



**Delaware River Basin Commission**  
2016 ANNUAL REPORT  
CLEAN WATER BY THE NUMBERS

# DRBC 2016 BY THE NUMBERS



## WATER QUALITY



**76%**

Reduction in total PCBs observed at the top ten NPDES permittees since 2005, representing 90% of the cumulative loadings of PCBs in the Delaware River

[Details on page 8](#)



**175**

Days in the field.



**66**

Estuary and tributary water samples collected for toxics analysis, and evaluated for **24,841** chemical parameters.



**25**

Fish tissue samples in tidal and non-tidal Delaware River, Delaware Bay and coastal waters collected for toxics analysis of **5,439** chemical parameters.



**60**

Sediment samples from Delaware Estuary and Delaware Bay collected for toxics analysis of **13,697** chemical parameters.



**76,423**

Water Quality data points made available to the public on the Special Protection Waters Monitoring Explorer Program.



## WATER MANAGEMENT



**33.4 Billion**

Gallons of water in reservoirs managed by DRBC to maintain Delaware River flow.

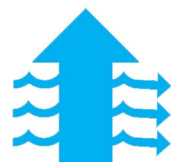
[Details on page 12](#)



**385**

Controlled releases from reservoirs to manage Delaware River flow.

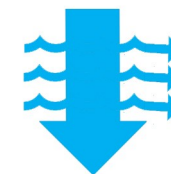
[Details on page 12 and 15](#)



**66,300 cfs\***

Highest Flow Rate in Cubic Feet per Second measured at Trenton—February 26, 2016.

[Details on page 19](#)



**2,370 cfs\***

Lowest Flow Rate in Cubic Feet per Second measured at Trenton—October 18, 2016.

[Details on page 19](#)



**90 miles**

Furthest upstream location of the "salt line" up from the Atlantic Ocean.

[Details on page 18](#)

\* CFS = cubic feet per second



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**Delaware River Basin Commission**

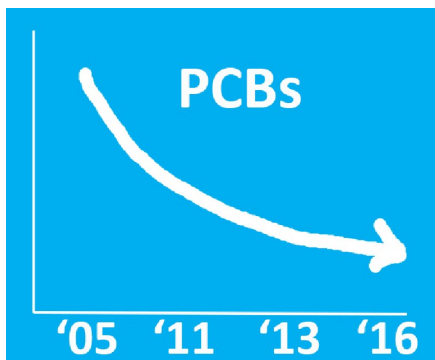
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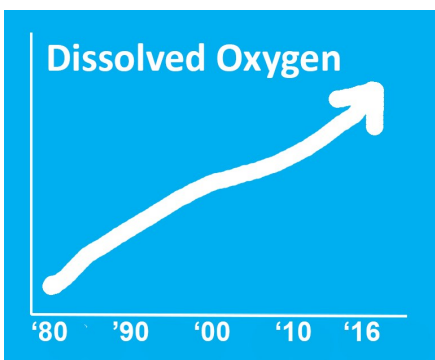


*Water Resource Modeling Manager Namsoo Suk, Ph.D., (left) and Water Resource Assessment Manager John Yagecic, PE collect water samples for analysis in the Delaware Estuary.*

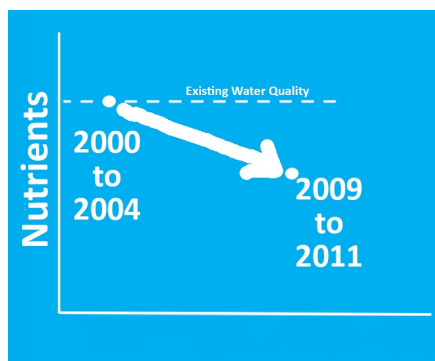
# EXECUTIVE DIRECTOR'S MESSAGE



PCB Loadings by Top Ten Dischargers in the Basin have been reduced by 76% since 2005. [See Page 8](#)



July Dissolved Oxygen in Delaware River at Ben Franklin Bridge has shown steady improvement.



Assessment of DRBC's Lower Delaware Special Protection Waters program showed nutrient concentration improvements.

[See Page 9](#)

## Clean Water for 15 Million People

2016 was a year of energy and excitement in the Delaware River Basin. Those of us “close” to the water felt it. A diverse community of stakeholders throughout the watershed placed renewed focus on the challenges and opportunities we face to ensure our region has a clean and sustainable water resource to serve more than 15 million water users for generations to come.

Energy and activity provide the most value when they lead to results. The DRBC, along with many others, at times struggle with how to determine when a water resource needs improvement and how best to measure the outcomes of our initiatives. In this annual report we will look at the numbers. They don't always tell the entire story, but “the numbers” are a great place to start, no matter what we seek to evaluate or improve.

### Was there enough water in the Basin?

Yes. In 2016 there was enough water to meet our flow objectives despite a serious dry period in the fall. In 2016 we saw 39 “drought days,” meaning days when key reservoirs that support flow to the basin and help to manage the salt front were below “normal” levels, requiring special management efforts by DRBC and others. During the lowest flow period in October 2016, “managed flow” of the Delaware River by DRBC and others (flow released from reservoirs versus natural base flow) represented about 62% of the total flow at Trenton, N.J. Thanks to late year rains, the reservoirs recovered, yet we must ask ourselves: would there be enough water during a repeat of the worst drought of record or with the uncertain impacts of changes to our climate? DRBC is developing flow models and other planning tools to address those vital questions. More numbers to come.

### Have DRBC programs resulted in better water quality?

The answer is a resounding “yes!” Measuring water quality is complex, yet we see example after example of DRBC-driven improvements throughout the Basin. In watersheds that drain to Special Protection Waters, DRBC's goal is “no measurable change” to existing water quality “except toward natural conditions.” DRBC's monitoring and assessment programs confirmed in a report published in 2016 that the “Lower Delaware” – the downstream reach of the non-tidal main stem – not only met the “no measurable change” water quality objective, but showed significant reductions in nutrient pollution that can be tied directly to DRBC programs. In the once industrialized portions of the




Delaware River Estuary near our great cities of Philadelphia, Camden, and Wilmington, we likewise see renewed energy around the resource, as cleaner water draws people who live, work, and play in these communities back to the Delaware River.

How did this come about? The “pollution diet” that DRBC placed on this region beginning in 1967 played a key role. It has been so successful that a once “dead” portion of the river is now home to numerous fish species, including the endangered Atlantic sturgeon. Dissolved oxygen in the Estuary, once at zero during the summer months, now routinely meets or exceeds summer water quality criteria. Levels of legacy pollutants, like PCBs, have been reduced significantly thanks to DRBC leadership and the cooperation and efforts of the regulated community to track down and clean up the contributing sources. The PCB load from the top 10 “point” source dischargers has been reduced by over 75% since DRBC started its program in



2005, and additional significant reductions have been achieved through the removal of major “non-point” sources such as contaminated sites that DRBC and its partners discovered during the track-down process.

At times, the more we learn, the more we understand new challenges. There is always more work to be done and there will always be more ways to measure success. The water resources in the Delaware River Basin have and will continue to benefit from the focus, energy, investment, resources, and commitment of so many within our Basin community. While the scope of DRBC’s role is broad-reaching, its resources are limited (we can show you the numbers); however, I can assure you that our dedicated professionals will continue to measure progress and define ways to make our magnificent shared resource cleaner, healthier, and more sustainable into the future. 



Steve Tambini, PE

# THE COMMISSION—2016

## SIGNATORY MEMBERS



**CHAIR\***

**FEDERAL GOVERNMENT**

**Brigadier General  
William H. Graham**



**MEMBER\***

**NEW YORK**

**Governor  
Andrew Cuomo**



**VICE CHAIR\***

**PENNSYLVANIA**

**Governor  
Tom Wolf**



**MEMBER\***

**DELAWARE**

**Governor  
Jack Markell**




**SECOND  
VICE CHAIR\***

**NEW JERSEY**

**Governor  
Chris Christie**

*The ex officio members of the Delaware River Basin Commission include the four Basin state governors and the commander of the U.S. Army Corps of Engineers, North Atlantic Division, who serves as the federal representative.*

*The five members appoint alternative Commissioners, with the governors typically selecting high-ranking officials from the state environmental agencies. Each Commissioner has one vote of equal power with a majority vote needed to decide most issues. The Delaware River Basin Compact requires the annual election of a chair and vice chairs, which historically has been based upon rotation of the DRBC's five members.* 



## ALTERNATES/ADVISORS — 2016

### FEDERAL GOVERNMENT

- 1st Alternate — LTC Michael Bliss, Commander, USACE Philadelphia District
- 2nd Alternate — David Leach, USACE NAD Programs Director
- 3rd Alternate — Henry Gruber, USACE NAD Deputy Chief of Planning & Policy Division

### PENNSYLVANIA

- 1st Alternate — Patrick McDonnell, DEP Acting Secretary
- 2nd Alternate — Kelly Jean Heffner, DEP Special Deputy Secretary for Water Resources Planning
- 3rd Alternate — Jennifer Orr, Director, DEP Compacts and Commissions Office

### NEW JERSEY

- 1st Alternate — Bob Martin, DEP Commissioner
- 2nd Alternate — Daniel Kennedy, DEP Assistant Commissioner for Water Resource Management
- 3rd Alternate — John Giordano, DEP Assistant Commissioner for Air Quality, Energy and Sustainability
- 4th Alternate — Jeffrey Hoffman, State Geologist

### NEW YORK

- 1st Alternate — Basil Seggos, DEC Commissioner
- 2nd Alternate — Mark Klotz, Director, DEC Division of Water
- 3rd Alternate — Tom Cullen, Assistant Director, DEC Division of Water (until Nov. 2016)  
— Angus Eaton, Director, DEC Bureau of Water Resource Management
- 4th Alternate — Kenneth Kosinski, Chief, DEC Watershed Implementation Section

Advisor — Emily Lloyd, New York City DEP Commissioner

### DELAWARE

- 1st Alternate — David Small, DNREC Secretary
- 2nd Alternate — Kara Coats, DNREC Deputy Secretary
- 3rd Alternative — Virgil Holmes, Director, DNREC Division of Water Management Section
- 4th Alternative — Bryan Ashby, Manager, DNREC Surface Water Discharges Section



# DELAWARE RIVER BASIN

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. The river is fed by 216 tributaries, the largest being the Schuylkill and Lehigh rivers in Pennsylvania.

