RYAN A. BIZZARRO, CHAIRMAN
414 MAIN CAPITOL BUILDING
P.O. BOX 202003
HARRISBURG, PENNSYLVANIA 17120-2003
(717) 772-2297
FAX: (717) 780-4767

HOUSE DEMOCRATIC POLICY COMMITTEE
WEBSITE: WWW.PAHOUSE.COM/POLICYCOMMITTEE
EMAIL: POLICY@PAHOUSE.NET
@PADEMPOLICY

HOUSE OF REPRESENTATIVES
COMMONWEALTH *of* PENNSYLVANIA

House Democratic Policy Committee Hearing
Protecting the Delaware River Basin

Hosted by state Representative Mary Isaacson, Vice Chair
House Democratic Policy Committee

Monday, Feb. 22, 2021 | 11 a.m. to 1 p.m.

11 a.m. – 11:30 a.m.	Kristen Bowman Kavanagh, Deputy Executive Director Delaware River Basin Commission
	Dr. Ron MacGillivray, Senior Environmental Toxicologist Delaware River Basin Commission
11:30 a.m. – 12 p.m.	Beth Brown, Director Delaware Watershed Program, Pennsylvania Audobon
12 p.m. – 12:30 p.m.	David M. Bria, President Yardley Borough Council
	Patrick Mulhern, co-owner Driftwood Water Adventures
12:30 p.m. – 1 p.m.	Timothy Brown, Brewmaster Tannery Run Brew Works
	Mike Contreras, Director of Sales & Marketing 2SP Brewing Company

Delaware River Basin Commission

Testimony to the Pennsylvania House Democratic Policy Committee at the Virtual Hearing on February 22, 2021

Supplemental Exhibit

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Delaware River Basin Commission

- Five Equal Members:
  - Delaware 
  - New Jersey  
  - Pennsylvania  
  - New York  
  - Federal Government   
- Four Governors **are** the Commissioners
  - DE is current chair
- Commissioner may select alternates
- Federal Commissioner is Commanding General, USACE, NAD
- Majority rules in most voting
- Meets quarterly

Note: New York City and Philadelphia are “advisors” and not members

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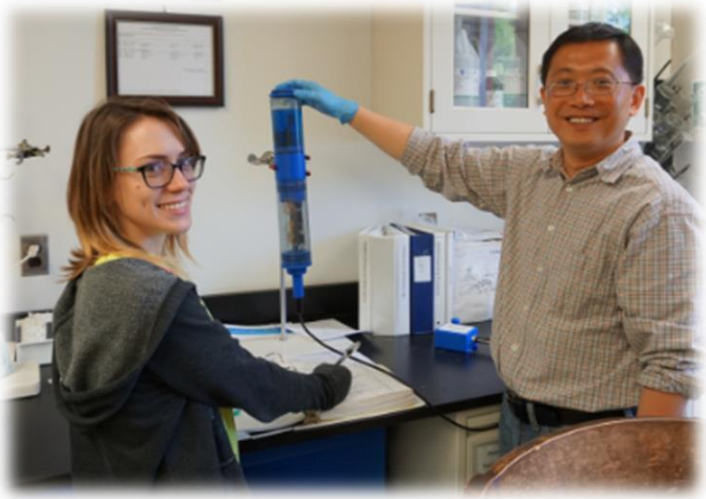
DRBC Staff and Budget

- Professional Planners, Engineers, Hydrologists, Modelers and Scientists
- 39 Budgeted Staff (12% Vacancy Rate)
- FY20-21 Budget = $5.9 million
- Funding from “Signatory Members” = $1.7 M (29%)
- Located in West Trenton, NJ since 1974



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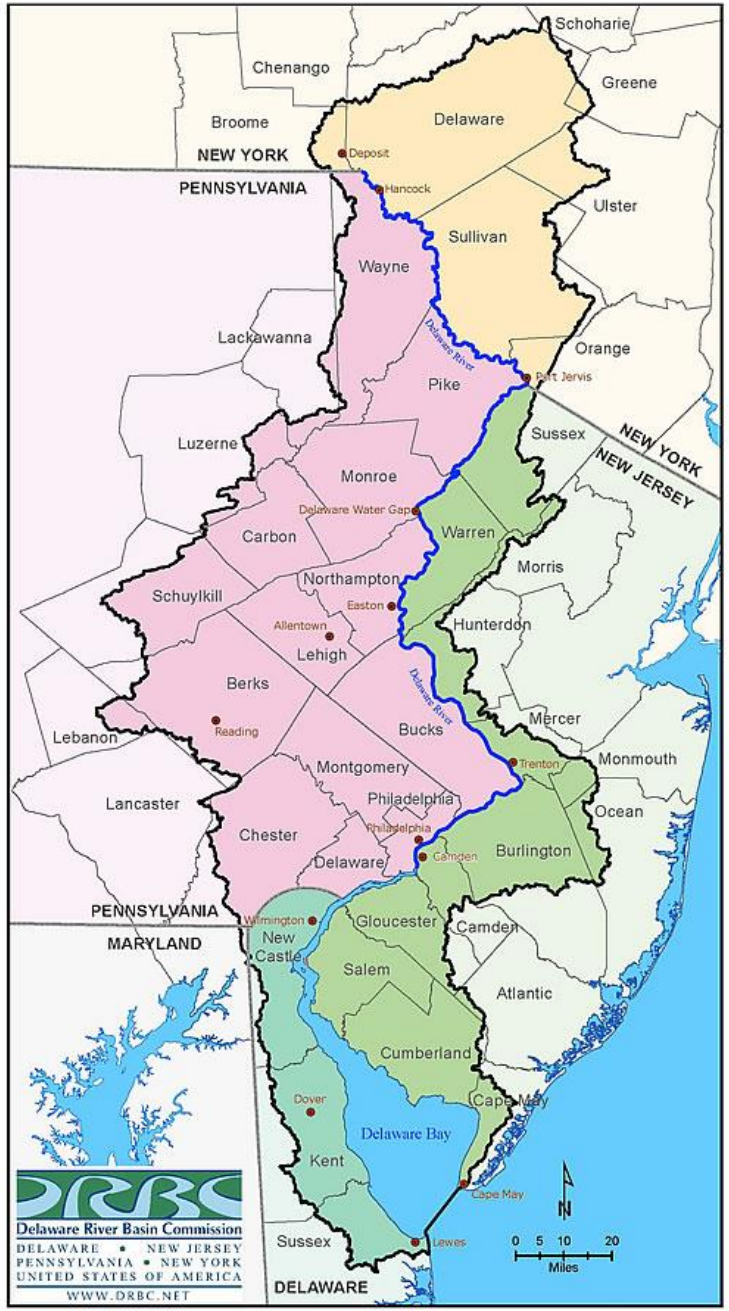

The Delaware River

- 330 miles long.
- Interstate boundary its entire length.
- Longest, un-dammed U.S. river east of the Mississippi (dams are located on tributaries, not the main stem Delaware).
- Tidal to Trenton, NJ.

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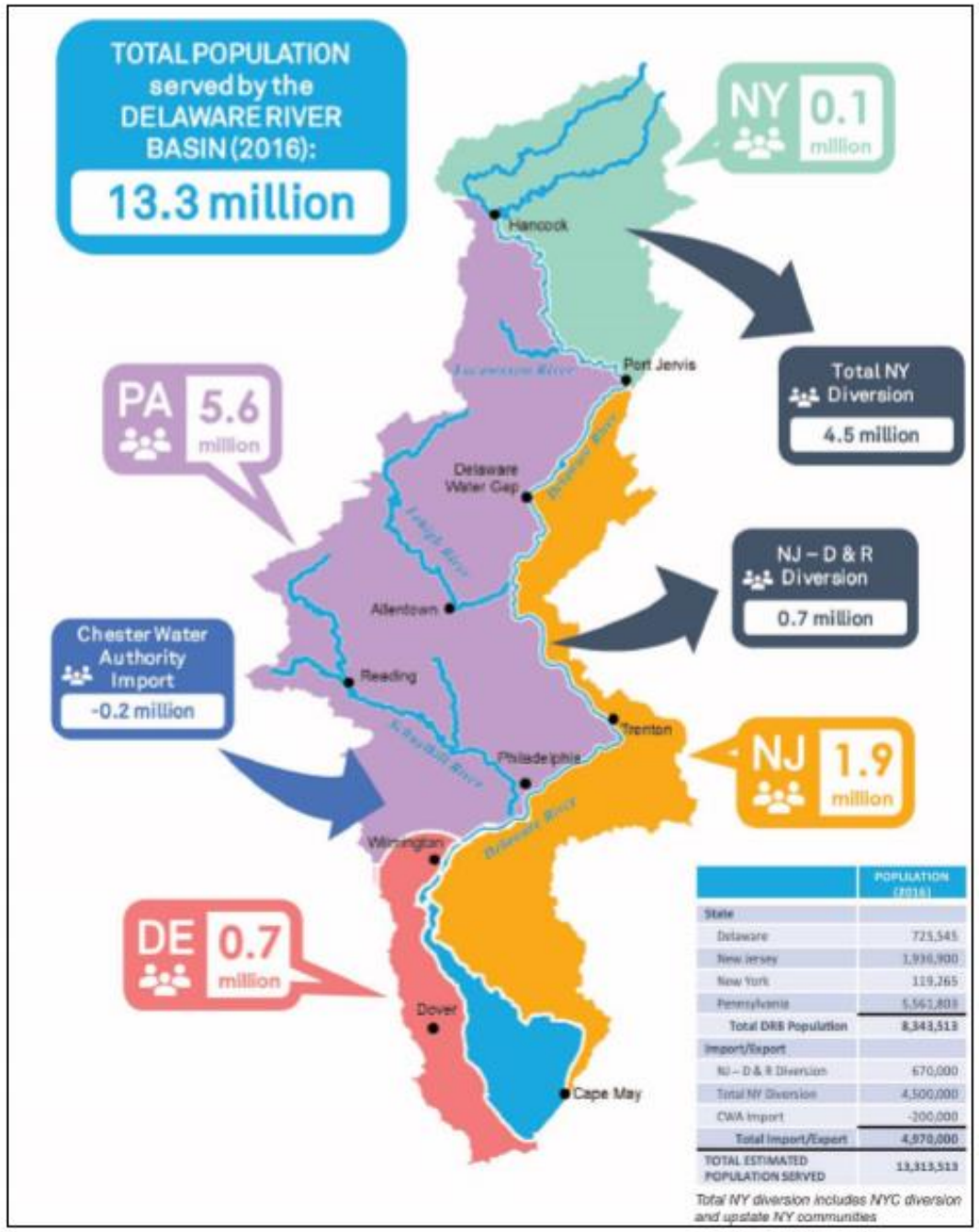
The Delaware River Basin



	POPULATION (2016)
State	
Delaware	725,545
New Jersey	1,936,900
New York	119,265
Pennsylvania	5,561,803
Total DRB Population	8,343,513
Import/Export	
NJ – D & R Diversion	670,000
Total NY Diversion	4,500,000
CWA Import	-200,000
Total Import/Export	4,970,000
TOTAL ESTIMATED POPULATION SERVED	13,313,513

- 13.3 million people (about 5% of the U.S. population) rely on its waters
- Provides half the drinking water to NYC
- Drains 13,539 square miles of watersheds in 4 states
- 6.4 billion gallons are withdrawn every day
- Contributes over $21B in economic value

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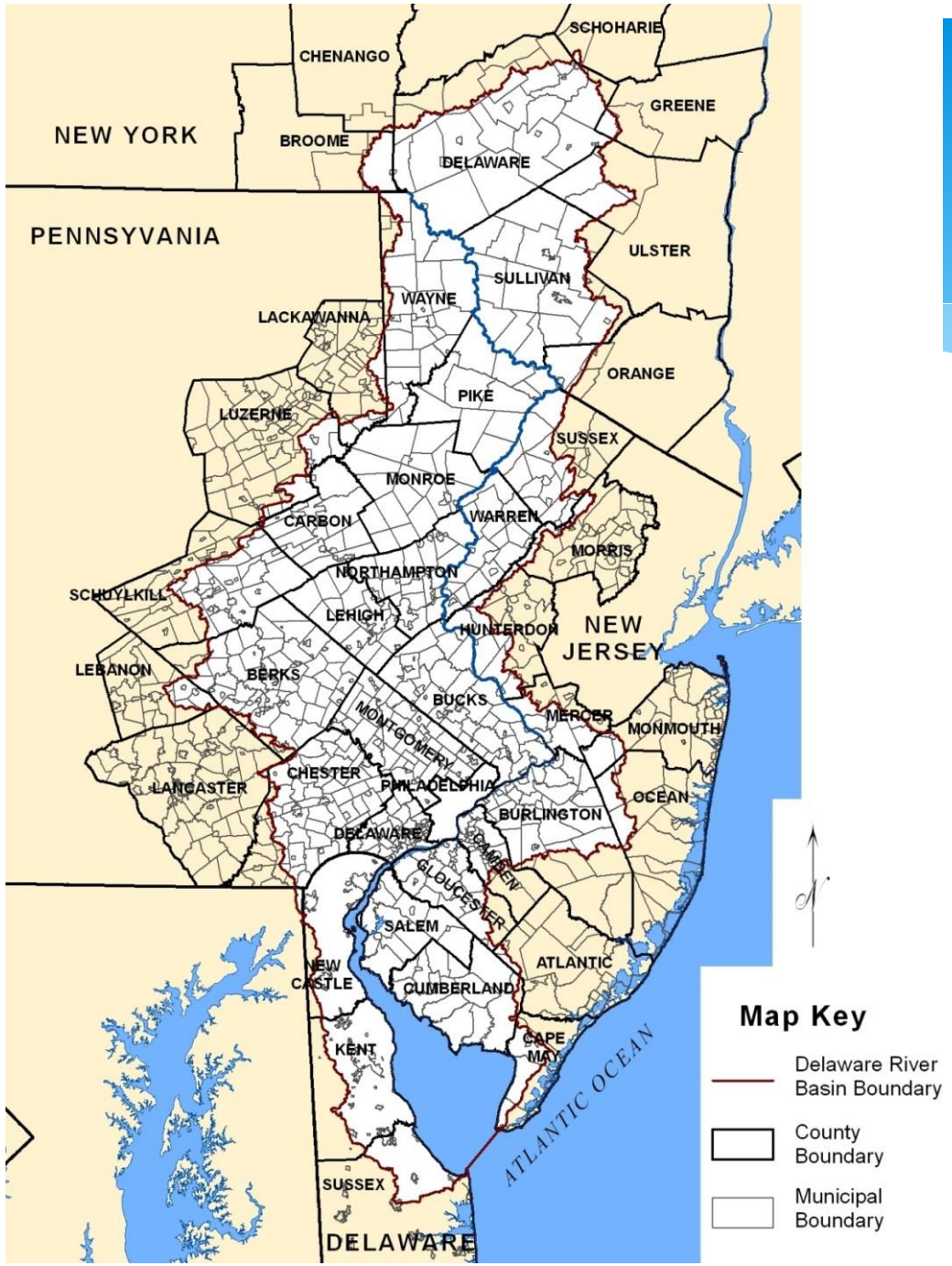

The Challenge

- 4 States
- 42 Counties
- 838 Municipalities
- NY City

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The Delaware River Basin Commission

