stewardship through direct community involvement. AmeriCorps members are assigned to different watersheds throughout New Jersey to serve as “Watershed Ambassadors” to their communities.

More information about the AmeriCorps N.J. Watershed Ambassadors Program can be found at [www.nj.gov/dep/wms/bear/ameri-corps.htm](http://www.nj.gov/dep/wms/bear/ameri-corps.htm).

#### **Federal Legislation to Optimize Coordinated Basin Conservation**

Congressmen Mike Castle (Del.-At Large), Maurice Hinchey (N.Y.-22), Rush Holt (N.J.-12), and Charlie Dent (Pa.-15), co-

chairs of the Delaware River Basin Task Force in the U.S. House of Representatives, along with Congressman Joe Sestak (Pa.-7) introduced the Delaware River Basin Conservation Act of 2010 on February 25.

“Under this legislation, we will be creating a needed federal umbrella charged with carrying out a coordinated strategy for protection and restoration efforts in the Delaware watershed, one of the nation’s most important water bodies and natural landscapes,” Congressman Castle said.

The bill, H.R. 4698, would build on current efforts in the basin and provide a non-regulatory framework for coordinating conservation efforts and increasing resources for on-the-ground restoration projects. The Secretary of Interior would be directed to establish the Delaware River Basin Restoration Program within the U.S. Fish & Wildlife Service and to work in conjunction with existing organizations and management structures to identify, prioritize, and implement restoration and protection actions in the basin. The legislation also calls for a well-funded, competitive grant program to support locally-driven projects. The federal share for each of these projects would be as much as 75 percent and a proposed \$5 million would be authorized annually.

No action was taken on H.R. 4698, which was cosponsored by Congressmen Christopher Carney (Pa.-10) and Frank LoBiondo (N.J.-2), so the legislation will need

to be reintroduced when the new Congress convenes in 2011.

A staunch supporter of the DRBC, Congressman Castle’s nine-term career in the U.S. House of Representatives concluded on January 3, 2011. He also served as an ex officio commission member during his two terms as governor of Delaware from 1985 to 1992. The DRBC commends Mr. Castle for his many years of distinguished public service to the people of the “First State” and the Delaware River Basin, and wishes him the very best in the years ahead.



Congressman Mike Castle, pictured here speaking at a Christina Basin Clean Water Partnership program in 2002, was a strong advocate for watershed protection throughout his public service career.

# Financial Summary

**“The respective signatory parties covenant and agree to include the amounts so apportioned for the support of the current expense budget in their respective budgets next to be adopted, subject to such review and approval as may be required by their respective budgetary processes.”**

*Delaware River Basin Compact (Public Law 87-328, Section 13.3c)*

On May 5, 2010, the commissioners unanimously approved the DRBC’s current expense budget of \$6,231,000 for fiscal year 2011, which extends from July 1, 2010 through June 30, 2011. It calls for the following signatory member shares: Pennsylvania \$893,000 (25%), New Jersey \$893,000 (25%), United States \$715,000 (20%), New York \$626,000 (17.5%), and Delaware \$447,000 (12.5%). This was the same level of member contributions as in last year’s budget. In addition, the commissioners approved the DRBC capital budget (Water Supply Storage Facilities Fund) reflecting revenues of \$3,144,000 and expenditures of \$3,407,000.

During fiscal year 2010 (July 1, 2009 through June 30, 2010), New Jersey and Pennsylvania each paid their full fair share of \$893,000 and Delaware paid its full fair share of \$447,000. New York’s payment of \$472,800 was \$153,200 below its 17.5% full fair share. DRBC received \$178,750 from the federal government, which was the balance remaining from the full fair share amount of \$715,000 appropriated during federal FY 2009 which extends from October 1, 2008 to September 30, 2009. No new federal contribution after October 1, 2009 was appropriated.

Cumulative shortfalls in federal and New York signatory member funding from FY 1996 through FY

DRBC’s financial records are audited annually as required by the Delaware River Basin Compact and are available for inspection, upon request, at the commission’s West Trenton headquarters.

2010 now total \$8,564,250 and \$1,020,280, respectively.