In all, the Basin contains 13,539 square miles, draining parts of Pennsylvania (6,422 square miles or 50.3 percent of the Basin's total land area); New Jersey (2,969 square miles, or 23.3%); New York (2,362 square miles, 18.5%); and Delaware (1,004 square miles, 7.9%). Included in the total area is the 782 square-mile Delaware Bay, which lies roughly half in New Jersey and half in Delaware.



Reservoirs in DRBC's drought management plan. DRBC does not own or operate any physical reservoir.



# OUR WATER RESOURCES




WATER  
QUALITY

Senior Environmental Toxicologist Ron MacGillivray, Ph.D. (right) and Intern Taylor Krolik collecting sediment samples from the Delaware River.



## Digging for Contaminants

Sediment samples from the Delaware River were collected and submitted for analysis of targeted toxic substances, including legacy pollutants such as pesticides, polychlorinated biphenyls (PCBs), dioxins and furans (Dxf), and contaminants of emerging concern such as perfluorinated compounds (PFCs). DRBC staff work closely with the Commission's advisory committees to provide the precise and defensible data needed to identify contaminants of concern, assess environmental quality, and manage water resources. 



60

Sediment samples from Delaware Estuary and Delaware Bay



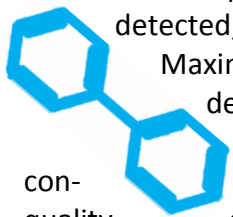


# WATER QUALITY

## A PCB Success Story

The federal Clean Water Act (CWA) requires that all surface water bodies be evaluated to detect impairments – i.e., instances in which the water quality standards are not being attained for one or more pollutants or “parameters” in a waterway.

When an impairment for a pollutant is detected, the CWA requires that a Total Maximum Daily Load (TMDL) be developed to identify the amount of the pollutant the waterway can contain while still meeting water quality standards. To implement the TMDL, all sources of the pollutant must be identified and loadings reduced until the TMDL is achieved.



During the 1990s and early 2000s, DRBC scientists led the process of developing TMDLs for polychlorinated biphenyls (PCBs) for Delaware River water quality zones 2 (Trenton, N.J.) through 6 (Delaware Bay). DRBC collaborated closely throughout this effort with the Delaware Department of Natural Resources and Environmental Control, New Jersey Department of Environmental Protection, Pennsylvania Department of Environmental Protection and Regions 2 and 3 of the U.S. Environmental Protection Agency (EPA). EPA established the TMDLs for PCBs in 2003 (zones 2-5) and 2006 (zone 6).


In support of the long-term process of implementing the TMDLs for PCBs, DRBC is responsible for managing and evaluating the effluent PCB data submitted by industries and municipalities that discharge to the river and for monitoring ambient PCBs – concentrations of these compounds present in the water column, sediment, fish, and tributaries. The Commission also serves as the PCB



*Science and Water Quality Management Director Thomas Fikslin, Ph.D., prepares Delaware River Estuary water samples for PCB testing.*

data repository. In coordination with state agencies and EPA, DRBC reviews and assesses the Pollutant Minimization Plans (PMPs) submitted annually by dischargers. In 2016, DRBC staff assisted 94 such dischargers in updating and implementing their PMPs, the dischargers’ individual plans for meeting their TMDL targets.

The most recent monitoring data show that the top ten dischargers (comprising 90 percent of total point source loadings of PCBs to the estuary and bay) have collectively reduced their discharge loads since 2005 by more than 75 percent, a tremendous achievement.

In addition to evaluating PMPs and sampling ambient water, fish tissue, and sediment, the DRBC staff (in coordination with staff of state agencies) conducts site visits to PCB discharge facilities and has hosted workshops on the PMP process for point source operators. 



# Special Protection Waters

## Better Data Show Better Results


In 2016, DRBC published the [Lower Delaware Water Quality Assessment](#), which showed that nutrient levels (primarily phosphorus and nitrogen) have decreased. Wastewater treatment plants (an important contributor of nutrient discharges to the river) in the Special Protection Waters (SPW) watershed have made improvements in their processes, consistent with DRBC's SPW program requirements. This lessens the nutrient loading into the Delaware River's main stem and eventually the Delaware Estuary. It is progress that bodes well for aquatic life up and down the river.

The assessment also showed an increase in chlorides at most control points, believed to be a byproduct of the use of road salt in winter. However, monitored results remained well below levels that would impact the aquatic environment. The Lower Delaware water quality assessment report is available on the Commission's website at [http://www.state.nj.us/drbc/programs/quality/lower-delaware\\_EWQassessment2016.html](http://www.state.nj.us/drbc/programs/quality/lower-delaware_EWQassessment2016.html)

DRBC developed an interactive mapping tool for the Lower Delaware measurable change assessment. It can be found on the Commission's interactive mapping web page: <http://www.state.nj.us/drbc/basin/map/interactive-map.html>.

Using data collected by DRBC and the National Park Service over the past three decades, along with data from state and federal agencies, the scientific record of background water quality conditions known as Existing Water Quality (EWQ) for Commission-designated Special Protection Waters in the Basin was created. SPW covers the entire non-tidal Delaware River from Hancock, N.Y. to Trenton, N.J.

Also in 2016, DRBC published a compilation of the EWQ data into a single document entitled [Existing Water Quality Atlas of the Delaware River Special Protection Waters](#). The "Atlas" summarizes EWQ for 85 locations on the upper, middle, and lower Delaware River Special Protection Waters. Water quality data were compiled and combined from the following sources: DRBC, National Park Service, New York DEC, New Jersey DEP, Pennsylvania DEP, and the U.S. Geological Survey.

The primary use of the Atlas is to document site-specific water quality, which allows DRBC to monitor for measurable changes in the river and its tributaries and track the Special Protection Waters program effectiveness over time. The Atlas is available to the public on the Commission's website at [http://www.state.nj.us/drbc/programs/quality/spw\\_ewq-atlas.html](http://www.state.nj.us/drbc/programs/quality/spw_ewq-atlas.html), and will be updated as additional information becomes available. 



*Water Resource Technician Elaine Panuccio retrieves a water sample in the Brodhead Watershed.*

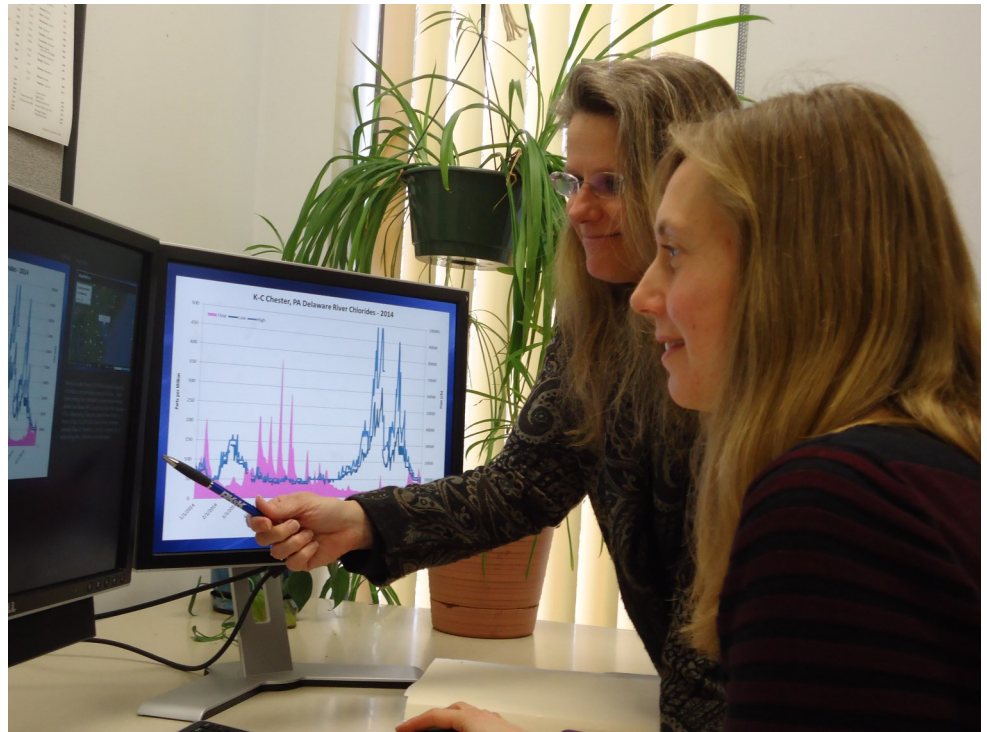
# OUR WATER RESOURCES




*Water Resource Operations Manager  
Amy Shallcross (left) and Water Resource  
Specialist Gail Blum review river flow data.*

## Precipitation

Most of the 42 counties in the Delaware River Basin experienced below-normal precipitation during 2016. Only four counties, each in the southern portion of the Basin, recorded above-normal precipitation during the year. Annual precipitation totals ranged from 34.9 inches in Broome Co., N.Y., to 52.2 inches in Sussex Co., Del. Departures from the annual normal precipitation ranged



from 12.1 inches below normal in Monroe Co., Pa. to 7.2 inches above normal in Sussex Co., Del.

Precipitation amounts at Montague, N.J., Trenton, N.J., and Wilmington, Del. are used to represent the regional precipitation throughout the Basin. The average precipitation above Montague for 2016 was 38.09 inches, or 7.20 inches **below normal**. Similarly, average precipitation above Trenton was 39.20 inches, or 8.80 inches **below normal**. Precipitation at Wilmington was 40.78 inches, or 2.30 inches **below normal**. 