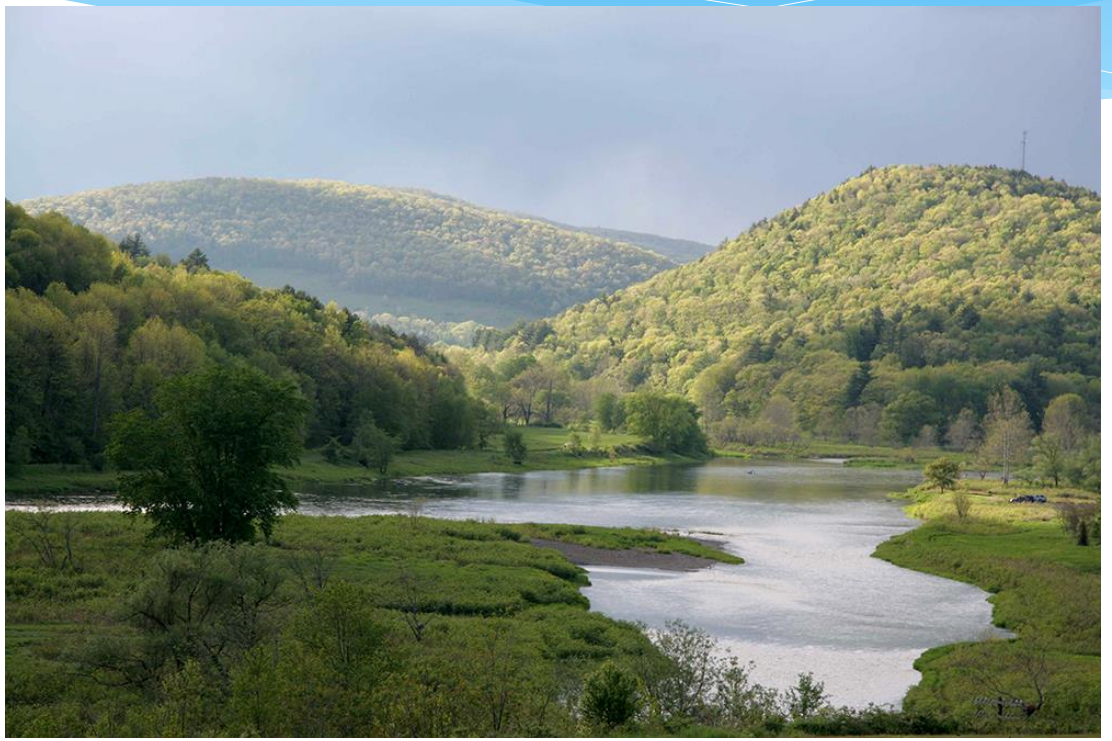
- 1961 – President Kennedy and the four Basin State Governors sign the Delaware River Basin Compact, the federal/state law that formed the Delaware Basin Commission (DRBC)

DRBC Water Resource Management Programs

Planning	Operations	Regulation	Science
Sustainable Water Availability	Flow / reservoir management	Water withdrawals	Water quality Assessments
Future water use	Drought management	Wastewater discharges	Water quality Monitoring
Consumptive water use	Salinity control	Special protection waters	Emerging contaminants
Water efficiency	Decree parties	Groundwater special protection	Toxic pollutants
Water audits	Hydrologic models	Water quality standards - Interstate Waters	Fish consumption
Climate Change	Water charges	Flood protection	Reduction of legacy pollutants - PCBs

DRBC Core Responsibilities

- **FLOW** - An adequate and sustainable supply of water.
- **QUALITY** - Clean and heathy water resources.



Point Mountain, Hancock, NY by David Soete

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How Wet Has It Been?

- Median Flow in the Delaware River at Trenton in cubic feet per second since 1913
  - 2019 in red
  - Highest in 2011
    - Hurricane Irene
    - Tropical Storm Lee

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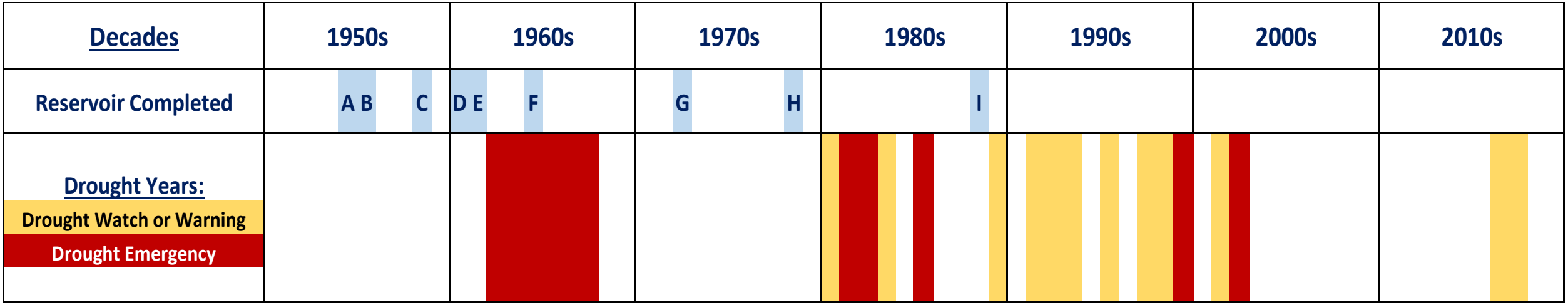
How Dry Has It Been?



A=Neversink, B=Pepacton, C=Nockamixon, D=Promtpon and Jadwin, E=FE Walter; F=Cannonsville, G=Belzville, H=Blue Marsh, I=Merrill Creek.
Lake Wallenpaupack and the Mongaup System were constructed in the 1920s]; Dates are approximate.

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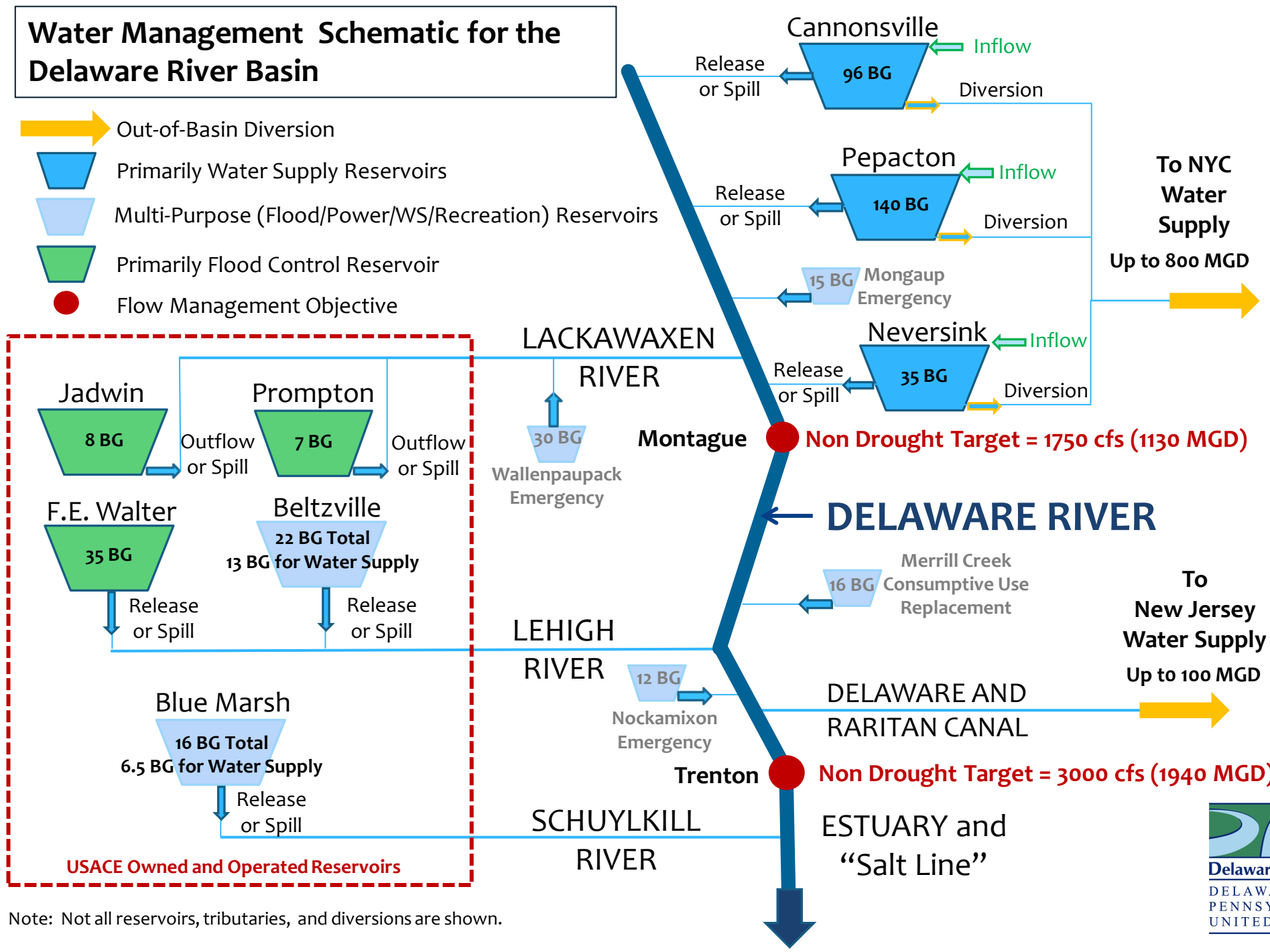
Water Management Schematic for the Delaware River Basin



Note: Not all reservoirs, tributaries, and diversions are shown.

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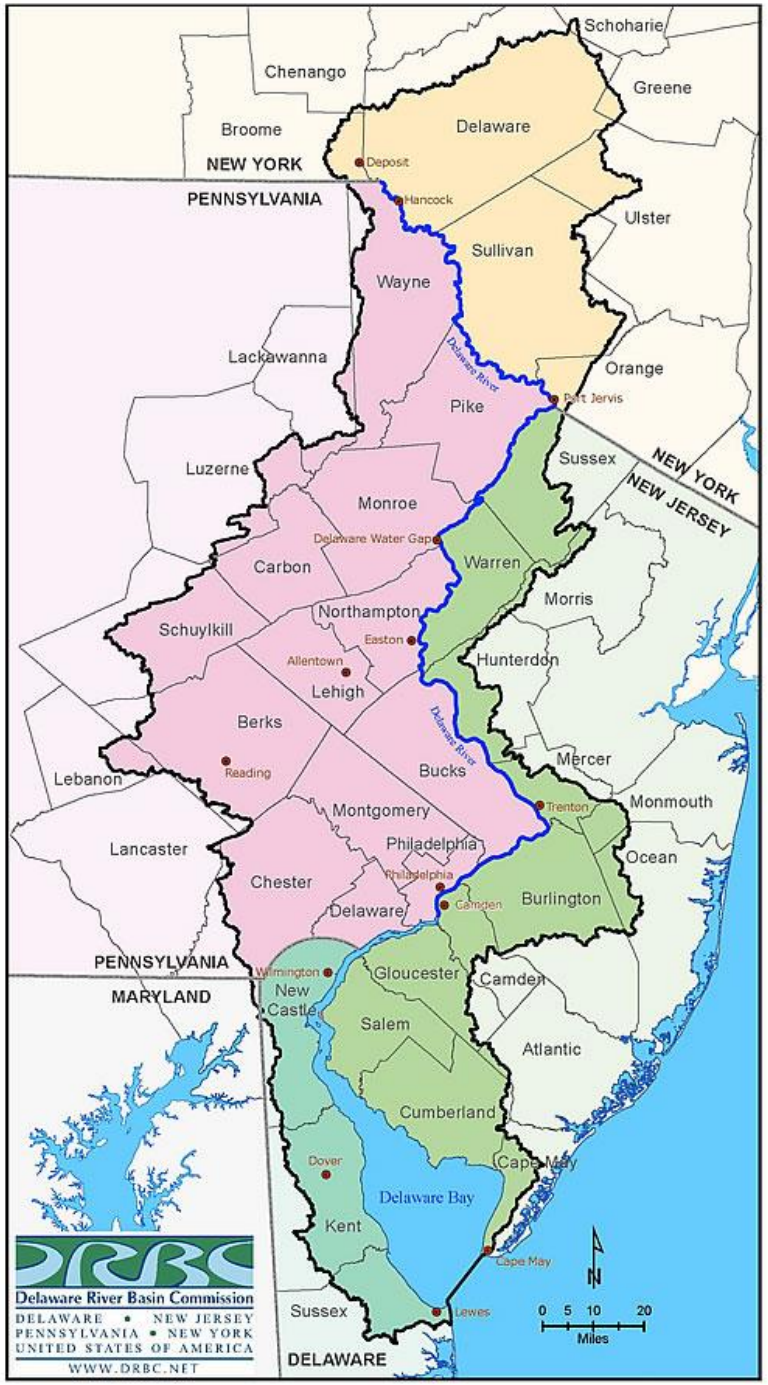

Freshwater Hydrologic Climate Considerations:

- Precipitation
  - Flow
- Temperature
  - Evapotranspiration
  - Snowpack

Salt Water Climate Considerations:

- Sea Level Rise

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Exelon Limerick Generating Station - DRBC Docket Highlights

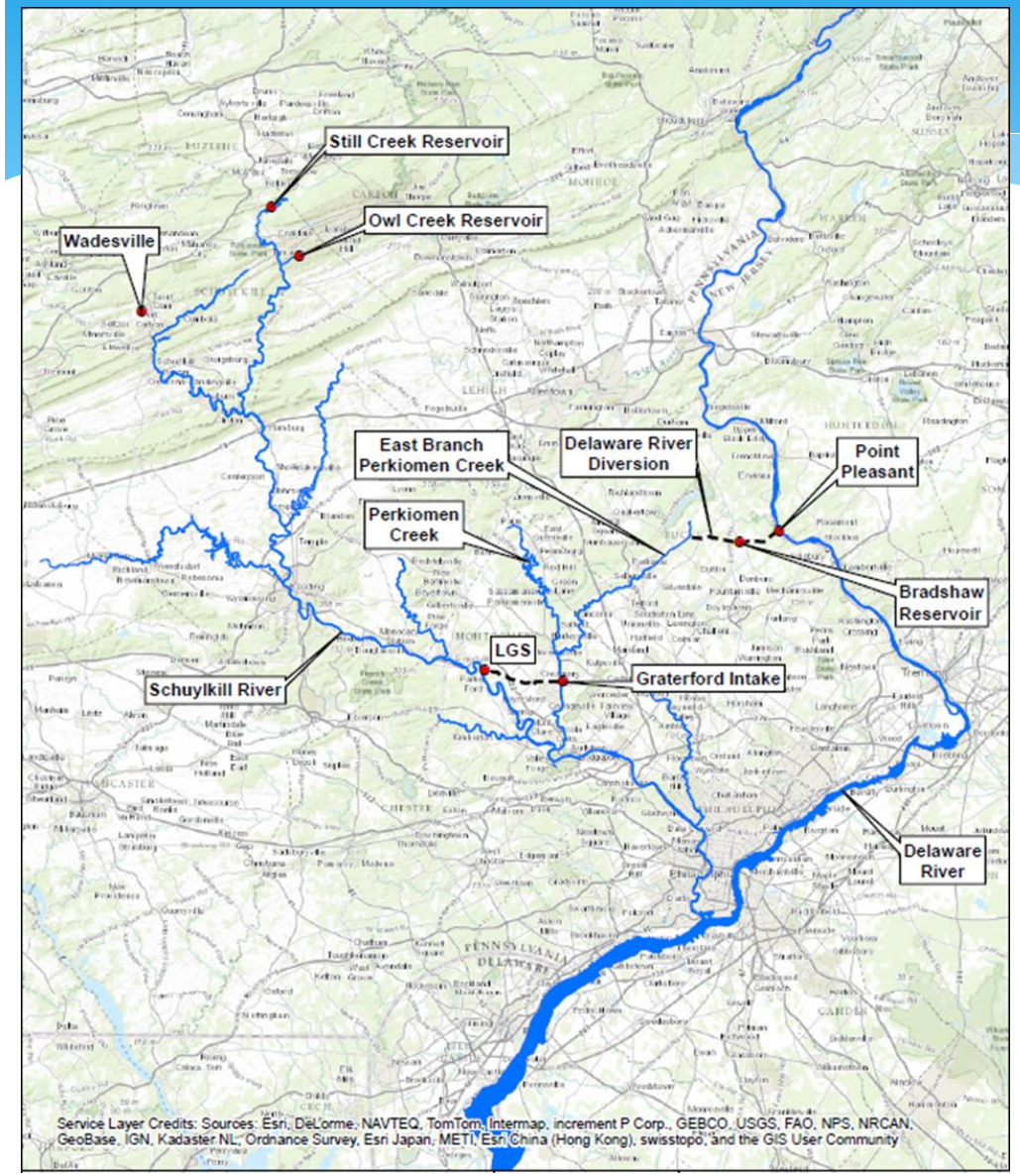
Allocations (not under PADEP authority):