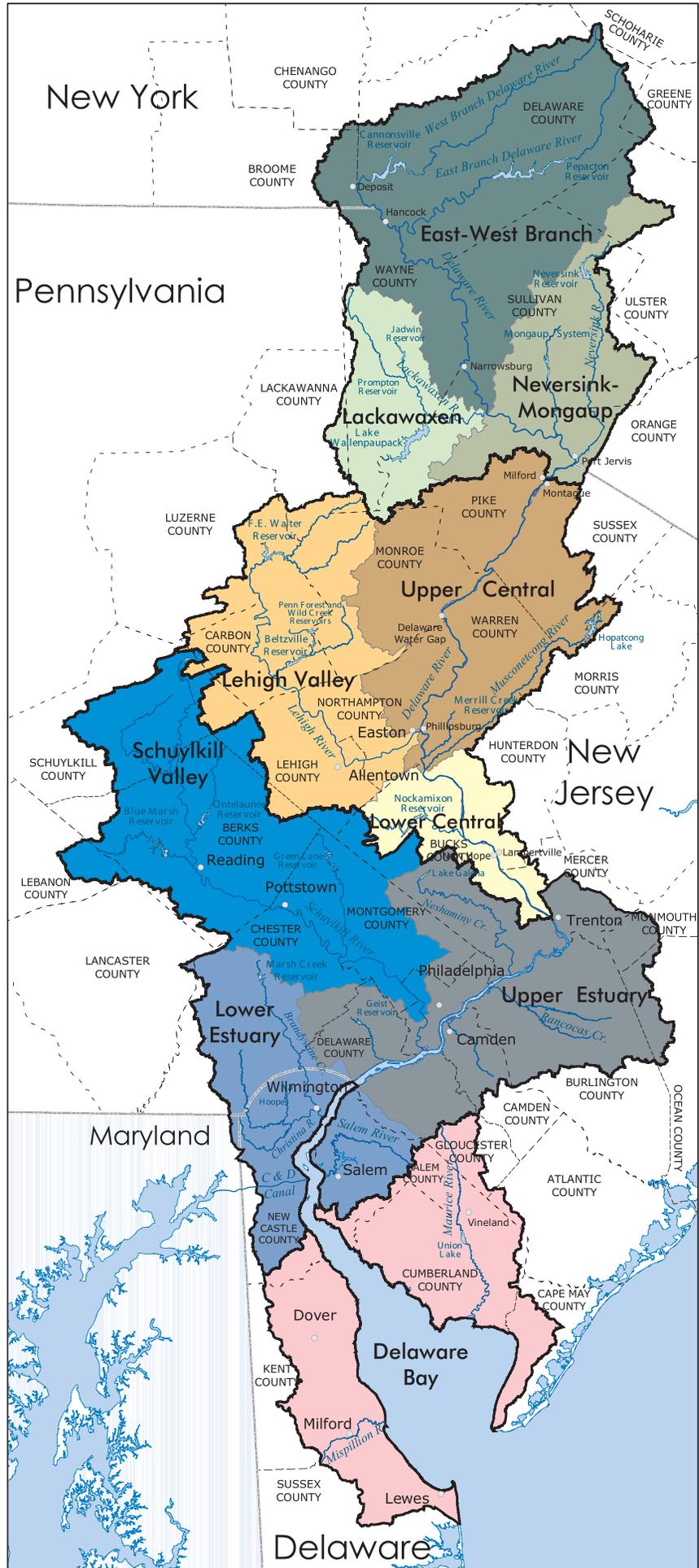
Efforts by congressional supporters to restore federal funding to DRBC, the Susquehanna River Basin Commission, and the Interstate Commission on the Potomac River Basin in 2010 received stiff resistance on Capitol Hill and were unsuccessful. A major obstacle continues to be that the president’s budget does not propose any funding for the three commissions. A letter signed by 12 U.S. Representatives from the Mid-Atlantic region was sent to President Obama on October 1, 2010 urging him to include funding for DRBC and the other two commissions in his future budgets. Congressman Tim Holden (Pa.-17) organized this effort and was joined by Delaware Basin legislators Maurice Hinchey (N.Y.-22), Rush Holt (N.J.-12), Paul Kanjorski (Pa.-11), Allyson Schwartz (Pa.-13), Christopher Carney (Pa.-10), Joe Sestak (Pa.-7), and Robert Brady (Pa.-1). The other four legislators to sign the letter were U.S. Reps. Glenn Thompson and Mark Critz from Pennsylvania, Gerald Connolly from Virginia, and Frank Kratovil, Jr. from Maryland.

## Delaware River Basin Commission Fiscal Summary - Agencywide for Fiscal Year Ending June 30, 2010

|                                                |             |
|------------------------------------------------|-------------|
| <b>Revenues:</b>                               |             |
| Signatory Contributions                        | \$2,884,550 |
| Grants & Special Projects                      | 1,583,973   |
| Surface Water Supply Charges                   | 2,498,258   |
| Project Review Fees, Investment Income & Other | 2,037,147   |
| <b>Expenses:</b>                               |             |
| Salaries & Benefits                            | \$4,725,803 |
| Operating Expenses                             | 2,227,860   |
| Debt Service and Depreciation                  | 1,252,323   |
| Building Improvements/Equipment Acquisition    | 65,225      |

# Watersheds of the Delaware River Basin

- UPPER REGION**
- East-West Branch Watersheds
  - Lackawaxen Watersheds
  - Neversink-Mongaup Watersheds
- CENTRAL REGION**
- Upper Central Watersheds
  - Lower Central Watersheds
  - Lehigh Valley
- LOWER REGION**
- Schuylkill Valley
  - Upper Estuary Watersheds
  - Lower Estuary Watersheds
- BAY REGION**
- Delaware Bay Watersheds



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