**34.9 in.**

Lowest annual  
precipitation total.

**Broome County, N.Y.**



**52.2 in.**

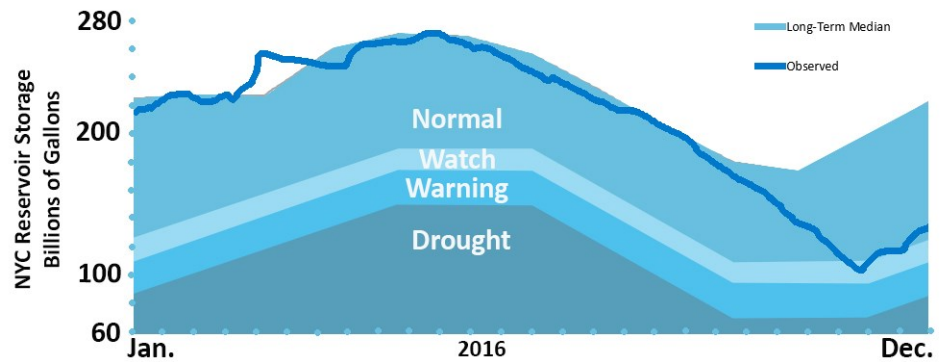
Highest annual  
precipitation total.

**Sussex County, Del.**

# The Basinwide Role of Reservoirs

The combined storage in the three New York City reservoirs in the Basin is managed to ensure the conservation of regional reservoir storage in times of drought,

through phased reductions in out-of-Basin diversions, reservoir releases, and flow objectives for purposes of water supply and flow augmentation in the Delaware River and salinity control in the Delaware River Estuary when necessary. Combined storage was even with or above the long-term median at the start of 2016. However, after hovering at the long-term median through the summer, storage began dropping in early autumn.



## The Drought of 2016

Dry weather persisted through autumn and by November the U.S. Drought Monitor was showing nearly all the DRB under moderate to severe climate drought. Releases from the NYC Delaware Reservoirs in the upper Basin and Blue Marsh and Beltzville reservoirs in the lower Basin were required to meet minimum flow objectives at Montague and Trenton. Despite these freshwater reservoir releases, the salt front reached Delaware River Mile 90, which is 20 miles upstream of its normal location for the month. On Nov. 23, in response to decreasing reservoir storage and low rainfall, DRBC issued a special permit deeming the entire Basin under a drought watch, resulting in coordinated operation of regional reservoirs. Out-of-basin diversions to New York City were reduced, and Merrill Creek Reservoir was required to make releases to replace evaporative loss caused by power generation. The Delaware River flow objectives at Montague and Trenton were also reduced.

Much-needed precipitation fell in late November and early December, raising streamflows and



*The Delaware River at Trenton on Nov. 11, 2016 shows the impact of the lower flows that led to a drought watch.*

eliminating the need to make releases from the upper and lower Basin reservoirs. The combination of inflow from precipitation and the reduction in releases improved storage in DRB reservoirs. Blue Marsh Reservoir regained normal storage by the end of the year, and Beltzville Reservoir's supply increased to above its drought warning level.





*Beltzville Reservoir*



*Blue Marsh Reservoir*

Photos Courtesy of U.S. Army Corps of Engineers

## Reservoir Storage

There are several reservoirs in the Delaware River Basin, all located on tributaries. They have many purposes, including water supply, hydro power generation, recreation, and flood control.

The U.S. Army Corps of Engineers (USACE) owns and operates several of these reservoirs. These include: Francis E. Walter in White Haven, Pa., Blue Marsh in Leesport, Pa., Beltzville in Lehighton, Pa., and Prompton and General Edgar Jadwin Dam in Honesdale, Pa.

While DRBC does not own or operate any physical reservoir, it does own water supply storage in the Beltzville and Blue Marsh reservoirs. DRBC pays the USACE from its Water Supply Storage Facilities Fund for reservoir storage that the Commission directs for releases to augment stream flow during dry conditions.

DRBC's basinwide drought operating plan allows the Commission to access up to 69 billion gallons of water for flow augmentation from Basin reservoirs in times of a DRBC-declared state of water supply emergency. The plan's primary drought management objective is to provide for conservation of regional reservoir storage for purposes of water supply and flow augmentation for the Delaware River, as well as salinity control in the Delaware Estuary.

Beginning in early September of 2016, Low flows in the Delaware River caused by ongoing dry conditions prompted the DRBC to request releases from the Beltzville and Blue Marsh reservoirs to meet the minimum flow objective at Trenton, N.J. (3,000 cubic feet per second).

The purpose of the Trenton flow objective is to control the "salt line" or "salt front" in the tidal Delaware River. Freshwater is needed to keep the "salty" or "brackish" water from advancing up from the Delaware Bay during low-flow conditions and reaching drinking water intakes that serve residents in Philadelphia and New Jersey, or impacting industrial intakes along the river.

[Details on page 18.](#) 

# Where Does the Water Go?

## Water Withdrawals

Understanding water withdrawals, water use, and supply is integral to the management of the Basin's water resources. In recent years, our understanding of the ways in which water is withdrawn and used has improved greatly, as have the underlying systems in place to manage the data, allowing for more timely and comprehensive assessments to be completed.

**15 Million**

People rely on water from the Basin.

**7 Million**

People living outside the Basin, who rely on water from the Basin.

**6.37 Billion Gallons**

Daily withdrawal from the Basin.  
90% of it coming from the Delaware River and its tributaries.

**659 Million Gallons**

Daily amount diverted from the Basin.

**284 Million Gallons**

Daily amount of Consumptive Use.

**3 Major Uses**



Power Generation



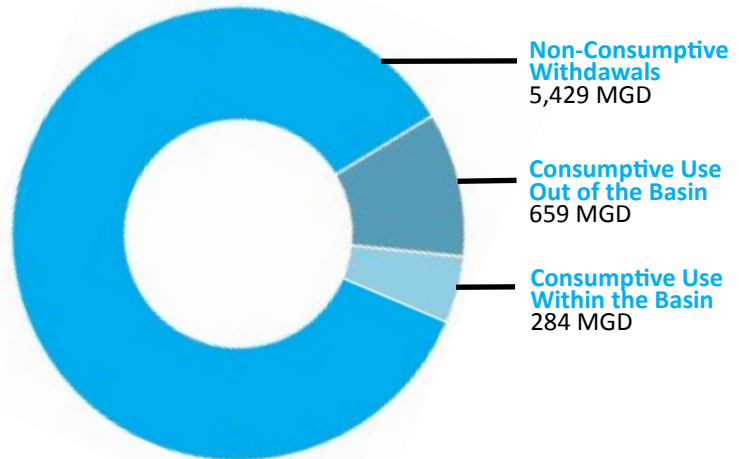
Public Water Supply



Industrial Use

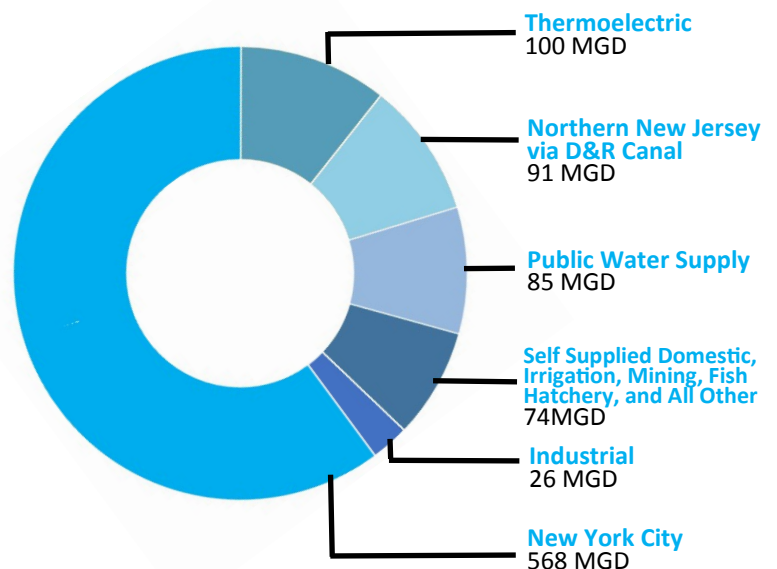
## Total Withdrawals

6,372 million gallons per day (MGD)



## Consumptive Use Withdrawals

944 million gallons per day



# Consumptive Use

In managing water resources, the withdrawal volume may not be as important as where, when, and if water is returned to the Basin. Consumptive water use occurs when water is withdrawn from the Basin, is either used or exported, and is not returned to, or is unavailable for further use in the Basin. Generally, consumptive use falls into two categories: out-of-basin diversions and in Basin loss, for example from the evaporation of steam by power generation facilities.

## New Jersey—Out of the Basin

In the 1950s, New Jersey began diverting water from the Delaware River Basin through the Delaware and Raritan Canal. The water travels from Bulls Island, north of Stockton, N.J. for 22 miles along the river until it turns inland near Trenton, N.J., then crosses into the Raritan Basin near Princeton, N.J. The water is managed by the New Jersey Water Supply Authority for multiple drinking water suppliers that serve the residents of central New Jersey. In 2016, New Jersey diverted 30.6 billion gallons from the Basin.



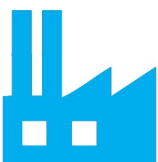
### Thermoelectric Withdrawals

Water withdrawals for thermoelectric power generation are primarily used for cooling purposes. The cooling process is typically achieved by either highly evaporative cooling towers or a once-through cooling process that uses a condenser to absorb heat. A decline in withdrawals for thermoelectric power generation over the past several years is a result of plant closings, or decreased production. However, the need for energy production in the Basin is expected to increase and other (smaller) facilities have come online to meet demand.



### Public Water Supply Withdrawals

Public water supply withdrawals show a slight declining trend largely driven by more efficient plumbing fixtures and fittings. In addition, education and awareness of water conservation practices have played a role in decreasing water use for this sector despite increases in Basin population. Although declining in the aggregate, withdrawals have increased where water conservation practices cannot offset the more rapid increase in population.