- Schuylkill River: up to **58.2 MGD** (90.0 cfs)
  - **44.0 MGD** consumptive (68.1 cfs)
  - **14.2 MGD** non-consumptive (21.9 cfs)
- Perkiomen Creek (via the Delaware River Diversion System): up to **42 MGD**. (65.0 cfs)

Consumptive Use Replacement Requirement:

- When Schuylkill River Flows @ Pottstown <560 cfs
- 1:1 gallon replacement

Exelon Limerick Generating Station - DRBC Docket Highlights



Augmentation Sources

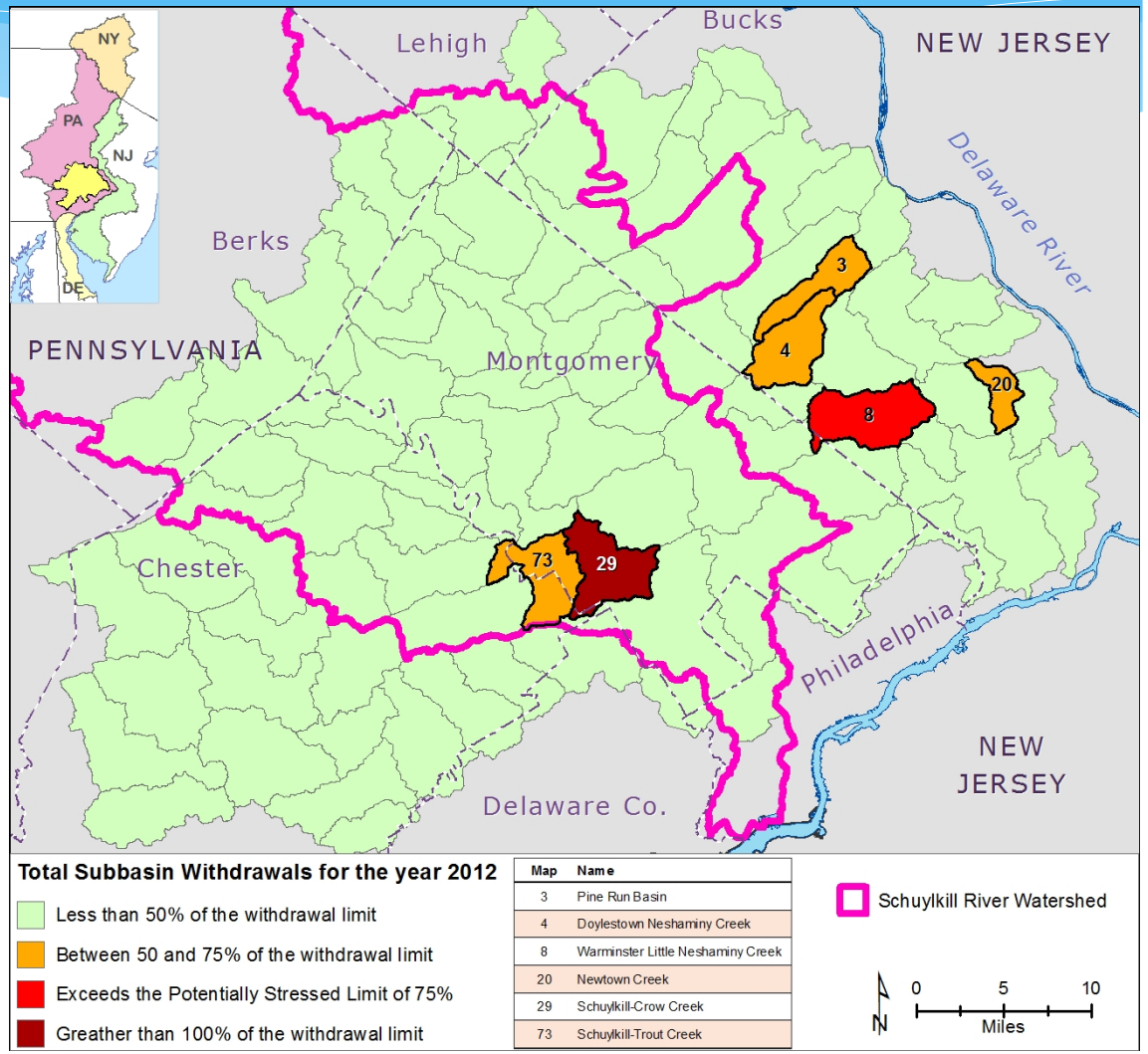
- Wadesville Mine Pool (up to 14.4 MGD)
- Still Creek Reservoir (up to 36 MGD)
- Owl Creek Reservoir (up to 8 MGD)
- Perkiomen Creek
- Delaware River (Merrill Creek reservoir via Diversion)

Schuylkill River Restoration Fund

- Docket condition
- ~$200,000 annually by Exelon
- Awarded over $3M to over 80 best management projects since 2006.

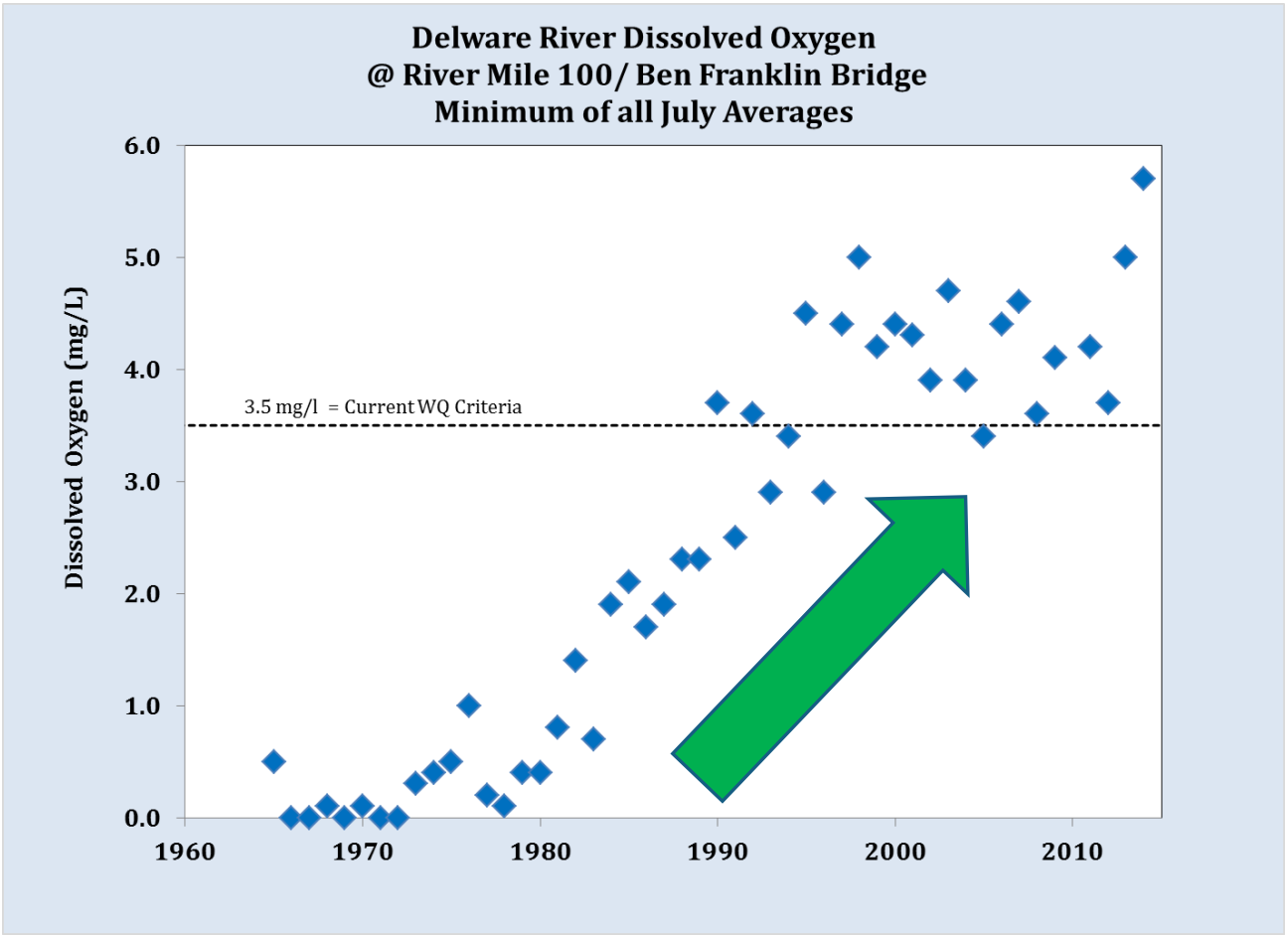
SEPA Groundwater Protected Area

* DRBC operates on behalf of PADEP
* 1980: Delineated & Created due to:
  * Increasing population & groundwater demands
  * Increasing frequency of interferences between users
  * Lowering of stream water levels
  * Low recharge rates of bedrock geology
* 1981: GWPA Regulations Effective
  * Permits required for users >10,000 gpd
* 1998-1999: Numerical withdrawal limits established

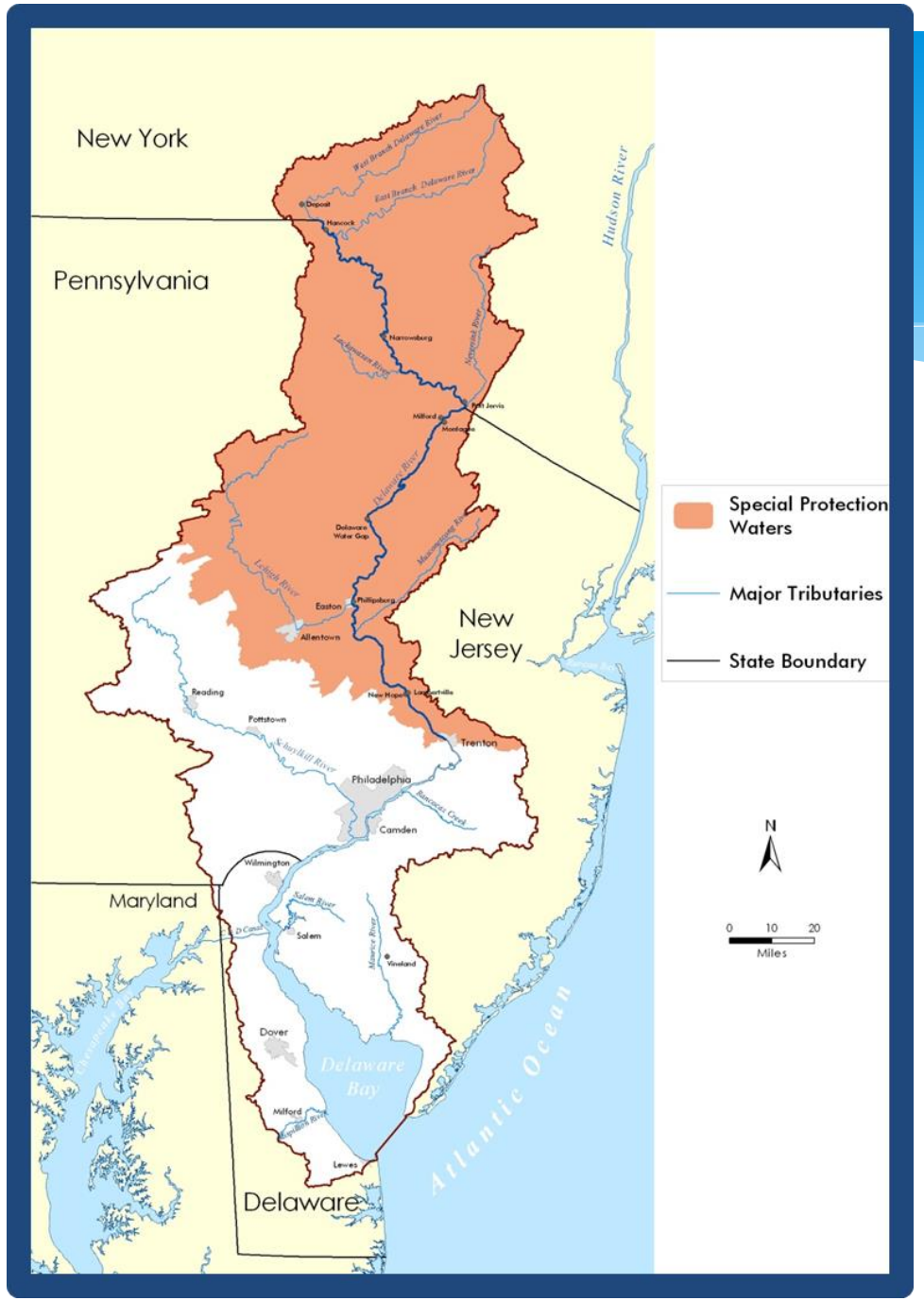


Fisheries.noaa.gov

DRBC Collaborative Results
Aquatic Life & Economic Benefits



- **A dead zone in the Estuary restored.**
- Significant improvement in dissolved oxygen.



Special Protection Waters
Keeping Clean Waters Clean

- Entire basin upstream from Trenton
- Believed to be the longest anti-degradation reach in the US.
- It's more beneficial to "keep the clean waters clean" than to allow them to become degraded and attempt to restore them later.