### Industrial Withdrawals

Over the past decade, industrial water use has declined slightly. However, refineries that were idle are once again in production and have returned to more normal operations with water withdrawals returning to previous levels.



# New York City—Out of the Basin

Three Delaware River Basin reservoirs are owned and operated by New York City, the nation's largest. Though the city itself is not in the Delaware River Basin, about half of its water is provided by these three reservoirs. New York City prides itself on the quality of its water, and the New York City Department of Environmental Protection funds a comprehensive Long-Term Watershed Protection Program above the reservoirs to preserve the high quality of water it uses from the Delaware River Basin. In 2016, New York City diverted 192 billion gallons from the Basin to provide water for its residents and communities along the Delaware Aqueduct, which brings the Delaware River Basin water to the city. 



*Cannonsville Reservoir  
Tompkins and Deposit, N.Y.*



*Pepacton Reservoir,  
Colchester and Andes, N.Y.*



*Neversink Reservoir, Liberty, N.Y.*

# 4,275,200

Approximate equivalent number of people in New York City (about half), who get much of their water from the Delaware River Basin.



# Groundwater

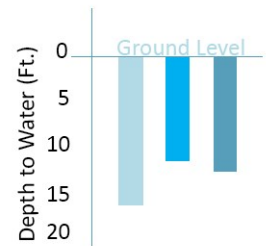


The 2016 drought had a significant impact on the Delaware River Basin’s ground-water resources. Water levels in many wells peaked early in the year and then declined to below normal during the height of the drought in late fall. Increased precipitation in late November and early December improved groundwater to some extent, but water levels remained below the normal range in many wells at the end of the year. The following observation wells were selected to represent groundwater conditions in the four basin states.



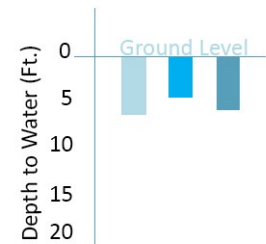
## Delaware

The groundwater level in the New Castle Co. coastal plain well, which is based on the observed monthly mean, remained within the normal range (25th to 75th percentile) until December 2016 when it dropped to slightly below the normal range of water level.



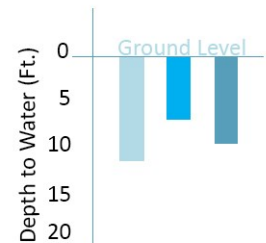
## New Jersey

The groundwater level in the Cumberland Co. observation well remained within the normal (25th to 75th percentile) to above-normal range during 2016.



## New York

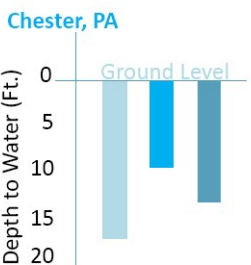
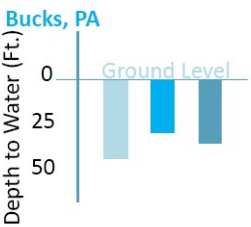
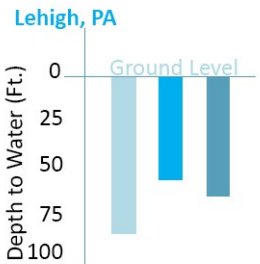
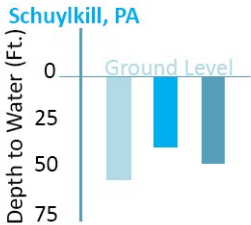
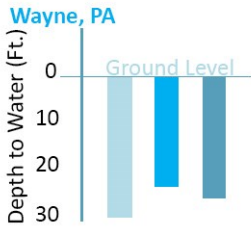
In New York, the groundwater levels in the Sullivan Co. well were generally within the normal (25th to 75th percentile) to above-normal range until late summer. A decrease below the normal range was observed during the driest periods of September through December. Increased precipitation during December improved conditions, but the water level remained below the normal range at the end of the year.






## Pennsylvania

Groundwater levels in five selected USGS county observation wells were used to represent Pennsylvania’s groundwater conditions during 2016. The individual wells were selected based on their geographic locations in the Pennsylvania portion of the Delaware River Basin: Wayne County WN 64 (northern), Schuylkill County SC 296 (western), Lehigh County LE 644 (central), Bucks County BK 1020 (eastern), and Chester County CH 10 (southern).



In the northern region of the Basin, water levels in the Wayne Co. and Schuylkill Co. observation wells were generally within the normal range (25th to 75th percentile) for the first half of the year, although both wells declined to below normal during drier periods in April and May. By late May, both wells were trending downward, and by November, water levels were below the normal range in both wells. Increased precipitation during December caused the Wayne Co. water level to markedly increase to within the normal range by the end of the year. The water level in the Schuylkill Co. well also improved during December, but remained below the normal range.

Water levels in the Lehigh Co. and Bucks Co. observation wells in the central portion of the Basin began the year within the normal range (25th to 75th percentile). The Lehigh Co. well declined to below normal by April and continued to decline through November. The Bucks Co. well maintained a water level within the normal range until mid-September when the level dropped below normal. Water levels in both wells improved in December, but still ended the year below the normal range.

On the southwest edge of the Basin, the Chester Co. observation well began the year with a water level within the normal range (25th to 75th percentile). By February, the water levels were trending downward, and by June, they had declined to below normal. The water level experienced an uptick in December after increased precipitation, but remained below the normal range until the end of 2016. 

*2016 Max and Min observed daily mean levels and historical medians are calculated by DRBC from well measurements provided by the Delaware Geological Survey (DGS) and the United States Geological Survey (USGS).*

*The New Castle, Delaware well measurements are provided by DGS.*


*Measurements for all other wells are provided by USGS.*

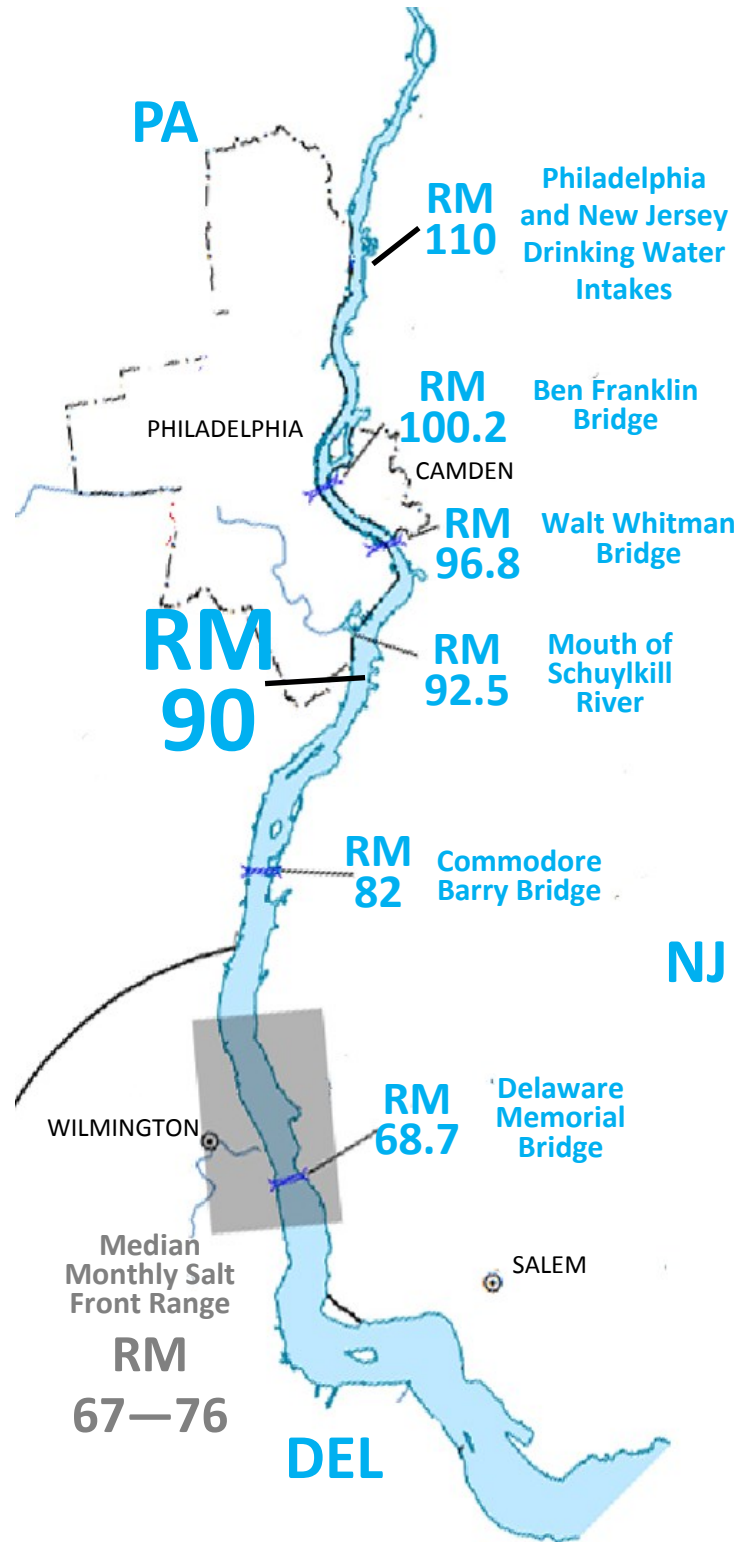


# Pushing Back the Salt Line

The purpose of the Trenton flow objective is to control the movement of the “salt line” or “salt front” in the tidal Delaware River. Adequate fresh-water flowing downstream is needed to repel the upstream advancement of “salty” or “brackish” water from Delaware Bay to protect drinking water intakes serving residents in Philadelphia and New Jersey as well as industrial intakes along the river from corrosion.

The salt front is defined as the 250 parts-per-million chloride concentration. The salt front’s location fluctuates along the main stem Delaware River as freshwater from upstream rivers increases or decreases in response to rainfall, snowmelt, or managed releases from reservoirs. Long-term median mid-month locations range from river mile (RM) 67 in April (two miles downstream of the Delaware Memorial Bridge) to RM 76 in September (two miles downstream of the Pennsylvania-Delaware state line).

The farthest upstream location of the salt front during 2016 was RM 90 in late November. This location is 12 miles upstream of the Pennsylvania-Delaware state line. By comparison, the farthest recorded upstream location of the salt front measured during the 1960’s drought of record was RM 102. 



**90 miles**

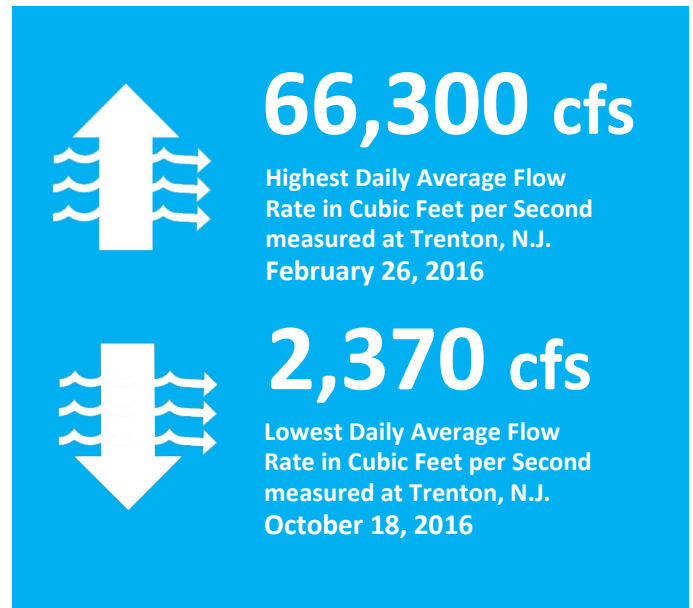
Farthest upstream location of the “salt line” from the Atlantic Ocean in 2016. RM 0 is the mouth of the Delaware Bay.

# Streamflow




Observed monthly mean streamflows along the main stem of the Delaware River and its two largest tributaries, the Lehigh and Schuylkill rivers, were normal to above normal during January and February 2016. The highest monthly average streamflows of the year at these locations occurred in February due to two separate storm events that produced heavy rain and melting snow. The Delaware River streamflow at Montague, N.J. and Trenton, N.J. was 167 and 185 percent of the normal flow, respectively. Flows were also high along the tributaries. The Lehigh River at Lehigh, Pa. and Bethlehem, Pa. were 213 percent and 188 percent of normal, respectively. The Schuylkill River at Pottstown, Pa. and Philadelphia averaged 246 percent and 219 percent of normal, respectively.

Except for August when streamflows were normal to above normal, average monthly streamflows were generally below normal for the remainder of 2016. The lowest monthly average streamflows of the year occurred during November. The Delaware River streamflows at Montague and Trenton were 44 and 31 percent of normal flow, respectively. Flows were also low along the



tributaries. The Lehigh River at Lehigh and Bethlehem were 20 percent and 26 percent of normal, respectively. The Schuylkill River at Pottstown and Philadelphia averaged 28 percent and 20 percent of normal, respectively.

As a condition of the basinwide drought watch declared by DRBC on November 23, Delaware River flow objectives at Montague and Trenton were reduced to 1,650 cubic feet per second (cfs) and 2,700 cfs, respectively. [Details on Page 11](#) 

# OUR REGULATED COMMUNITY



## Dockets Approved in 2016

The Delaware River Basin Compact provides in Section 3.8 that no project having a substantial effect on the water resources of the Basin shall be undertaken unless it shall have been first submitted to and approved by the Commission.

Projects formally reviewed by the Commission are referred to as “dockets.” Projects may also be approved by the Commission through the One Process/One Permit program. [See page 21.](#)

In 2016, DRBC approved **86** dockets.

### WITHDRAWAL DOCKETS

- Groundwater
- Ground & Surface Water
- Surface Water

### COMBINED DOCKETS

- ◆ IWTP and Groundwater Withdrawal

### DISCHARGE DOCKETS

- Industrial Wastewater Treatment Plant (IWTP)
- Wastewater Treatment Plant

### OTHER DOCKETS

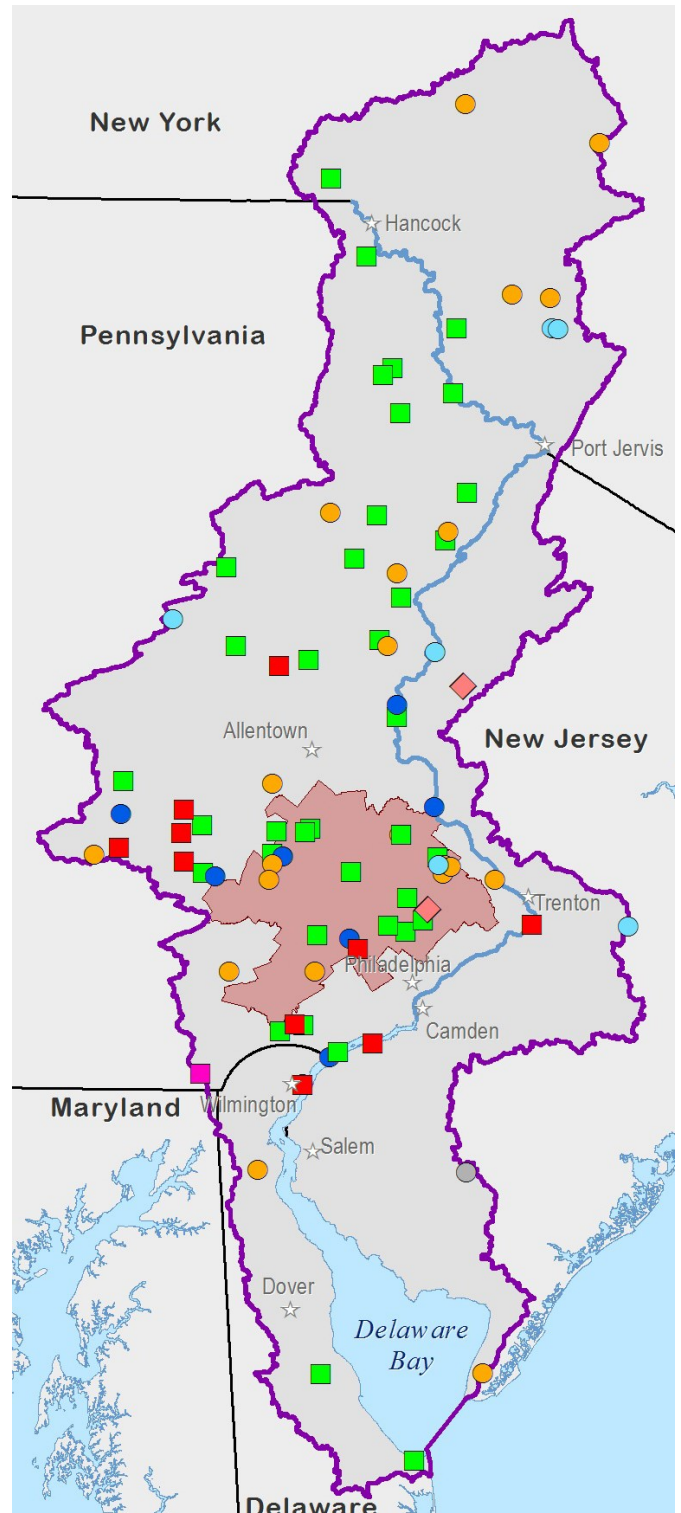
- Other
- Pipeline

■ *Southeastern Pennsylvania Groundwater Protected Area*

## Southeastern Pennsylvania Groundwater Protected Area

Because of its unique geology and development pressures, an area in southeastern Pennsylvania was designated by the Commission in 1980 as a Groundwater Protected Area.

Water withdrawals from this area in excess of 10,000 gallons a day require DRBC permitting. In 2016, the Commission reviewed and issued four water withdrawal permits.





# One Process/One Permit



In 2015, the DRBC unanimously approved the One Process/One Permit Program, which became effective in March 2016.

The One Process/One Permit Program promotes close collaboration and enhances administrative efficiencies between DRBC and the four Basin states, while ensuring that equal or better environmental outcomes are obtained. For projects subject to regulatory review by both the DRBC and a Basin state, the program allows for the issuance of a single approval instrument incorporating the applicable requirements of the two authorities. The program does not alter the regulatory standards of the DRBC or any state agency, and the respective authorities of each agency are expressly preserved.

Participation in the One Process/One Permit Program by signatory party agencies is voluntary. The scope of a signatory party agency's participation will be defined by an administrative agreement (AA) between DRBC and the agency after the agreement undergoes a duly noticed public hearing. Currently, the states of New Jersey and New York are part of the program.



2016 saw major headway in the New Jersey program, as DRBC staff performed reviews of pre-draft New Jersey Pollutant Discharge Elimination System (NJPDES) permits, submitted timely comments, and developed a format for scheduling permit reviews and coordinating with the Science and Water Quality Monitoring Branch. This enabled the Commission to lay the groundwork for one permit coordination with the New York State Department of Environmental Conservation at the end of 2016.



**Department of  
Environmental  
Conservation**

The states will be the lead agencies and issue permits under the One Process/One Permit Program for wastewater discharges under the National Pollutant Discharge Elimination System (NPDES) water quality programs. For water withdrawals, the lead agency could either be the state or the DRBC, depending upon current state programs and the terms of the administrative agreement between DRBC and the appropriate state agency.