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Other Challenges

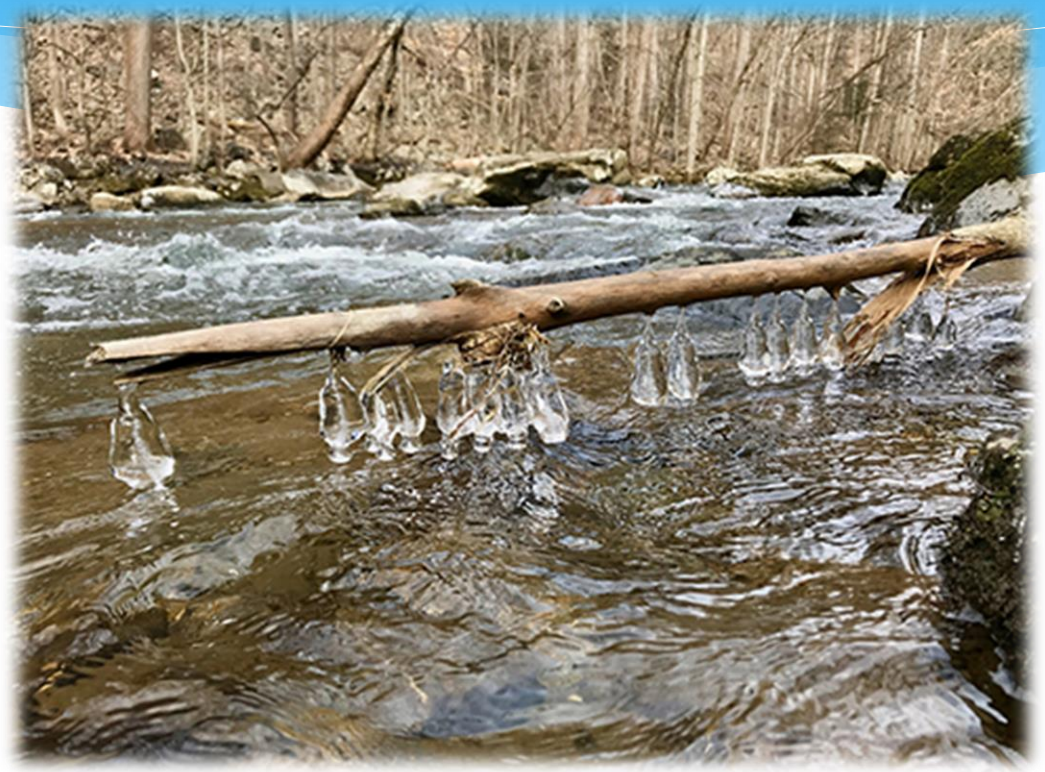
What's in our waters?

- PFAS
- 1,4 Dioxane
- Microplastics
- PCBs
- Other Contaminants of Emerging Concern

Climate

- Precipitation
- Temperature
- Sea Level Rise

Can we Swim in it?



Frozen Stemware on the Flat Brook by Evan Kwityn

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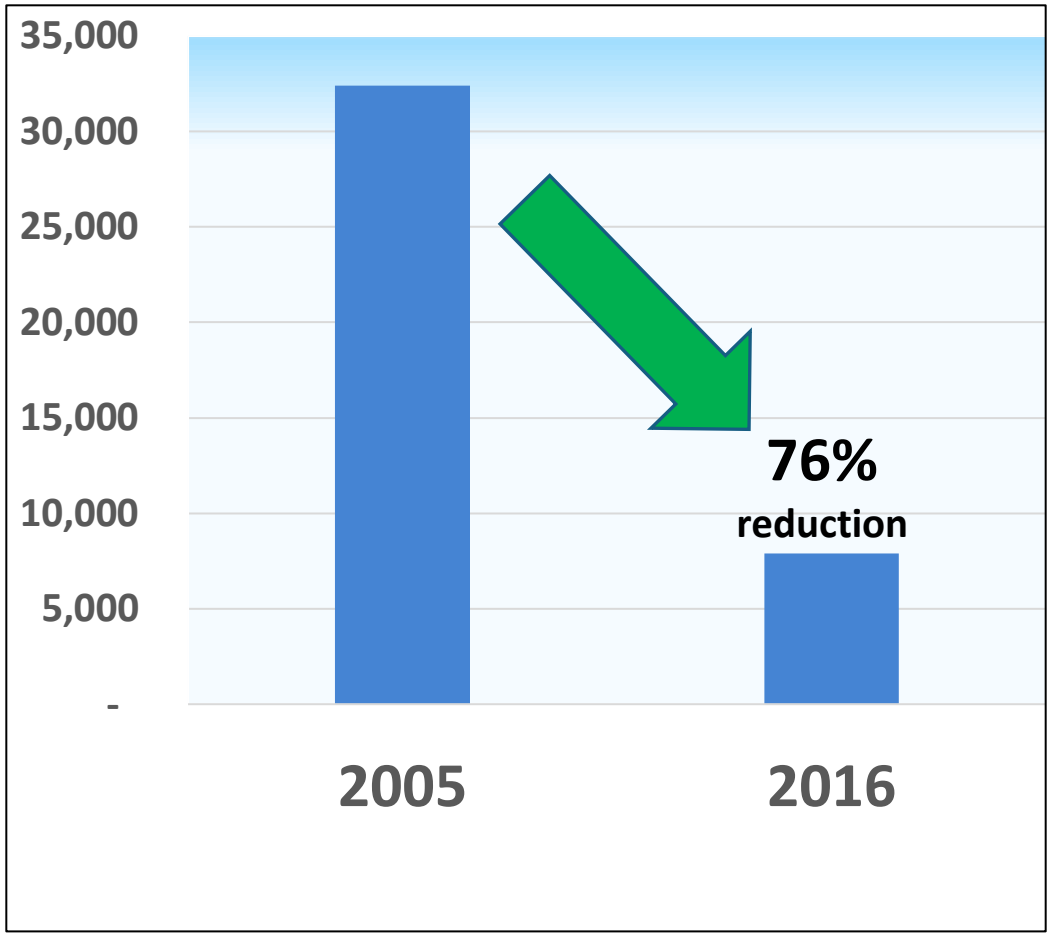
Photo: U.S. EPA

DRBC Collaborative Results

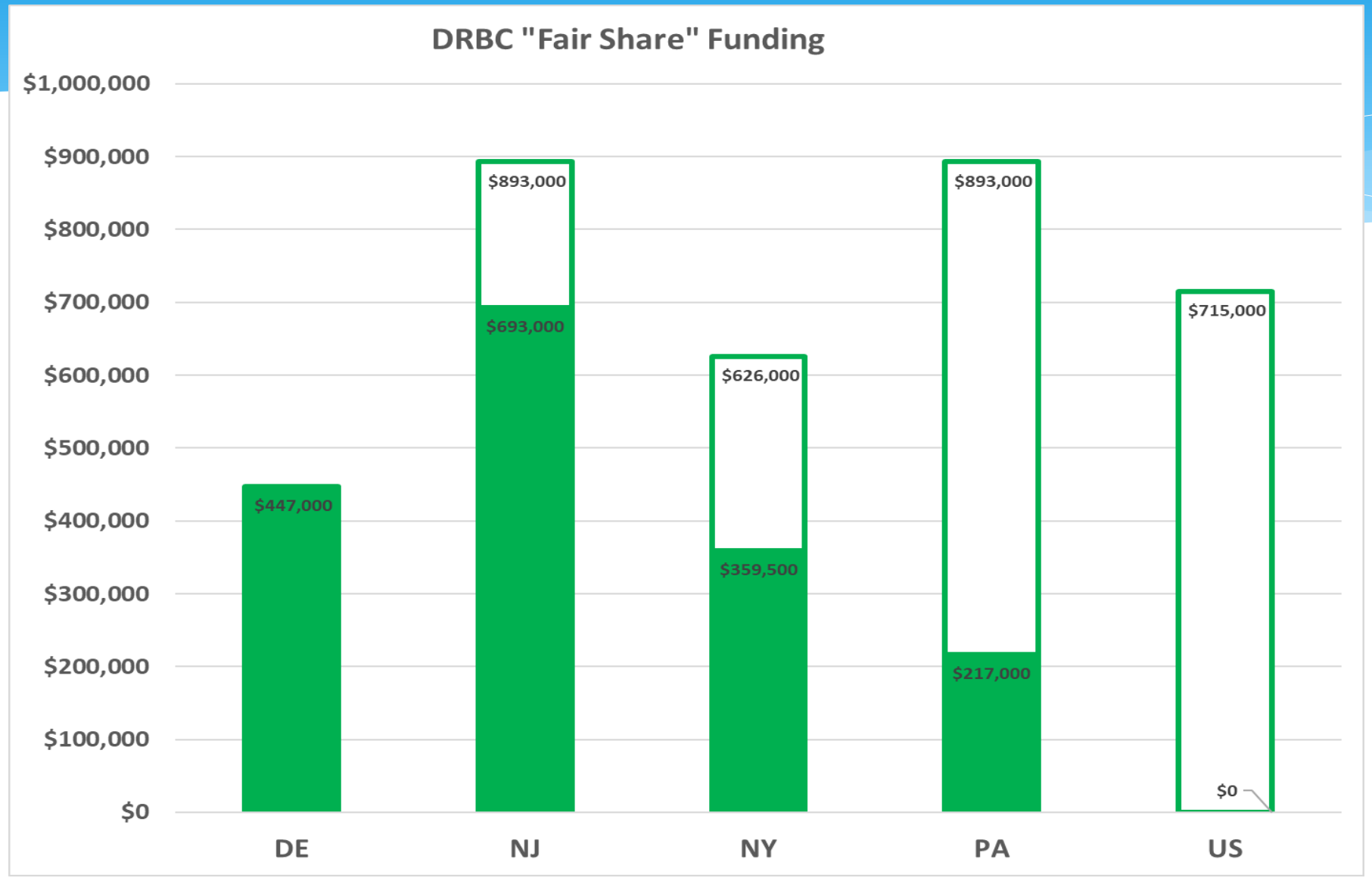


- Clean-up of legacy pollutants in the Delaware River Estuary
- **76% reduction in PCB discharges from top point sources** since 2005.

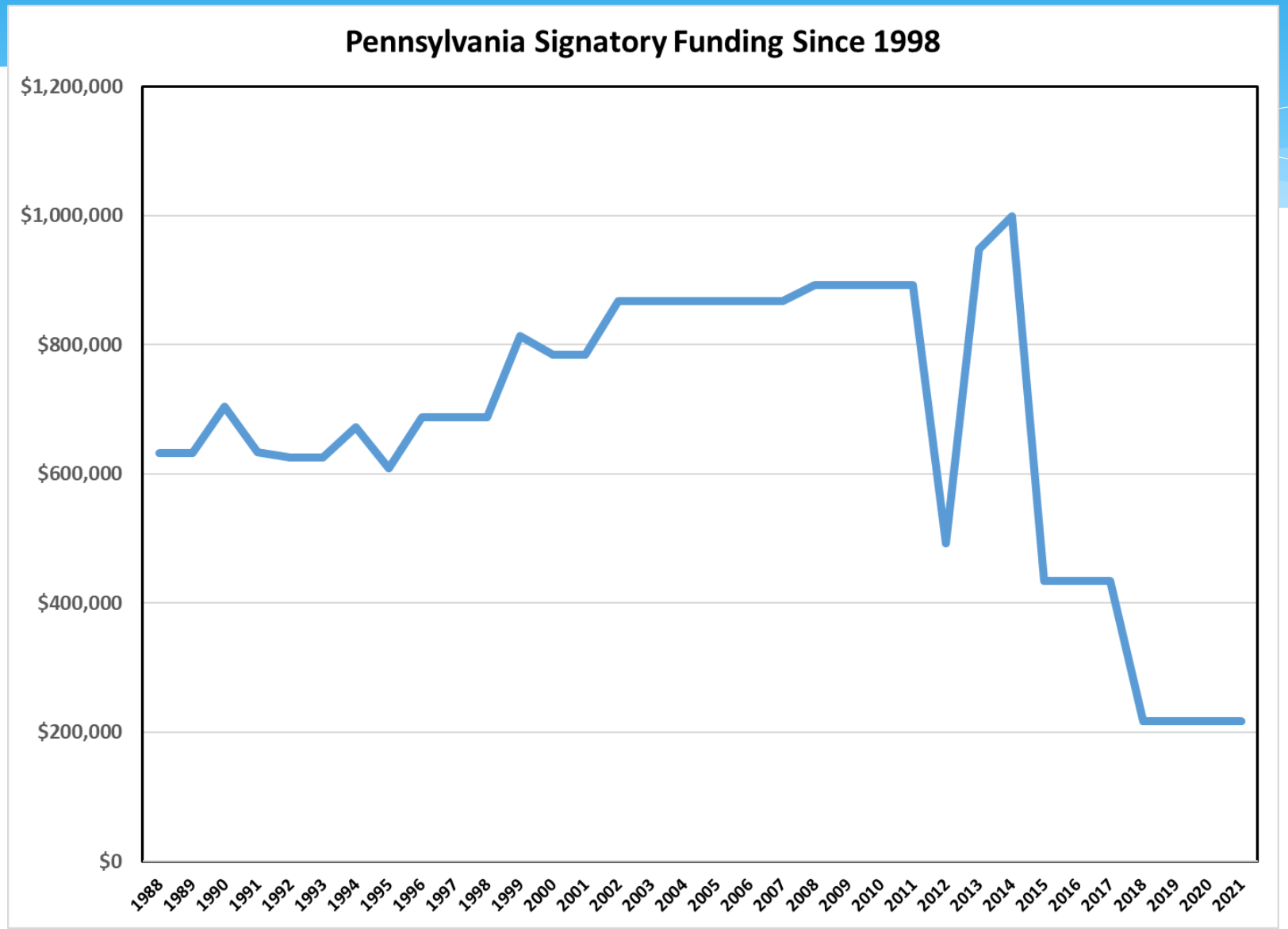
NEW JERSEY, DELAWARE EASE ADVISORIES ON CERTAIN FISH

TOM JOHNSON | FEBRUARY 21, 2018

Budget / Funding



PA Signatory Funding History



Pennsylvania Legislature

- **Budget**
  - Consistently cut DRBC funding. 24% of PA fair share in FY2021 – less funding than Delaware
  - Required DRBC to pay $100,000 for an Audit by the Pennsylvania Auditor General.
  - Tried to move DRBC funds to the Upper Delaware Council (UDC) in FY2020
- **Hearings**
  - PA House State Government Committee hearing in 2018.
  - PA House Environmental Resources and Energy Information meeting in 2019.
- **Three bills in the last Legislative Session:**
  - HB827 attempts to declare that action by the Commission on HVHF would constitute a takings in six NE PA Counties.
  - HB829 attempts to remove DRBC enforcement and authority over on-lot septic systems.
  - HB804 attempts to remove DRBC and SRBC from groundwater regulation.
  - HB 2198 attempts to leave the Delaware River Basin and Susquehanna River Basin Compacts early.

Delaware River Basin Commission

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Managing, Improving and Protecting Our Shared Water Resources since 1961

Delaware River Basin Commission
25 Cosey Road
PO Box 7360
West Trenton, New Jersey
08628-0360
Phone: (609) 883-9500 Fax: (609) 883-9522
Web Site: http://www.drbc.gov

Steven J. Tambini, P.E.
Executive Director

Testimony of Kristen Bowman Kavanagh, Deputy Executive Director, Delaware River Basin Commission, at the Pennsylvania House Democratic Policy Committee Virtual Hearing on February 22, 2021

Advance Submission of February 19, 2021

Committee Chair Representative Ryan Bizzarro, Subcommittee Chair Representative Elizabeth Fiedler, Vice Chairs and other members of the Pennsylvania House Democratic Policy Committee:

Good morning, my name is Kristen Bowman Kavanagh, and I am the Deputy Executive Director of the Delaware River Basin Commission (DRBC or Commission). I and our Executive Director, Mr. Steven Tambini, thank you for the opportunity to offer testimony today on behalf of the Commission.

Today I will share information on the Commission's core mission to sustainably manage and protect the water resources on which over 13 million people and our region's economy depend. I will also highlight a few of the benefits that DRBC has secured for the 5.6 million Pennsylvanians who reside within the Delaware River Basin (Basin), and who comprise approximately 43 percent of the population of the Commonwealth. In addition to my oral testimony, I have also submitted a slide deck as a supplemental exhibit.

The DRBC was formed in 1961 after decades of costly litigation among the Basin states over water rights and after significant pollution and flooding pointed to the need for cooperative, inter-state management of the Basin's shared water resources. The Commission enables the member states and federal government to accomplish together what none could achieve on its own. The terms of the agreement among them are set forth in the Delaware River Basin Compact (Compact) – concurrent legislation enacted by the United States and each of the four Basin states. The Compact empowers the Commission's five members to exercise their sovereignty jointly to manage the water resources of the Basin to meet immediate and long-range needs.

The DRBC's responsibilities as outlined in the Compact include the management of the water resources of the Basin for diverse uses that include drinking water, sanitation, industry, recreation, and fisheries. We work with the public to attempt to meet and balance these diverse and competing water resource needs. We also have responsibility to coordinate flood loss reduction, manage streamflow during drought periods, help prevent excessive salinity in the Delaware River Estuary to support drinking water providers, industry, power utilities and refineries, and protect and improve water quality. In essence, our mission is to ensure an adequate and sustainable supply of clean water for all users in the Basin.

The Commissioners of the DRBC include a federal representative and the governors of the four Basin states, including Governor Wolf here in Pennsylvania. The Commissioner representing the federal government is the Commander of the North Atlantic Division (NAD) of the U.S. Army Corps of Engineers.

The five Commissioners meet quarterly and in nearly all instances decide matters by majority vote. Although the Commissioners may select individuals from their technical staffs as alternates to consult with one another and work towards consensus on matters before the Commission, these alternates act on behalf of, and represent the Governors and the NAD Commander. The Commissioners – not the DRBC staff – are the decision makers, directing and acting on rulemakings, applications for docket and permit approvals, and amendments of the Commission's Comprehensive Plan. Accordingly, the NAD Commander and Basin state governors choose when to exercise their authority jointly through the DRBC to address water resource matters that affect the Basin as a whole.

The DRBC staff consists predominantly of water resource planners, engineers, hydrologists, modelers, and scientists. The staff are responsible for day-to-day planning and execution of the water resource management activities described in the Commission's Water Resources Program, which the Compact requires the Commissioners to adopt annually. These activities address both water quantity and water quality.

I will now highlight a few examples of Commission programs that have had significant positive impacts on the quality of the Commonwealth's water resources, keeping in mind that there are 17 counties and 522 municipalities in Pennsylvania that are wholly or partially located within the Basin:

- Before the DRBC was created, reaches of the Delaware River Estuary near Philadelphia were so polluted that they lacked sufficient dissolved oxygen to sustain aquatic life. Prior to the Clean Water Act and establishment of the United States Environmental Protection Agency (USEPA) and state environmental departments, DRBC provided the scientific foundation and leadership for water quality improvements that have reduced pollution in the Estuary to the point that fish passage and propagation are supporting commercial fisheries again (e.g., shad) and where the river and riverfront communities are thriving environmentally and economically. The DRBC continues to provide the science, standards-development, and program leadership for continued water quality improvements in the main stem, including addressing new challenges posed by nutrients, bacteria, and emerging contaminants.

- At the request of Pennsylvania, Delaware, New Jersey, and the USEPA, the DRBC continues to lead a groundbreaking program to reduce contamination from PCBs (a known human carcinogen) in the tidal Delaware River and Bay. As a result of this innovative program, PCB loadings from the top 10 dischargers in three states contributing

90 percent of total point source loadings decreased by 76 percent between 2005 and 2016. In 2018, the resulting improved water quality in the Estuary led two states to relax their fish consumption advisories.

- From the Basin's headwaters in New York State downstream to Morrisville, Pa. and Trenton, N.J., DRBC's Special Protection Waters program has "*kept the clean waters clean*" in the non-tidal main stem river and portions of its tributaries. These Special Protection Waters are believed to be the longest anti-degradation reach in the U.S. These exceptionally clean waters support recreation, healthy ecosystems, a vibrant water-based economy, and water quality improvements downstream.

- DRBC performs a biennial water quality assessment of the interstate Delaware River and Bay, the results of which are provided to Pennsylvania and other Basin states to help them meet Clean Water Act requirements. DRBC's interstate water quality monitoring program, which is essential to resource management in the Basin, includes assessments of biological health, traditional pollutants from wastewater discharges and non-point source runoff, and contaminants of emerging concern that have been known to impact drinking water supplies, such as Per- and Polyfluoroalkyl substances (PFAS) and 1,4-Dioxane, as well as microplastics.

- Finally, DRBC has a long history of working collaboratively with the Pennsylvania Department of Environmental Protection (PADEP) to regulate point source discharges from municipal and industrial wastewater treatment facilities and to support the goals of the Clean Water Act. The Basin states, through DRBC, set uniform water quality standards for interstate waters. However, the DRBC's project reviews do not duplicate those conducted by Pennsylvania under the Clean Water Act National Pollutant Discharge Elimination System (NPDES) program. PADEP relies upon DRBC's expertise for the complex modeling required to effectively control wastewater discharges to the Delaware Estuary, the only tidally influenced system in Pennsylvania, and to implement the Special Protection Waters program in the non-tidal river.

Clean water is vital, but we must also ensure that there will be *enough* water to sustain our region's growth into the future. Total withdrawals from the Basin are about 6.4 billion gallons per day. If the Basin experiences eight straight years of below normal rainfall, as it did during the drought of record in the 1960s, will we have a sufficient supply of clean water? Will future floods and droughts be more frequent and severe? How will future changes in precipitation and snowfall patterns affect seasonal water availability? Will there be enough water to satisfy future demands? How will sea level rise affect the environment and water availability for municipal, industrial, and power facilities in the Estuary? Can we use our water more efficiently? And how do we manage water that is used consumptively – that is, water withdrawn from but not returned to the Basin's surface waters or aquifers after use? Answers to these questions and more are needed to plan for a sustainable water future for the Basin and require a Basin-wide approach. The DRBC is managing water withdrawals today and developing plans for the future that consider

these long-term concerns. Among DRBC's programs and policies for ensuring a sustainable water supply are the following:

- The non-tidal main stem Delaware River – some 200 miles long – is free of dams, and 147 miles have been included in the National Wild and Scenic Rivers system. However, it is not a purely natural system. Rather, the Delaware River's flows are managed through releases from multiple reservoirs located on tributaries. To maintain flows sufficient to meet local and regional water supply needs during periods of low flow and drought, DRBC directs releases from storage in the Beltzville and Blue Marsh Reservoirs located on the Lehigh and Schuylkill Rivers, respectively, and operated by the U.S. Army Corps of Engineers (Corps). These releases protect the City of Philadelphia's Delaware River water supply intake from the migration of salt water upstream from Delaware Bay and ensure an uninterrupted supply for withdrawals by municipal, industrial, and power generation users. At the same time, reservoir releases benefit Pennsylvania water users on the two tributaries on which the dams are located.

- DRBC pays the federal government over $1.6 million annually to support the operation, maintenance, capital improvements, and debt service on our water supply storage in the Beltzville and Blue Marsh Reservoirs, using fees paid by water withdrawers in all four basin states.

- DRBC drought plans include access to additional emergency storage in public and private reservoirs throughout the Basin.

- DRBC is a non-federal sponsor of a Corps of Engineers study to determine whether or not modifications to reservoir operations or alterations to the dam at F.E. Walter Reservoir can be made to improve water supply for drought relief, enhance fisheries and recreation, and reduce losses of life and property from flooding *without* adversely impacting the existing congressionally designated purposes of the reservoir, which are flood risk management and recreation.

- We are currently conducting flow modeling of climate change impacts throughout the Basin, as well as a water supply planning study to examine water demands and water availability with an early focus on the Lehigh River Watershed in Pennsylvania.

- DRBC is initiating a study this year to inventory and evaluate options for additional storage to meet potential water supply and flow management needs in the Basin using fees paid by water withdrawers.

- DRBC manages the Southeast Pennsylvania Groundwater Protected Area (SEPA GWPA). When explosive growth in Southeastern Pennsylvania was resulting in groundwater withdrawals that threatened to exceed the yield of local aquifers, Pennsylvania asked DRBC to use its authority to set up and manage a groundwater protected area covering

127 municipalities in five counties. The result has been continued economic growth in the region, supported by effective planning, regulation, and groundwater management.

- To ensure that power generation and other vital uses in the Basin are not interrupted during periods of drought or low flow, DRBC requires power generators to replace the water they consumptively use during dry periods. Many generators satisfy this requirement with storage in the Merrill Creek Reservoir in New Jersey, which was constructed in 1994 in fulfillment of a provision of DRBC's Comprehensive Plan. Replacement water is released during low flow conditions in accordance with DRBC requirements. DRBC's consumptive use replacement policy ensures that large consumptive water users such as the Exelon Limerick Generating Station on the Schuylkill River can continue operating without adversely affecting other users.

- DRBC's leadership has ensured that every public water supply system in all four Basin states performs an annual audit of lost water, based upon national standards set by the American Water Works Association. Reducing lost water not only benefits the resource, but it helps to reduce the cost of energy and treatment at drinking water treatment plants.

The water quality and water supply benefits I have described today are just a few examples of how DRBC programs support the vital water resource interests of the Commonwealth and the region. These activities are designed to integrate with, but not duplicate, state and federal regulatory programs. We coordinate closely with the water resource agencies of all four Basin states, including the PADEP, and we continually work with our Commissioners and state agencies to improve and streamline the regulatory process. In 2015, we initiated a program called "One Process One Permit," whereby the DRBC works with each state agency that elects to participate to ensure that DRBC standards are included in the agency's permits. Regulated entities can then apply to just one agency and receive a single approval that contains all state and DRBC requirements. Where this program has been implemented in New Jersey and New York, the applicant pays just one application fee – the state fee. DRBC is ready to work with the PADEP to implement this program in Pennsylvania when requested.

The Commission's programs are multi-faceted and effective, yet the DRBC is a small agency given the broad scope of our authority and activities. We currently have 39 budgeted staff, although we are holding a 12 percent vacancy rate due to budget shortfalls in our state and federal signatory funding. The total budgeted signatory funding is $3.6 million annually based upon a tacit agreement reached by the Commission members in 1988 to apportion contributions. However, actual contributions have been significantly less and are down to only $1.7 million annually (less than half of the budgeted amount). The Commonwealth's annual contributions have dropped precipitously over the last decade to $217,000, representing only 24 percent of their agreed upon apportionment. This equates to just 13 percent of total signatory contributions. Yet the Commonwealth contains 50 percent of the Basin's watershed area, was the location of over 80 percent of the DRBC dockets and permits processed last year, and

accounts for 42 percent of the Basin water users, as well as having the longest boundary along the Delaware River. Full fair share funding by the Commonwealth and our other signatories would place the Commission on more solid financial footing, allowing the Commissioners and staff to focus more fully on our critical core mission.

In closing, the DRBC has worked successfully with Pennsylvania and the other Basin states since 1961 to address interstate water resource issues of joint concern. We have delivered significant and tangible benefits for the Basin's residents and the environment, through integrated planning, science, engineering, and regulation. DRBC has provided, and continues to provide, an invaluable mechanism for the Basin states and federal government to cooperatively manage the region's shared water resources. Water does not know political boundaries, and we must continue to work together as stewards of these shared resources to preserve our region's economy, ecology, and quality of life.

Thank you again for the opportunity to submit this testimony.

Biography:

Ms. Kristen Bowman Kavanagh, P.E. is the Deputy Executive Director of the Delaware River Basin Commission and is responsible for the technical and managerial programs to develop and effectuate plans, policies, and projects relating to the water resources of the Delaware River Basin. She brings over 25 years of experience in water resource modeling and engineering to the DRBC. Prior to assuming her current duties, Ms. Bowman Kavanagh served as the President and Principal Engineer at Flow Science Incorporated, where she was responsible for company-wide operations management, business development, risk management, and strategic planning. She led the Hydraulic and Transient Analysis group in the evaluation of raw, potable, recycled, and wastewater pump station and pipeline systems throughout the U.S. She also assumed significant roles in hydrodynamic and water quality modeling studies to evaluate the fate of discharges into lakes and reservoirs, rivers, and coastal ocean areas. Ms. Bowman Kavanagh has developed calibrated water quality models for most of the major raw water reservoirs in southern California, developed coupled models of three in-stream reservoirs along the Lower Colorado River, and evaluated the effects on receiving water quality of changes to once-through-cooling (OTC) operations at coastal generating stations. The results of these efforts have been used to inform adaptive management plans, spill response plans, and long-term planning and operations. These studies have also included the investigation of strategies for controlling invasive quagga mussels, conceptual design of oxygenation and destratification systems to increase dissolved oxygen concentrations, and evaluation of the effects of climate change on receiving water quality. She also led a successful effort to demonstrate compliance of a wastewater discharge to a tidally-influenced river with the requirements of a thermal plan exception. Prior to her role at Flow Science, Ms. Bowman Kavanagh worked for Woodward-Clyde Consultants (now AECOM) where she developed stormwater management plans for NPDES permitting on behalf of counties, cities, and flood control districts, as well as for industrial clients in the energy and transportation

markets. She is the Past-Chair of the Southeast District Pennsylvania American Water Works Association and a former President of the Philadelphia Chapter of the American Society of Civil Engineers. Ms. Kristen Bowman Kavanagh holds a B.S. degree in Civil Engineering: Environmental and Water Resources, and an M.S. degree in Civil Engineering: Environmental Fluid Mechanics and Hydrology, both from Stanford University in Palo Alto, CA. She is a registered professional engineer in Pennsylvania, New Jersey, and seven other states.

Delaware River Basin Commission
25 Cosey Road
PO Box 7360
West Trenton, New Jersey
08628-0360
Phone: (609) 883-9500 Fax: (609) 883-9522
Web Site: http://www.drbc.gov

Steven J. Tambini, P.E.
Executive Director

Pennsylvania House Democratic Policy Committee Hearing Testimony

February 22, 2021

Good morning. On behalf of the Delaware River Basin Commission (DRBC or Commission) I would like to thank Committee Chair Representative Ryan Bizzarro, Subcommittee Chair Representative Elizabeth Fiedler, Vice Chairs and other members of the House Democratic Policy Committee for the invitation to join you today.

Whenever you stand on one bank of the Delaware River you are looking across at another state. You are also looking at a river shared by four states. I would like to describe to the committee some of the strategies the DRBC uses to protecting and restoring water quality in these shared waters. Importantly, the DRBC establishes water quality criteria and designated uses for the waters of the main stem Delaware River. To evaluate how water quality criteria are being met and whether the designated uses are being protected, we must monitor and assess the collected data. The foundation of the DRBC's monitoring strategy is the tenet that you can't manage what you don't measure.