Beginning in 2017, DRBC project review fees that had previously been in effect are not applicable to projects that are processed by DRBC's member state agencies through One Process/One Permit, unless the project must be added by the Commission to its Comprehensive Plan. DRBC's costs associated with reviews of one process permits will instead be supported by an annual monitoring and coordination fee. [See page 22.](#)



# New Fees Approved for 2017



At its December 2016 meeting, the Commission approved several changes to its fee structure, including an annual, indexed inflation adjustment for most fees and water supply charges. The former project review fee structure, which had not been adjusted since 2009, was creating a funding gap because it was not fully covering the DRBC's regulatory program costs. The new fees became effective Jan. 1, 2017.

The fee restructuring provides a more predictable and sustainable source of revenues to support the costs associated with implementing the DRBC's project review program. The new fee structure aligns with the new One Process/One Permit Program. [See page 21.](#) For routine DRBC docket applications and renewals that are processed by DRBC's member state agencies through the One Process/One Permit Program, the DRBC project review fees were eliminated.

DRBC's costs associated with reviews are now supported by an annual monitoring and coordination fee. This annual fee applies to all water withdrawals and wastewater discharges subject to DRBC review and approval, including those permits issued under One Process/One Permit. The annual fee ranges from \$300 to \$1,000 depending upon the monthly water allocation for withdrawals and the design capacity for wastewater dischargers.

The project review fee with respect to water withdrawal projects for which the DRBC continues to act as the lead agency was also restructured. The amount is no longer based upon project costs or a flat renewal rate. Rather, it is now based upon the applicant's requested monthly allocation. This change better aligns DRBC's review fee with the actual cost of conducting a thorough technical review of these applications.



*Senior Geologist Eric Engle, PG of the DRBC Project Review Team listens to docket applicants explain a portion of their proposed project in the field.*

The project review fee for most wastewater discharges for which DRBC issues a separate docket continues to be a flat fee of \$1,000 for private projects and \$500 for publicly sponsored projects.

There is no change to fees for DRBC's review of projects that are neither water withdrawals nor wastewater discharges. The DRBC review fees for such projects are based upon project costs.

DRBC now has an annual indexed inflation adjustment for most fees and charges, including water supply charges. Beginning in 2017, increases reflecting inflation adjustments will become effective automatically on July 1. No change to the rate will occur in any year in which the applicable inflation index is flat or negative.

Water supply charges have been collected by DRBC for surface water withdrawals within the Basin, when applicable, since the 1970s to pay the capital and operating costs of water supply and flow augmentation storage owned by the Commission in two reservoirs constructed and maintained by the U.S. Army Corps of Engineers. The water supply charges are now subject to an annual inflation adjustment.



# OUR PUBLICS & OUR STAKEHOLDERS

## Advisory Committees

One of DRBC's strategic goals is to solicit diverse stakeholder participation and input on Basin water resource matters. DRBC's advisory committees provide such a forum for the exchange of information and viewpoints on a variety of issues, enhancing communication and coordination. The Commission recognizes the importance of engaging qualified representatives from federal/state/local government agencies, industry, municipalities, academia, public health, and environmental/watershed organizations to inform its policy decisions. There are currently five standing committees, each with its own bylaws and regular meeting schedule. In 2016, these included:

### Flood Advisory Committee

#### **Delaware Department of Natural Resources and Environmental Control**

Michael Powell, CFM

#### **New Jersey Department of Environmental Protection**

Vincent Mazzei, P.E.  
John H. Moyle, P.E.  
Joseph Ruggeri, P.E., CFM  
John Scordato

#### **New York Department of Environmental Conservation**

Mark Klotz, P.E.  
William Nechamen, CFM

#### **Pennsylvania Department of Environmental Protection**

Hoss Liaghat, P.E.

#### **New York City Department of Environmental Protection**

Tina Johnstone  
Thomas Murphy Jr., P.E.  
Dana Olivio  
John H. Vickers, P.E.

#### **Delaware Emergency Management Agency**

Arthur Paul  
Edward Strouse

#### **New Jersey Office of Emergency Management**

Sgt. Michael K. Gallagher,  
Christopher Testa (Committee Chair)

#### **New York State Division of Homeland Security and Emergency Services**

Richard Lord  
Gary L. Tuthill

#### **Pennsylvania Emergency Management Agency**

David Williams  
Thomas S. Hughes, CEM

#### **Federal Emergency Management Agency**

Dave Bollinger, CFM  
Scott Duell  
Patricia Griggs  
J. Andrew Martin, CFM  
Alan Springett

#### **U.S. Department of Agriculture - Natural Resources Conservation Service**

Hosea Latshaw  
David Lamm

#### **U.S. Geological Survey**

William F. Coon  
Heidi L. Hoppe  
Robert G. Reiser  
Mark Roland, P.E.  
Kirk White

#### **National Weather Service**

Peter Ahnert  
Jim Brewster  
Al Cope  
Laurie Hogan  
Raymond Kruzdzlo (Committee Vice Chair)  
Al Matte  
George McKillop  
Patrick O'Hara  
Ted Rodgers  
Ben Schott

#### **U.S. Army Corps of Engineers**

Jason F. Miller, P.E.

#### **National Park Service**

Kristina Heister  
Vince Pareago

#### **Delaware River Joint Toll Bridge Commission**

Sean M. Hill

#### **Electric Generation Industry (Hydropower and Off-Stream Storage)**

Meredith Strasser

#### **County Water Resources Agencies**

Gerald Kauffman, P.E.

#### **Emergency Management Representatives**

David K. Burd  
Steve Hood

#### **Monitoring Advisory and Coordination Committee**

#### **Academia**

#### **Agriculture/Forest Service**

Richard Birdsey

#### **Delaware**

David Wolanski (Committee Chair)

#### **Delaware River Basin Fish and Wildlife Cooperative**

Sheila Eyler

#### **Land Use Planning Community**

Barry Seymour

#### **National Oceanic and Atmospheric Administration**

#### **National Park Service**

Don Hamilton  
Jessica Newbern

#### **New Jersey**

Leslie McGeorge  
Bruce Friedman

#### **New York**

Sarah Rickard



## **Pennsylvania**

Michael Lookenbill

## **U.S. Army Corps of Engineers**

Jerry Pasquale

## **U.S. Environmental Protection Agency**

Deb Szaro

John S. Kushwara

## **U.S. Geological Survey**

Tom Imbrigotta

## **Volunteer Monitoring**

Maya K. van Rossum

## **Regulated Flow Advisory Committee**

## **Delaware Department of Natural Resources and Environmental Control**

William Cocke, P.G.

## **Delaware Geological Survey**

Stefanie Baxter, P.G.

## **New Jersey Department of Environmental Protection**

Joseph A. Miri, Ph.D.

Steve Domber

## **New York City Department of Environmental Protection**

Jen Garigliano

## **New York State Department of Environmental Conservation**

Brenan Tarrier

## **Office of the Delaware River Master**

Robert R. Mason, Jr.

## **Pennsylvania Department of Environmental Protection**

A. Hoss Liaghat, P.E. (Committee Chair)

## **Philadelphia Water Department**

Kelly Anderson

## **U.S. Army Corps of Engineers**

Laura Bittner

## **Toxics Advisory Committee**

### **Academic**

David Velinsky, Ph.D.

Keith Cooper, Ph.D.

Randall Detra, Ph.D.

### **Agriculture**

Brian F. Oram

Paul W. Semmel

### **Delaware**

Richard W. Greene, Ph.D.

### **Environmental/Watershed**

Maya K. van Rossum

Anthony K. Aufdenkampe, Ph.D.

### **Environmental Protection Agency Region II**

Brent Gaylord

### **Environmental Protection Agency Region III**

Kuo-Liang Lai, P.E.

### **Federal Fish & Wildlife**

Clay Stern

### **Industry**

J. Bart Ruitter

Scott Northey

### **Municipal**

Jason Cruz

Joseph Kardos, Ph.D.

### **New Jersey**

Biswarup (Roop) Guha

Sandra M. Goodrow, Ph.D., C.F.M.

Stephen Seeberger

### **New York**

Scott J. Stoner

Jason R. Fagel

### **Pennsylvania**

Jenifer L. Fields

### **Public Health**

Julie R. Petix, MPH, CPM, HO

## **Water Management Advisory Committee**

### **Delaware**

John T. Barndt, P.G.

### **New Jersey**

Carolyn Olynyk

### **New York**

Michael Holt

### **Pennsylvania**

Hoss Liaghat, P.E.

### **U.S. Army Corps of Engineers**

Laura Bittner, P.E.

### **U.S. Environmental Protection Agency**

Katie Lynch

### **U.S. Geological Survey**

Daniel J. Goode, Ph.D.

### **City of New York**

Dana Olivio

### **City of Philadelphia**

Kelly Anderson

### **County Water Agency**

Janet L. Bowers

### **Water Resources Association**

Kathy Klein (Committee Vice-Chair)

### **Industry**

James Mershon (Committee Chair)

### **Water Utility**

John Thaeber

### **Agriculture**

Brian F. Oram, P.G.

### **League of Women Voters or other Civic Organization**

Elizabeth Tatham

### **Environmental Organization**

Mary Ellen Noble

### **Watershed Organization**

Pete Golod

### **Academia**

Gerald J. Kauffman, Ph.D.

### **Recreation**

Ann M. Pilcher

### **Fisheries**

(Vacant)

## Water Quality Advisory Committee

### Academia/Science

John K. Jackson, Ph.D.

### Delaware

David Wolanski (Committee Chair)  
John Schneider

### Environmental Professional

Maya K. van Rossum

### Local Watershed Organization

Abigail M. Pattishall, Ph.D.

### National Park Service Wild and Scenic Rivers Program

Richard Evans  
Peter Sharpe, Ph.D., PWS

### New Jersey

Frank Klapinski  
Biswarup (Roop) Guha

### New York

Scott Stoner

### Pennsylvania

Thomas Barron  
Matthew D. Kundrat, Ph.D.