Let's start with several long-term monitoring efforts. Initially adopted by the DRBC in 1992 and expanded in 1994 and 2008, the entire 197-mile non-tidal Delaware River from Hancock, N.Y. to Morrisville, PA is considered Special Protection Waters. DRBC's Special Protection Waters (SPW) Program is believed to be the longest stretch of any river in the nation protected by an anti-degradation policy ensuring that the level of water quality in special protection waters is not degrading over time with the goal to keep clean water clean. One way this is achieved is through the DRBC's non-tidal Delaware River Ambient and Biomonitoring Program that samples sediment, rocks, algae, aquatic insects, and water chemistry. Data from this program provide a complete overview of the diversity and health of the aquatic life community and overall water quality. The monitored data are also used in the DRBC's docket processes for dischargers to ensure the maintenance of high water quality.

In the tidal river and bay, the DRBC's Delaware Estuary Water Quality Monitoring Program (aka the Boat Run) initiated in 1967 is one of the longest running monitoring programs in the world. This monitoring program provides accurate, precise, and defensible estimates of the surface water quality in the Delaware Estuary and allows assessment of water quality criteria compliance. When the DRBC was created in 1961, little or no dissolved oxygen (DO) was present in the Delaware River Estuary from Wilmington to Philadelphia for periods of up to six months each year. To combat this serious challenge, the DRBC in 1967 established designated aquatic life uses and associated numerical water quality criteria necessary to protect those uses. Today, the Delaware River Estuary supports resident fish and migratory fish populations. The DRBC is working to evaluate if the water quality can be improved in this section of the estuary to better support reproduction and juvenile fish populations, as well as the endangered Atlantic sturgeon.

Another major effort has been a PCB Total Maximum Daily Load (TMDL) for the tidal Delaware River established in 2003 and for the Delaware Bay in 2006. To support the TMDL implementation, DRBC

monitors ambient waters, sediment, and fish tissue to provide precise and defensible data on PCB concentrations in the Delaware Estuary. Since 2005, DRBC requires dischargers to complete Pollutant Minimization Plans (PMP) to track down and reduce point source and non-point source PCB loadings from their facilities. This collaborative effort with basin states has proven quite successful; PCB loadings by the top ten dischargers in the Delaware River Basin have been reduced by 76% since the requirement began and resulted in reduced fish consumption advisories throughout the estuary and bay.

In addition, several efforts have been undertaken within the Basin by the DRBC to identify contaminant of emerging concern (CEC) and understand their sources, pathways, and persistence.

The DRBC has an ongoing monitoring program for Per- and Polyfluoroalkyl substances (PFAS) in the main stem Delaware River, examining surface water, fish tissue and sediment. PFAS was investigated in fish fillet from the Delaware River over a fifteen-year period (2004 to 2018). Additional studies are planned to evaluate the efficacy of regulatory and management strategies in reducing exposure and risks from PFAS to human health and aquatic dependent wildlife.

Recent monitoring has also quantified 1,4-dioxane in both surface water in the Delaware River and at drinking water intakes that warrants additional study. The DRBC is cooperatively working with the basin states of Pennsylvania and New Jersey and drinking water utilities to monitor 1,4-dioxane in surface water, to assess potential sources of the chemical and evaluate possible remedies.

Monitoring surveys to investigate the presence and concentration of other contaminants of emerging concern such as pharmaceuticals and personal care product (PPCPs) in the ambient waters of the tidal Delaware River have also been conducted.

A project to provide greater detail into the concentrations of microplastics and how they are distributed by monitoring and modeling of microplastics in the upper Delaware River Estuary is underway as well.

Informing these efforts are the Commission's advisory committees such as the Toxics Advisory Committee and the Water Quality Advisory Committee with representatives from industry, municipalities, academia, public health, environmental and watershed organizations, as well as state and federal government agencies. The DRBC advisory committees provide a forum for the exchange of information and viewpoints on a variety of issues.

This concludes my testimony. Please let me know if you have any questions. On behalf of the Delaware River Basin Commission, thank you for this opportunity to briefly describe to the members of the Pennsylvania Legislature some of the ways the DRBC is managing, protecting, and improving the water resources of the Delaware River Basin.

Ronald MacGillivray, Ph.D.
Senior Environmental Toxicologist
Delaware River Basin Commission

Biography

Ron MacGillivray is a Senior Environmental Toxicologist at the Delaware River Basin Commission (http://www.state.nj.us/drbc/). His work includes characterizing contaminants of emerging concern, monitoring ambient toxicity, establishing water quality criteria, designing field and laboratory studies for environmental assessment and developing Total Maximum Daily Loads (TMDLs) / Pollution Minimization Plans (PMPs) in the Delaware River and Bay. Dr. MacGillivray is an Adjunct Faculty at the University of the Sciences in Philadelphia. Prior to working at the DRBC, he was a Project Scientist in the Fate and Effects Laboratory of Roy F. Weston, Inc. (Weston Solutions, Inc.). Dr. MacGillivray earned a Ph.D. in Environmental Sciences from the University of Massachusetts at Boston, a M.S. in Microbiology from Rutgers University and a B.S. in Biology from Northeastern University. He is past-president of the Hudson Delaware Chapter of the Society of Environmental Toxicology and Chemistry (http://www.hdcsetac.org/).

Audubon | MID-ATLANTIC

Statement of Elizabeth Koniers Brown
Audubon Mid-Atlantic
to the Pennsylvania House Democratic Policy Committee
"Protecting the Delaware River Basin"
February 22, 2021

Good morning Committee Chairs and Members. Thank you for the opportunity to speak today on behalf of Audubon Mid-Atlantic, a regional office of the National Audubon Society that includes the Pennsylvania and Maryland-DC state programs. My name is Elizabeth Brown and I lead Audubon's Delaware River Watershed Program, where we are advancing conservation through science, education, and sound policy to achieve our vision of a Watershed in which birds and people thrive. Birds tell us we need to protect the Delaware River Watershed.

Audubon's mission is to protect birds and the places they need, today and tomorrow. Audubon represents more than 1.9 million members, including over 70,000 in Pennsylvania, and has more than 500 affiliated chapters, 18 regional & state offices, and 41 nature centers & sanctuaries across the country. On behalf of the entire Audubon organization, thank you for taking the time to learn about protecting this critical landscape, which encompasses more than 13,500 square miles of land and 2,000 tributary streams across New Jersey, Delaware, Pennsylvania, and New York, and which serves the drinking water needs of 13.3 million people in communities large and small.

The Delaware River Watershed is a critical place for birds, as it provides habitat to more than 400 species, including federally-protected species like Sanderling and Red Knot. It serves as an important stopover site along the Atlantic Flyway for the second-largest population of migrating songbirds and raptors in North America, and boasts the largest and most important inland Bald Eagle wintering habitat in the northeastern United States. It is also home to the second-largest concentration of shorebirds in North America and is designated as one of the four most important shorebird-migration sites in the world. In short, birds need the Delaware River Watershed.

An array of programs, partners and and agencies work to protect the Watershed's outstanding water quality by restoring its degraded waters, ensuring adequate quantity and flows, and improving habitat throughout the Watershed. Among federal, state, and local programs, the multistate and federal Delaware River Basin Commission (DRBC) and the federal Delaware River Basin Restoration Program (DRBRP) are key. The DRBC and DRBRP each provide critical programs and opportunities to protect and restore the Watershed's water quality and habitats for today and into the future. To date, the DRBRP has awarded more than $17 million to 90 projects across the Delaware River Watershed supporting recreation, water quality, water management, and habitat. And with another $41 million in matching funds, the program has channeled a total conservation investment of $58 million in only a few short years. DRBC's marquee program to maintain high water quality, called Special Protection Waters, currently covers the entire Upper Watershed, specifically the drainage area flowing to the non-tidal Delaware River from Hancock, New York, to Trenton, New Jersey.

At Audubon we are working collaboratively with partners across these programs and agencies, such as the Delaware River Watershed Initiative, which is an effort of over 50 organizations to reduce pollution, protect headwaters and promote water-smart practices and polices across the watershed. And we are

engaging non-traditional allies in our work, like our partnership with craft brewers throughout the watershed. You will hear more from them today.

We must act with urgency to protect nature. Since 1970, we've lost three billion of North America's birds. And according to Audubon's climate science report, two-thirds of our bird species are now at risk of extinction due to climate change. The birds we've lost are not only threatened or endangered species, but common birds found in communities and backyards across the country, including here in the Delaware River Watershed. These declines are due to human activity, including habitat loss and degradation.

For example, the Louisiana Waterthrush is a Delaware River Watershed Program priority bird, and is sensitive to increased acidification, sedimentation, and altered or reduced prey in its streamside habitats, making it particularly vulnerable to activities associated with natural gas extraction and wastewater disposal. It is sometimes called the "feathered trout" based on its similar habitat and diet.

Birds are important indicator species, meaning that changes and severe declines in bird health tell us about future threats facing communities including the 13.3 million people who depend on the Delaware River Watershed for clean, reliable drinking water. The U.S. Environmental Protection Agency has called birds the "bellwethers of watershed health." Birds tell us we need to protect the Watershed.

The Delaware River Watershed is a study in diversity of its landscape and communities. Within it are some of the nation's most densely populated metro areas, yet the Watershed remains 50% forested and retains internationally important wetlands.

The National Park Service notes the "exceptional" ecological integrity of the upper Delaware River system, explaining that a combination of "exceptionally high water quality, fully functioning floodplains, excellent aquatic and riparian habitats, and the absence of dams on the mainstem contributes to a diverse array of species and a productive, complex food web."

But this exceptional designation is fragile. Expansive forest and wetlands are particularly threatened by large-scale land use changes, which could reduce forest cover by an estimated 2-10%. Where land cover changes significantly, water quality is at high risk of decline, with increased pollution entering streams primarily in the form of sediment and nutrients.

The Lower Watershed knows well the legacy of pollution, with a decades-long "dead zone" in the Delaware River preventing fish passage and limiting communities' use and enjoyment of the river that only improved after the DRBC and states reduced the amount of sewage and toxics entering the river through coordinated action, but with remaining room for improvement to benefit all communities. As our region is predicted to become warmer and wetter over time, managing the challenges of community flooding, securing fresh drinking water, and addressing accelerated stormwater impacts will only become more costly and resource-intensive. And we know these impacts will continue adding inequitable burdens to communities of color, rural communities, and economically disadvantaged communities throughout the Watershed.

Yet we have strong nature-based tools available in the Watershed to avoid climate-related damage if we commit to protect and steward these resources. The Watershed's forests, wetlands, and waters provide essential ecosystem services, including recreational, commercial, and water quality benefits, which must be protected.

A striking sign of progress is the successful rebound of Bald Eagles in the Watershed, which rely on a continued richness and diversity of aquatic species in the Delaware River and its tributaries. This aquatic richness, in turn, depends on adequate stream flows and high water quality.

Anglers and sports enthusiasts who fish our waters also rely on clean water and adequate flows to support populations of fish like trout and shad. The Poconos region has been a draw for trout fishing stretching back to the mid-1800s. These activities provide critical economic resources and jobs to local communities. The Pennsylvania Fish and Boat Commission recognizes this economic underpinning in its "resource-first" approach, noting the "Commonwealth's aquatic resources are the valuable collateral that secures all fishing and boating activities."

Indeed, the Watershed and its ecological values are a draw for outdoor recreation activities like birding and fishing, but also hunting, camping, canoeing, skiing and more. Overall, Pennsylvania ranks sixth in the country for outdoor recreation spending by state, and is home to 15 million hunters, anglers and wildlife-watchers who spend $12 billion annually in the Commonwealth. In Carbon County, Pennsylvania, high-quality natural resources drive $108.8 million in annual outdoor recreation revenue to this part of the Watershed, according to Audubon's research.

Interest in the outdoors is only growing. Fueled by the COVID-19 pandemic, state park attendance increased by 26.6% between 2019-2020, according to the Department of Conservation and Natural Resources (DCNR). And a recent survey by DCNR found the number of Pennsylvanians interested in outdoor recreation hobbies or skills since the beginning of the pandemic rose by a striking 37%.

The Watershed also draws visitors to its unique destinations, with the Delaware Water Gap National Recreation Area as one of the most visited national parks east of the Mississippi River, and 229 miles of the Appalachian Trail in Pennsylvania to name just a few.

A healthy, ecologically functioning Delaware River Watershed is essential for its communities today and into the future. Since 2010 all Watershed communities have benefitted from a moratorium on gas drilling in the Watershed. Audubon supports a permanent ban on gas drilling as we emphasize renewable energy as critical to reducing pollution, lowering global temperatures, and preserving the places that birds need to survive, like the Delaware River Watershed.

In passing the Delaware River Basin Conservation Act in 2015, Congress declared the Watershed to be a national treasure of "great cultural, environmental, ecological, and economic importance."

Prioritizing this landscape through full support for the DRBC, as well as critical local, state and federal water, land use and species programs, will ensure birds have the habitat and resources they need to thrive, now and for decades to come. We urge this committee to protect and strengthen our environment and the ecosystems birds and humans rely on. By doing so, we will create a better future and protect a national treasure.

Thank you, once again for hearing my testimony today.

David M. Bria
President
Yardley Borough Council
215-720-5522 • dbria@yardleyboro.com
56 South Main Street • Yardley, PA 19067
www.yardleyboro.com

Good morning Chair Bizzarro, Co-Chair Issacson and Committee Members. Yardley Borough is one square-mile located on the banks of the Delaware River. As Yardley's Council President, I represent the 2200 people and thriving businesses that call this idyllic community home. The Delaware River is itself a central member of my community. It is an engine of local tourism, attracting visitors to Yardley from as far as New York and Philadelphia. It is an invaluable natural resource, serving as the drinking water in our homes and businesses. And for the one-third of Yardley residents who live in the River's floodplain, it is a constant reminder that nature can quickly change our lives in an instant.

The Delaware River Basin Commission plays a vital role in monitoring the health of the river. Their functions regarding preservation, water quality, flood mitigation and emergency management are areas of work I've become closely familiar with in my time on Yardley Council. The economic livelihood of my community depends on them.

The Delaware River makes Yardley a local destination—just as it does for sister communities along the river, such as Bristol, Morrisville and New Hope. The River offers stunning views that can be enjoyed from restaurants along its banks. The Delaware Canal State Park, which runs through the heart of Yardley, is a natural extension of the River that is enjoyed year-round by joggers, bikers, and families looking for an activity to break the monotony of quarantining this past year. Dozens of families have told me that they actively sought out homes near the canal so that they can enjoy outdoor recreation along its banks. The scenery brings people, and the people bring business. In this way, our local economy depends on the river.

The Delaware is the primary drinking water source in our community. You've heard or will hear in other testimony about the importance of water quality for the many breweries popping up across the region. Once such brewery—The Vault—is located in the heart of Yardley Borough. They were so successful that they opened a second location and began regional distribution of their beers. The even opened a sister-business across the street called Pretty Bird coffee, with brew so good that they remain busy all day despite their location between a Wawa and a Starbucks. Business like these create real jobs that rely on safe drinking water from the River. Without it, they'd disappear.