### Regulated Community - Industrial

J. Bart Ruitter  
Christopher Conroy

### Regulated Community - Municipal

Jason Cruz  
Bryan P. Lennon

### U.S. Environmental Protection Agency

Kuo-Liang Lai, P.E.  
Brent Gaylord


## Outreach

DRBC considers outreach to support the Commission's mission and the needs of interested user groups to be a strategic goal. To that end, DRBC took part in several community events throughout the Basin in 2016.

These included:

### Lehigh Valley Water Suppliers HydroMania

DRBC participated in the 16<sup>th</sup> annual HydroMania, a water festival attended by more than 1,000 elementary school students and teachers at Cedar Crest College in Allentown, Pa.

DRBC staff helped students answer the question, "Do we live in a watershed?" using a map of the Delaware River Basin and the Commission's Enviroscope watershed model. This model teaches students about different sources of non-point source pollution found in runoff especially after heavy rains and what we can do to help keep our waterways clean. 



*Administrative Assistant Denise McHugh uses an Enviroscope model to explain how water runs across the watershed's land and ends up in the river.*

## Temple University EarthFest



*Executive Assistant Donna Woolf shows young attendees how pollutants end up getting into the water system.*

On Earth Day, DRBC brought its expertise to Temple University's EarthFest, a free, annual outdoor celebration geared for kids of all ages showcasing hands-on learning activities. Over the years, DRBC has been a frequent EarthFest exhibitor, using its Enviroscape model to teach about different sources of water pollution.

Held on Temple's Ambler Campus, EarthFest celebrates Earth Day by promoting environmental awareness and protection using sustainable concepts, methods, and practices. 2016's EarthFest attracted nearly 7,000 students and featured more than 85 different exhibits. 💧

## Shad Festival—Lambertville, N.J.



*Water Resource Modeling Manager Namsoo Suk, Ph.D., points out the different kinds of macroinvertebrates found in the Delaware River.*

DRBC staff participated in the 35th Annual Lambertville Shad Festival in April. DRBC staff demonstrated how the type and amount of macroinvertebrates (aquatic insects) found in a waterway can help indicate its water quality. Staff collected insects from the river and displayed them in trays of water. Using identification keys and with the help of DRBC staff, kids and adults alike were able to identify the bugs found in the water samples. Finding more pollution sensitive species in the water samples, which we did at Shad Fest, was a positive indicator of the health of the Delaware River. 💧



# OUR EMPLOYEES & WORKPLACE



2016



37

Full Time Employees

9

Doctorates



15

Advanced Degrees

7

Professional Engineers



4

Professional Geologists



175

Days in the Field

## Valued, Dedicated, Productive

Despite the Delaware River Basin's area of 13,539 square miles over four states, the Commission's staff is a small group of mostly biologists, geologists, toxicologists, planners, and engineers, many with advanced degrees and professional certifications. In 2016, the average DRBC staff member had about 24 years of experience in their respective technical field, and about 13 years of service with the Commission.

## Trusted Technical Expertise

### Sharing with the Basin's Professional Community

Commission staff are routinely asked to speak on water resource management and technical issues. In 2016, examples of these included:

#### Water Resource Planner Kent Barr

- *Water Utility Auditing and Water Use Trends in the Delaware River Basin* at the American Water Works Association —New Jersey Section's Annual Conference.

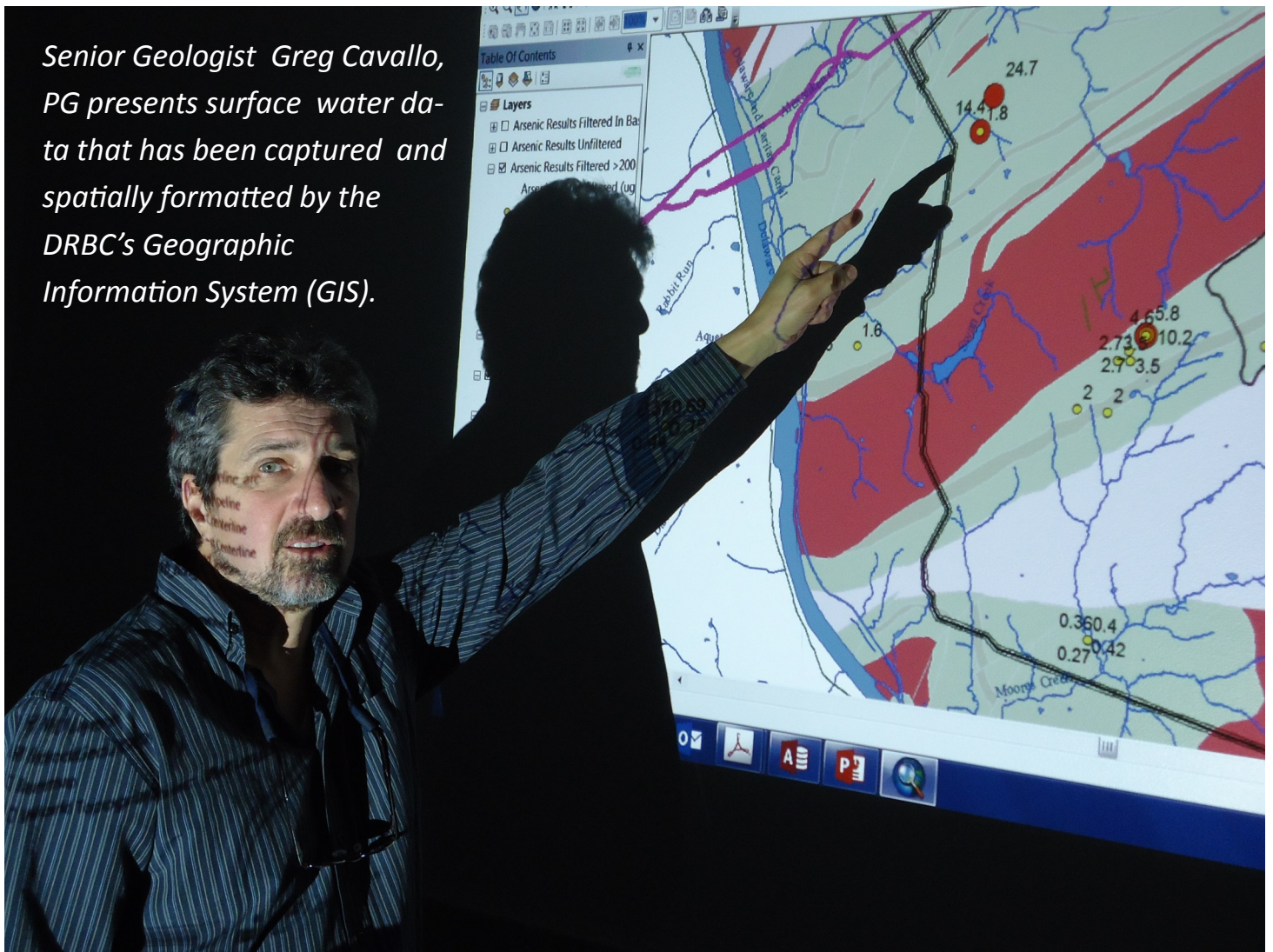
#### Commission Secretary/Assistant General Counsel Pamela Bush, JD

- *Today's Hot Topic in the Delaware River Basin – Improving Water Quality in the Delaware River Estuary* at the Pennsylvania Bar Institute's Environmental Law Forum.

#### Senior Geologist Gregory Cavallo, PG

- *Data Management for Delaware Estuary PCB TMDLs* at the Spokane River Regional Toxics Task Force Workshop.

Senior Geologist Greg Cavallo, PG presents surface water data that has been captured and spatially formatted by the DRBC's Geographic Information System (GIS).



**Director of Science and Water Quality Management**  
Thomas Fikslin, Ph.D.

- **Long-Term Implementation of Complex TMDLs: Stage 2 TMDLs for PCBs for the Delaware Estuary** at the New Jersey Water Environment Association's 101st Annual Conference.
- **Role of Sediments in Managing PCBs in the Delaware Estuary** at the New Jersey Water Monitoring Council's January 2016 meeting.
- **Determination of Water Quality Standards for the Delaware Estuary: Process and Potential Outcomes** with Frank Klapinski, NJDEP, at the New Jersey Water Environment Association's Technology Transfer Seminar.

**Senior Aquatic Biologist Robert Limbeck**

- **Advances in Implementation of Antidegradation Policies and Practices in DRBC Special Protection Waters** at the Mid-Atlantic Conference of the American Water Resources Association.

- **Enhancing Data Interpretation in the Delaware River Basin with R** at the National Water Quality Monitoring Council's 10th National Monitoring Conference.
- **Delaware River Biomonitoring Program Status** at the New Jersey Water Monitoring Council's January 2016 meeting.
- **Assessment of Measurable Water Quality Changes in the Lower Delaware Special Protection Waters** poster at the National Water Quality Monitoring Council's 10th National Monitoring Conference.

**Director of Water Resource Management Ken Najjar, Ph.D., PE**

- **Advantages and Challenges of Basinwide Water Resource Management** at the Coalition for the Delaware River Watershed's 4th Annual Delaware River Watershed Forum.





Senior Aquatic Biologist Robert Limbeck providing one of his many presentations.

- **Source Water Considerations in the Delaware River Basin** at the Workshop on Water-Related Research in the Delaware River Basin.

**Senior Environmental Toxicologist Ron MacGillivray, Ph.D.**

- **PFAS in Surface Water and Fish Tissue from the Delaware River** at the American Chemical Society’s National Conference and Exposition, the Hudson Delaware Chapter of the Society of Environmental Toxicology and Chemistry Fall Meeting, and the New Jersey Water Monitoring Council’s January 2016 meeting.
- **Contaminants of Emerging Concern in the Delaware River Basin** at the Chemical Council of New Jersey Spring Conference.

**Manager of Water Resource Operations Amy Shallcross, PE**

- **Floods, Droughts, and Competing Uses in the Delaware River Basin** to a USACE sponsored delegation of visiting officials and technical staff from Albania at the request of the New Jersey Office of Emergency Management.
- **Flow Management** at the American Water Works Association—New Jersey Chapter’s Annual Conference.