As Council President, I've heard many concerns about the quality of the River's water—particularly as a result of ongoing discussions about fracking. Clean and safe drinking water is a right that should be available to every American, but unfortunately can no longer be taken for granted. Our neighbors on the other side of Bucks County have for years been struggling with drinking water contamination by PFAS, an issue well-known to many of you in this committee. I can tell you with certainty that several of my constituents are worried something similar could happen to the Delaware River. Two years ago, Yardley

passed a resolution supporting DRBC's moratorium on fracking with a unanimous, bipartisan vote. Our support remains unchanged. DRBS's work to keep the river free of contaminants are among its most important goals.

Of all the ways the Delaware River affects life in Yardley, the greatest is by far from the risk of flood. (Most residents won't even say the F-word—we instead prefer "high-water event.") More than one-third of Yardley's residents live in the floodplain. Our community has been devasted by high-water events, and the Borough Government places tremendous importance on flood mitigation and emergency management. Flow management, particularly through coordinating reservoir discharges, can make the difference that keeps the River our of our living rooms. DRBC leads vital initiatives to ensure this coordination takes place.

Even when the River doesn't flood, residents are constantly reminded of its risk by the skyrocketed flood insurance premiums they pay every year. To help reduce these costs, Yardley participates in the Community Rating System, which currently earns my constituents a 5% annual discount on NFIP premiums. I am hopeful this will be increased to 10% in the near future. With some residents paying upwards of $5,000 a year for their policies, these discounts are substantial. One of the ways communities can increase their rating—and gain a bigger discount—is to do more public outreach and education regarding flood mitigation. DRBC is an ideal partner for programs like this because they are already engaged in this kind of public outreach.

The Delaware River Basic Commission is charged with managing my community's most precious resource. Their work might not always be at the forefront of anyone's mind, but the results of their efforts are what fuel the economic livelihood of communities like Yardley. Thank you for the opportunity to speak on behalf of Yardley Borough in support of the Delaware River Basin Commission.

David Bria is President of the Yardley Borough Council and was first elected in 2017. He currently works for the County of Bucks as Deputy Treasurer. Prior to his employment with the County, he owned a small business calibrating laboratory scales and balances.

Patrick Mulhern

Name, age, life long Bristol Borough resident. BB is a Quant and historic little river town in lower Bucks county, established in 1681.

I currently own and operate Personal Training Transformation, LLC. I started PTT 25 years ago, Former owner of PTT Water Adventures 5 years. Co-owner of Driftwood Water Adventures, LLC 8 years with Co-Owner Bobby Moyer, also science teacher BBSD. Former Dive Rescue/ Recovery Specialist

I'd like to share with you my first hand experience on three important topics to consider, the water quality in the Delaware River Basin past and present, recreation activities along the DRB past and precent and the economic impact that recreation has on the surrounding areas of the DRB.

Water Quality past present
My childhood,
Today
Most improved waterway in the country

Fishing- Sturgeons, herring, Stripers are back
River Otters, muscles, clams and even crabs on Neshaminy Creek

Recreation
Present
PT Transformations
After donating a Gym to YMCA
PTT Water Adventures
Bobby Moyer Falls-TCP interested in water activity
State asked us to fill a void at Tyler State Park
-Most years we grow at least 10% based on customers served.
Last year we served about 10,000 customers

Kayaking, paddle boarding, rowing teams, powerboats and sailboats of all sizes, wakeboarding, waterskiing, tubing, jet skis
Fishing, swimming

Past
Carnival
Canoeing
Rowing clubs/schools
Fishing- Sturgeons, herring, Stripers
trapping

Economic impact
BBBA Business Person of the Year
Bristol Borough Day Docks
Pre Dock Vacancies
Post Docks Vacancies
Burlington Island

Increase in Kayakers and SUP launching, Patronizing BBB

My opinion as a Professional Clinical Exercise Specialist. Quality of life and life sports. Anything that threatens this harmonious movement is detrimental to our region. We can not step backwards!

Thank you for allowing my testimony in this matter.

Patrick W. Mulhern
215-882-4850

Why Brewers for the Delaware River Association?

THE DELAWARE RIVER WATERSHED IS IMPORTANT

The Delaware River Watershed supplies more than 15 million people with clean, reliable drinking water. This mighty river and watershed encompass more than 13,500 square miles across New York, New Jersey, Delaware, and Pennsylvania, including a variety of vast forests, 400 miles of designated National Wild and Scenic Rivers, and 700,000 acres of wetland habitat that also offer a destination for outdoor recreation activities, such as camping, canoeing and fishing. It's home to more than 400 bird species, serves as an important stopover site for the second largest population of migrating songbirds and raptors in North America, and boasts the largest and most important inland bald eagle wintering habitats in the northeastern United States.

WHY AUDUBON?

We're the oldest environmental conservation network in America with the grassroots power of more than1.4 million members. Brewers depends on clean, reliable water to survive and thrive, just as birds do; Audubon is here to make connections, build relationships, put resources behind initiatives, and empower voices for conservation. We are asking you, as Brewers, to join forces with the National Audubon Society to build a unified voice and effort to restore and protect the Delaware River Watershed.

GOOD WATER, GOOD BEER

Making up 90% of beer, water is an essential ingredient in craft beer that makes each brew unique to the home and community. This region has a long, proud tradition of brewing by sourcing water from the Delaware River Watershed. Maintaining the Watershed as a clean, reliable water source is necessary for continued economic success and growth of the small business owners that make up that craft beer industry in this region.

WHAT BREWERS FOR THE DELAWARE RIVER WILL DO

By joining the Brewers for the Delaware River Association, your businesses will become a vital united voice in the protection and preservation of the Delaware River, your community's backyard. The Association will support you in educating your communities and advocating for the health of the Watershed, through branding, emails, social media, events (such as a clean-up around Earth Day) and local or regional publicity. Together we can serve America's founding waters, the growing craft beer industry, and the countless millions of people, birds, fish and wildlife that depend on the Delaware River Watershed.

Delaware Water Gap, New Jersey.
Photo: Nicholas A. Tonelli/Flickr (CC BY 2.0)

Audubon

American Sustainable Business Council

The Business Case for Supporting Clean Water in the Delaware River Watershed

Water is one of our nation's priceless resources, essential to life itself. Healthy ecosystems and a robust economy depend on plentiful, clean water — and unlike almost all other resources, water has no substitute. It's why businesses from all sectors support the need for clean water — whether to directly support their operations or simply to keep their communities and employees healthy. And in the Delaware Watershed, clean water is big business.

The Delaware River: Supporting a Vibrant Economy

The Delaware River runs 330 miles from upstate New York to the Delaware Bay, providing a critical resource for New York, New Jersey, Pennsylvania, and Delaware. It provides a critical water supply for 15 million people in these four states — including nearly 50 percent of the drinking water supply for New York City and 100 percent for Philadelphia. Overall that's 5% of the nation's population.

More than 8,000 million gallons per day are withdrawn from the Delaware Basin to sustain the region's economy and population.[1] The waterway contributes over $22 billion in annual economic activity and supports 600,000 direct and indirect jobs, with $10 billion in wages.[2] Numerous sectors rely on the clean water provided by the river for both extractive and non-extractive uses. Some sectors obviously rely on the health of the watershed. Recreation and tourism combined contribute $1.2 billion annually, with recreational fishing alone accounting for about half ($575 million) annually. These activities contribute directly to local economies along the length of the river. For example, the Delaware Water Gap National Recreation Area, which straddles the Pennsylvania/New Jersey border, is one of the busiest parks in the national system and supports 2,232 local jobs, $219 million in sales at local businesses, and $97 million in local wages and salaries.[3]

The Catskill/Delaware River Watershed, which extends 125 miles north of New York City, delivers more than 90 percent of the city's water supply. The rest comes from the Croton Watershed.

[1] http://www.state.nj.us/drbc/library/documents/AWRA-Mid-Atl-Conf_water-useBarr092613.pdf

[2] https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1936-704X.2016.03222.x

[3] https://www.npca.org/articles/548-new-report-highlights-economic-value-and-quality-of-life-benefits-of

Businesses Support Clean Water [4]

- ★ More than 70% of small business owners believe clean water protections help spur economic growth.
- ★ 67% of small business owners are concerned that water pollution could hurt their business operations.
- ★ 71% deem it very important to improve and modernize the water infrastructure system.

A clean, healthy river also significantly enhances property values and supports a thriving riverfront economy.[5] Recently, cities along the Delaware River have begun revitalizing downtown areas to attract new business and promote economic growth. Wilmington, DE has seen significant growth: Condos with riverfront views now sell for over $1 million, and small, local businesses have opened where there were once only shipping ports and manufacturing plants.[6] Over the last decade, Philadelphia, PA also has invested millions in development of waterfront commercial and residential properties, parks, and community spaces; in large part due to water quality improvements.[7]

Agriculture in the Delaware Basin is a $3.4 billion industry and accounts for 27 percent of farm products sold in NY, NJ, DE and PA. Agriculture is supported by 61 million gallons of water per day, drawn from the basin for irrigation and livestock.[8] A reliable source of clean water is also essential to local farmers providing the farm-to-table produce in demand in many restaurants in New York and Philadelphia.

In any case, the region's vibrant restaurant sector is also heavily dependent on the watershed. As Emma Hollister, Director of Operations for The Cleaver Company in New York City explains, "Especially in the food industry, so much of the quality of the final product can be traced back to the health of the conditions in which the food was grown or fished. Without clean water, our farmers and fishers would not be able to produce the food that feeds us all, and we would not be able to prepare the dishes that our clients love. There is no work-around available. Clean water is simply essential to every step of this process."

Some owners in the Delaware River Basin assert that the minerals in its water make the region's pizza and bagel dough better than elsewhere in the U.S. And New York state officials have described the water from the New York City Watershed as the "Champagne" of drinking water.

Clean water is also essential to many other industries in the region, including the fast-growing craft beer industry. As a leader of Catskill Brewery in Livingston Manor, NY says, "A change in water quality or taste forces breweries to achieve the expected flavor of the beer through a chemical process. This extra step in the brewing process increases internal costs for breweries — costs that matter for small-volume businesses like ours."

[4] http://thevalueofwater.org/sites/default/files/Value%20of%20Water%20National%20Poll%202016%20Presentation.pdf

[5] https://www.nj.gov/drbc/library/documents/SocioeconomicValueDRB-UDEL-FinalRpt.pdf; http://www.delawareriverkeeper.org/sites/default/files/River_Values_Report_0_0.pdf.

[6] http://www.delawareriverkeeper.org/sites/default/files/Clean_Water.pdf

[7] https://philly.curbed.com/maps/delaware-river-philadelphia-development-projects

[8] http://www.state.nj.us/drbc/library/documents/WRP2015-2017.pdf

Clean Water is Good for Business Campaign Priorities

★ *Create a comprehensive, region-wide vision and strategy* to preserve clean water, a healthy ecosystem, and economic opportunities. Protecting, conserving, and managing the water resources of the Delaware River Watershed requires a coordinated, region-wide strategy. High-level government engagement from each state will ensure both the needed vision and support to advance basin restoration and protection.

★ *Grow funding for conservation and water infrastructure* within the Delaware River Basin. Funding for the protection and restoration of the Delaware River Basin — the source of drinking water for 15 million people and a $25B economy — is woefully inadequate, especially when compared to available funding for other critical national waterways. All options, including federal appropriations, state and local sources like stormwater utilities and green bonds, and private investment, need to be pursued to increase overall funding.

★ *Decrease stormwater runoff* by investing in green infrastructure and better land-use practices. Excess water from rain and irrigation that runs from streets, parking lots, lawns, and agricultural fields carries chemicals, pesticides, and nutrients that all threaten water quality in the river. Nature-based stormwater solutions and better land-use practices can significantly reduce these sources of pollution in the river basin — often at an overall lower cost than traditional stormwater infrastructure solutions. ★

The Delaware River is what created the economic opportunity that spurred the growth of major industrial centers in Philadelphia, Camden, Wilmington, Trenton, and even New York City. Over the past two hundred-plus years, a vast array of businesses have come and gone; all reliant on the river for manufacturing and transportation. Today, power generation is the leading sector for surface water consumption. Power companies use over 5 billion gallons per day of Delaware River surface water and employ thousands of workers.[9] Other businesses that operate along the Delaware River include steel manufacturers, chemical companies, paper mills, cement production facilities, and oil refineries. Improved water quality benefits such industrial water users by reducing wear on equipment and costs of water and wastewater treatment.[10] These manufacturers rely on clean water to operate — and therefore are major partners in ensuring the health and quality of the River.

The benefits of clean water to businesses across the watershed cannot be overstated. Waters from the Delaware River Basin launched the region's economy and are crucial to its ongoing revitalization. Reliably available, clean water will stimulate more growth and opportunities for manufacturing, farming, recreation, residential real estate, and commerce in every community dependent on the watershed.

Threats Facing the Delaware Watershed

In 1940, the Interstate Commission on the Delaware River Basin called the Delaware River near Philadelphia "one of the most grossly polluted areas in the United States."[11] While conditions are certain better today than they once were, numerous threats to water quality throughout the region still exist.

• *Urban Runoff*

During rainstorms, water runs off roofs, roads, sidewalks, and other impervious surfaces and into drains instead of being captured in soils. This runoff water picks up pollution — from trash, excess oil, chemicals, and salt from roads and sidewalks; fertilizers and pesticides from lawns; and sediment from construction and other surfaces — and runs, untreated, into rivers, streams, and other water sources. What's more, when big cities undergo larger storms that overwhelm their combined sewer systems, raw sewage is released directly into rivers.

• *Agricultural Runoff*

Many farmers rely on pesticides and other chemicals to protect crops, but the way they irrigate their fields and the type of pesticides they use have a significant impact on water quality. When water runs off fields, it carries residual compounds from pesticides, fertilizers, and livestock waste.[12] Referred to as "nutrient pollution," these compounds affect oxygen levels in rivers and can lead to algal blooms and other negative environmental impacts. Agricultural runoff can also contaminate drinking water[13] and cause not only health risks but problems with taste and odor that are costly to treat.[14] Nutrient pollution also causes negative economic impacts to tourism, property values, commercial fishing, and recreation.[15]

[9] http://www.delawareriverkeeper.org/sites/default/files/Environment_&_Economy.pdf

[10] http://www.delawarewatersheds.org/wp-content/uploads/2014/09/GovernancePolicyandEconomicsofCleanWaterintheDelawareRiverBasinWinter-2014GJKauffman.pdf.

[11] https://dspace.njstatelib.org/xmlui/bitstream/handle/10929/15641/d3431939b.pdf?sequence=1&isAllowed=y

[12] http://www.delawareriverkeeper.org/sites/default/files/River_Values_Report_0_0.pdf

[13] https://www.epa.gov/nutrientpollution/effects-human-health.

[14] https://www.epa.gov/sites/production/files/2015-04/documents/nutrient-economics-report-2015.pdf

[15] http://www.wrc.udel.edu/wp-content/uploads/2017/01/TheCostofClean-Waterinthe-DelawareRiver-BasinGJKauffmanDec2016.pdf

Green City, Clean Waters - Philadelphia

As Philadelphia grew into a thriving metropolis, the hundreds of waterways that once naturally ran through the city were channelized and connected to its sewer system. The result was that even small storms often overwhelmed the system, which released raw sewage directly into the Schuylkill and Delaware Rivers and upstream from the city's drinking water intakes. In 1987, following an amendment to the Clean Water Act, the EPA ordered Philadelphia to deal with this problem.