**Executive Director Steve Tambini, PE**

- **The Schuylkill River and its Vital Connection to the Delaware River Basin** at the Schuylkill Action Network’s Annual Meeting.
- Featured speaker at the American Sustainability Leadership Council’s INSight Series in Harrisburg, Pa.
- Moderated the plenary panel that featured DRBC alternate commissioners from the states of Delaware and New Jersey and the Commonwealth of Pennsylvania. The panel was a *Discussion with the States of the Watershed* and focused on issues that affect the Delaware River Basin.
- **Water Resource Management in the Delaware River Basin** at the American Water Works Association —New Jersey Section’s Annual Conference.

**Manager of Water Quality Assessment John Yagecic, PE**

- **Protecting Water Quality in the Delaware River for Drinking Water** at the American Water Works Association —New Jersey Section’s Annual Conference.





Need a speaker or presentation related to the water resources of the Delaware River Basin? Contact Kate Schmidt at [Kate.Schmidt@drbc.nj.gov](mailto:Kate.Schmidt@drbc.nj.gov)



## Caring Community Partners

DRBC staff participated in two river clean-ups in 2016. In August, a dozen co-workers went to Palmyra Cove, N.J. along the Delaware River and performed a major clean-up of the shoreline. A month later, staff volunteers (like Water Resource Engineer Kendria Henson — at right) loaded into boats and rode over to Little Tinicum Island on the Pennsylvania side of the Delaware. Two specific sites on this island were cleared of much debris during this clean-up effort.

In December, 13 staff volunteers worked at the Mercer Street Friends Food Bank. They sorted and packaged food stocks, as well as assisted in loading up local food bank transports for distribution to community non-profits.



## An Exceptional Workplace



*Senior Information Specialist Karl Heinicke inspects one of the DRBC building's wireless routers.*

Having an exceptional workplace is a strategic goal at the DRBC. It is about purposefully creating an environment with cross-functional teams, who understand the importance of the DRBC's Compact and Mission in order to contribute in a timely and responsive manner.

It also means providing staff with the technology and setting that enables them to accomplish the Commission's important work. In 2016, DRBC enhanced the wireless system in its building, as well as added another wireless system for use by Commission visitors.



# FINANCIAL SUMMARY

The DRBC operates and maintains two funds for budgeting purposes: a General Operating Fund (GOF) and a Water Supply Storage Facilities Fund (WSSF).

## The General Operating Fund

The General Operating Fund is the basic and routine operating budget for the DRBC. It includes all revenues and expenses required for the year-to-year operations and maintenance of the agency. Revenues are provided through several key sources, including signatory party contributions, project review fees, compliance-related actions, transfers from the WSSF, and other sources.

## The Water Supply Storage Facilities Fund

The WSSF was created to fund certain water supply storage facility projects in the Basin. The WSSF is used to repay the obligations the DRBC assumed to purchase storage capacity at the federal government's Beltzville and Blue Marsh reservoirs. The WSSF also supports DRBC's pro rata share of the annual operations and maintenance costs of the two reservoirs, the water supply share of any future required improvements at these two facilities, a share of DRBC operating costs to support a sustainable water supply within the Basin (transfers to the GOF), and any future required storage in the Basin. Revenues for the WSSF are generated from charges for applicable surface water withdrawals in the Basin. The balance of the WSSF at the end of FY 2016 was \$17,988,859.

## DRBC Fiscal Year 2016

(July 1, 2015 – June 30, 2016)

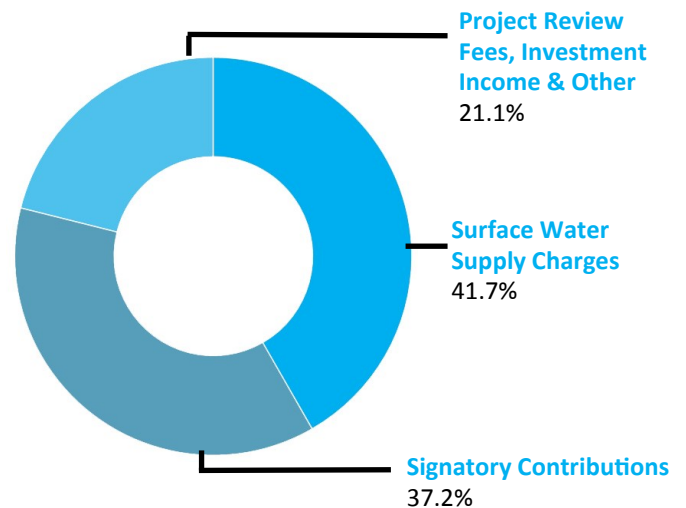
Actual expenses totaled \$5,246,179 offset by revenues of \$5,191,530 resulting in a \$54,649

decrease in fund balance for the general fund.

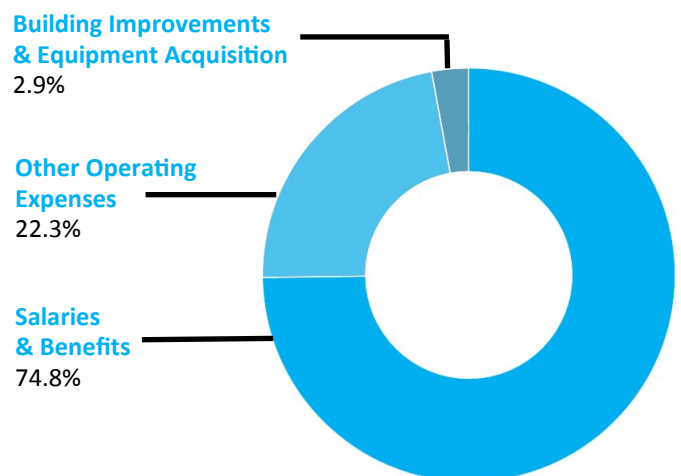
**DRBC Fiscal Year 2017** (July 1, 2016—June 30, 2017)

Following the public hearing held on May 11, 2016, the Commissioners on June 15, 2016 approved the DRBC's current expense budget of \$6,512,100 for the fiscal year ending

## General Fund Revenues \$5,191,530

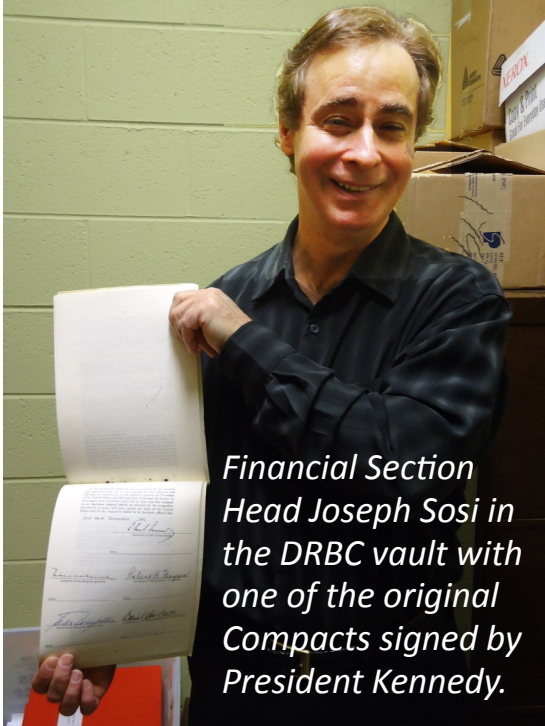


## Expenses \$5,246,179

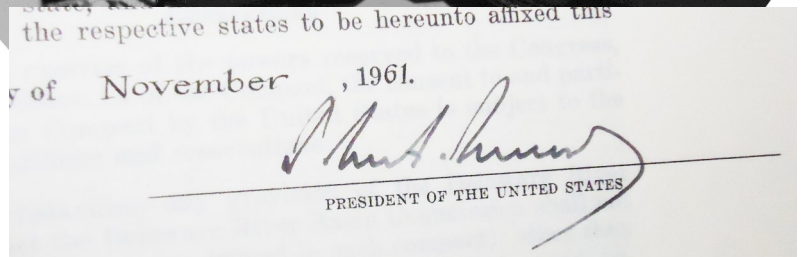


## Independent Financial Audit

DRBC's financial records are audited annually as required by the Delaware River Basin Compact. The most recent annual independent audits are available at [www.nj.gov/drbc/about/public/annual-audit.html](http://www.nj.gov/drbc/about/public/annual-audit.html).



*Financial Section Head Joseph Sosi in the DRBC vault with one of the original Compacts signed by President Kennedy.*



“Today’s formal signing of the Delaware River Basin Compact is a significant event. Its significance lies in the unique character of the Compact and the great hope for comprehensive plans for full and effective development of the Delaware River Valley. The highly industrialized character of the Basin and the heavy population concentrated in the region presents a real challenge to the Commission in its efforts to devise a water resource program suited to the area’s needs. Included within the Commission’s jurisdiction is the control and development of adequate water supplies, pollution control, flood protection, watershed management, recreation, hydroelectric power, and the regulation of withdrawals and the diversion of water. ... We are glad to join with Delaware, New Jersey, New York, and Pennsylvania in this bold venture. The task set for the Commission will not be easy to achieve, but we are confident that the cooperation that has brought forth this Compact will endure, and that working together real progress can be made for the people of the Basin.”

*Remarks by President John F. Kennedy as he signed the Delaware River Basin Compact, one of which can be seen in his left hand in the photograph above, on November 2, 1961*



## About the Front Cover

The front cover features letters and numbers that were produced using a Plugable Technologies digital microscope.

They include:

- D—from the set of ten Delaware River Recreation Maps produced by and available from the DRBC
- R—from USGS Map
- B—from one of the Recreation Maps
- C—from the DRBC's published Water Resources Plan
- 2 - from the LCD display of an ISCO programmable sampler
- 0— from a manual tally counter
- 1— from a chain of custody form
- 6— from a surveyor's rod



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