The city is now several years into a 25-year, comprehensive, nature-based stormwater management plan to provide environmental, social and economic benefits for the city and region, reducing Philadelphia's combined sewer overflows by 85 percent. But rather than spending an estimated $9.6 billion to update its "gray" infrastructure, the city is instead investing an estimated $2.4 billion in public funds — matched by private funds — to create "green" stormwater infrastructure throughout the city. This infrastructure includes roughly 10,000 acres of green spaces to capture water onsite and reduce runoff. To date, Philadelphia has built

Photo: Basel-Almisshal

nearly 1,100 greened acres and expects to add another 1,300 in the next three years. To date, the plan is working nearly three time better than projected, cutting storm water volume by 1.7 billion gallons. A study[16] by the Sustainable Business Network of Greater Philadelphia (SBN) projects the city's efforts will produce a $3.1 billion impact in the Philadelphia economy, supporting about 1,000 jobs per year and generating $2 million per year in local tax revenues for the entire 25-year period. ★

• *Manufacturing Discharge*

Many types of manufacturing processes use large volumes of water. Paper, textile, and chemical manufacturers, among others, can release wastewater, adding toxic pollutants to rivers, streams, and lakes if not properly regulated and operated. These industrial discharges can threaten wildlife and ecosystems and infiltrate drinking water supplies, causing dramatic hazards to human health.

• *Power Production and Fracking*

Water is used in many stages of energy production and generation, and if the process is not managed properly, causes significant risks to water quality. For example, hydraulic fracturing, or "fracking," injects water and chemicals that crack shale rock deep underground to extract oil and gas.[17] If not handled properly, this process can pollute ground and surface water.[18] Fracking may reduce water quality to the point that investments in additional water treatment are required to make water safe to drink. Water is also used as a coolant in power plants.[19] In certain types of cooling systems, once the water makes its way through the plant, it is discharged at a high temperature into rivers or other water sources, which causes thermal pollution and threatens organisms living in the waterbody.[20]

• *Outdated Infrastructure*

Water infrastructure in many cities has not been upgraded for decades or longer, and significant investment is needed to ensure our continued access to clean water. The 2017 Infrastructure Report Card from the American Society of Civil Engineers (ASCE) states that more than $105 billion is currently needed to improve our water and wastewater infrastructure.[21] By 2040, unless this infrastructure deficit is addressed, 956,000 jobs will be at risk. The cumulative nationwide economic impact through 2040 is expected to be $3.2 trillion of GDP. ★

[16] http://www.sbnphiladelphia.org/images/uploads/Green%20City,%20Clean%20Waters-The%20First%20Five%20Years.pdf

[17] https://www.state.nj.us/drbc/programs/natural/

[18] https://www.psr.org/wp-content/uploads/2018/04/Fracking_Science_Compendium_5.pdf; http://www.delawareriverkeeper.org/sites/default/files/resources/Reports/Jane%20Davenport%20ABA%20Paper%20January%209%202012%20Final.pdf

[19] https://www.energy.gov/sites/prod/files/2014/07/f17/Water%20Energy%20Nexus%20Full%20Report%20July%202014.pdf

[20] https://www.state.nj.us/dep/dsr/njcrp/thermal-pollution.pdf

[21] https://www.infrastructurereportcard.org/the-impact/failure-to-act-report/

American Sustainable Business Council

For More Information on
The Delaware River Watershed: Clean Water is Good for Business Campaign

https://www.asbcouncil.org/clean-water-good-business-delaware-river-watershed

Bureau of Economic Analysis
U.S. DEPARTMENT OF COMMERCE

2019 - Pennsylvania

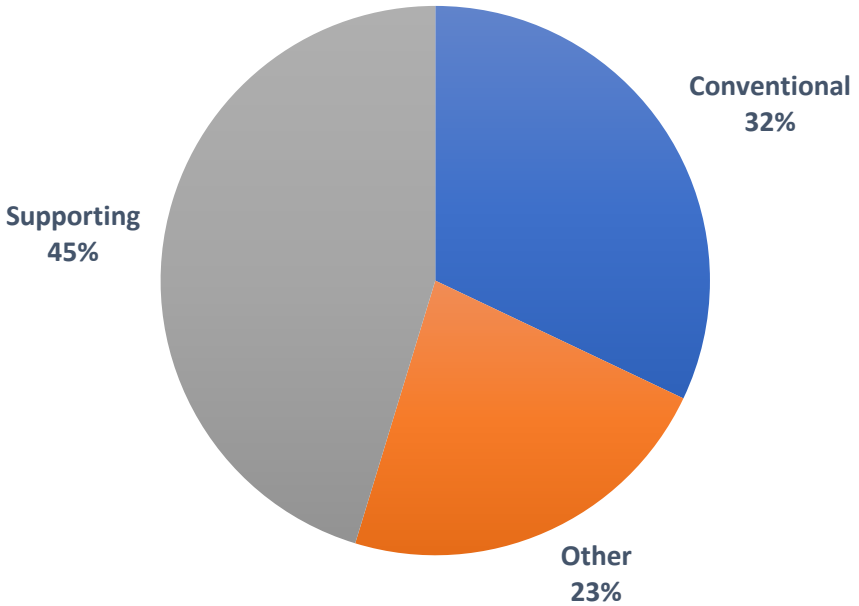
Outdoor Recreation Satellite Account (ORSA)

Value Added (GDP)		Employment		Compensation	
ORSA Total	Share of State	ORSA Total	Share of State	ORSA Total	Share of State
$13.2 Billion	1.6%	170,565 Jobs	2.2%	$6.6 Billion	1.5%

Value Added by Select ORSA Activity ($ 000s)

Activity	2017	2018	2019	State Rank
RVing	508,912	533,426	559,834	7
Boating/Fishing	480,866	488,101	520,094	18
Motorcycling/ATVing	419,725	400,814	429,155	7
Hunting/Shooting/Trapping	278,379	275,362	313,837	9
Equestrian	246,914	271,076	280,015	7
Snow Activities	217,648	228,895	236,683	7
Climbing/Hiking/Tent Camping	111,400	116,119	118,435	9
Bicycling	85,398	76,598	87,152	6
Recreational Flying	32,668	33,844	32,898	12

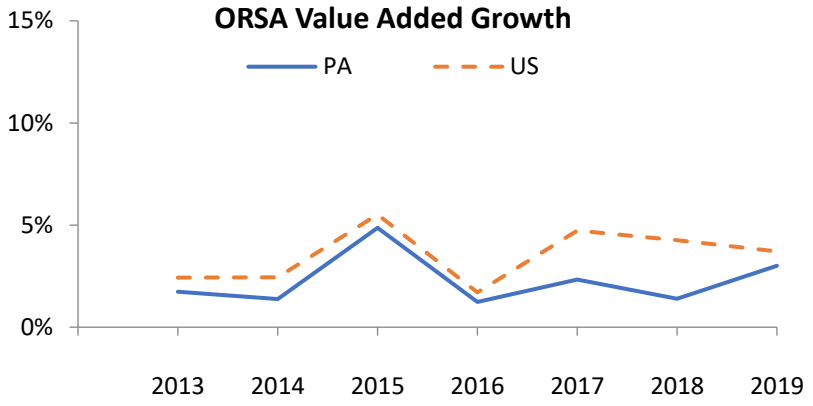
Value Added Composition of Outdoor Recreation Activities



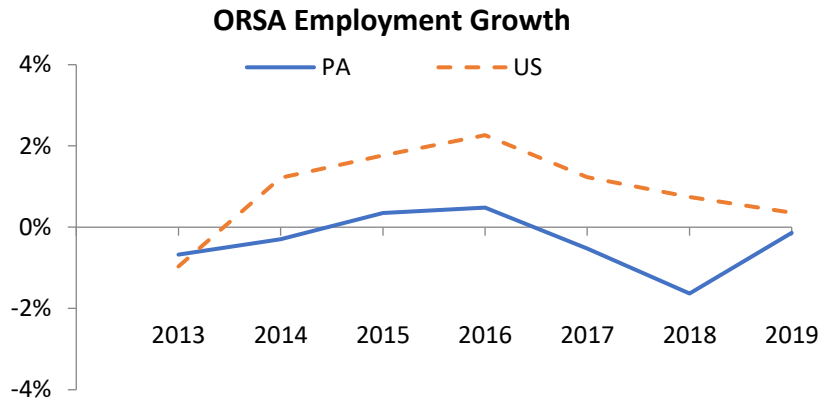
Conventional ORSA activities include traditional outdoor activities such as camping, hiking, boating, and hunting.
Other ORSA activities include those activities that take place outside, such as gardening and outdoor concerts.
Supporting ORSA activities, are those that contribute to the core activities and include such things as construction, travel and tourism, local trips, and government expenditures.

Bureau of Economic Analysis
U.S. DEPARTMENT OF COMMERCE

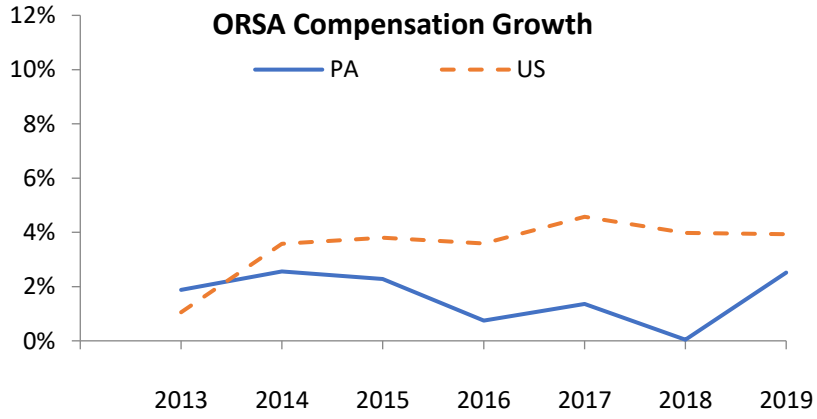
In 2019, Pennsylvania ranked 6th among all states in ORSA value added, and 34th among all states in ORSA value added growth. Since 2018, ORSA value added has grown 3 percent in Pennsylvania, compared with an increase of 3.7 percent for the U.S.



In 2019, Pennsylvania ranked 5th among all states in ORSA employment, and 34th among all states in ORSA employment growth. Since 2018, ORSA employment has decreased 0.1 percent in Pennsylvania, compared with an increase of 0.4 percent for the U.S.

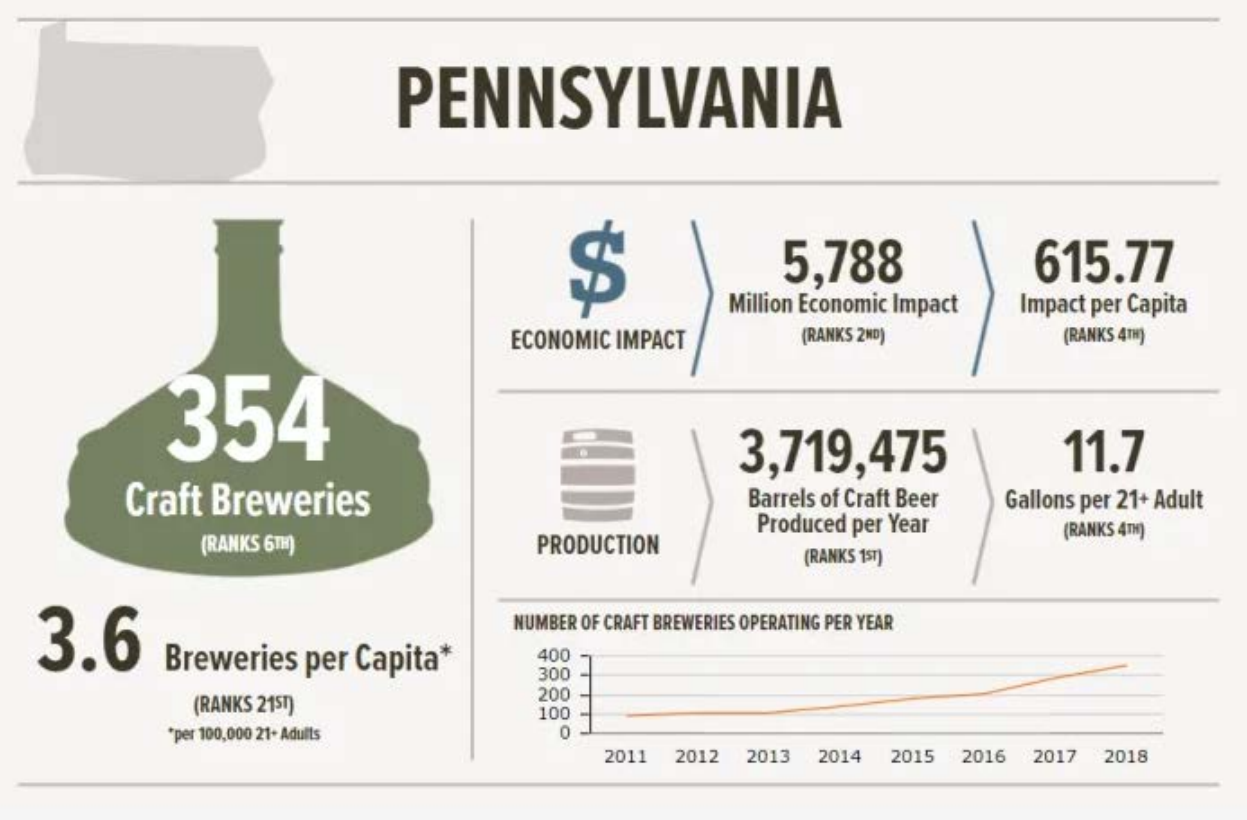


In 2019, Pennsylvania ranked 6th among all states in ORSA compensation, and 41st among all states in ORSA compensation growth. Since 2018, ORSA compensation has grown 2.5 percent in Pennsylvania, compared with an increase of 3.9 percent for the U.S.



Average compensation per wage-and-salary job in Pennsylvania's ORSA industries was $38,710 in 2019, compared with $70.305 for all salaried jobs in the state.

ORSA Value Added (VA) consists of the gross output of an industry less its intermediate inputs; the contribution of an industry to gross domestic product (GDP).
ORSA Employment consists of all wage-and-salary jobs where the workers are engaged in the production of ORSA goods and services.
ORSA Compensation consists of the remuneration (including wages and salaries, as well as benefits such as employer contributions to pension and health funds) payable to employees in return for their ORSA work during a given year.



Source: BrewersAssociation.org

Economic Contributions of Recreational Fishing
— Pennsylvania —

1,550,800 anglers spent $422.4 Million while fishing in Pennsylvania.

Statewide Contributions by Anglers in Pennsylvania

$727.4 Million
Economic Output

6,440
Jobs Supported

National Contributions by U.S. Anglers

$129 Billion
Economic Output

826,000
Jobs Supported

Annual U.S. Angler Contributions to Conservation

- $752 Million License Sales
- $650 Million Excise Taxes
- $283 Million Donations

$1.7 Billion
— Total —

U.S. Anglers by the Numbers

- 2.4 Million Great Lakes Anglers
- 10.9 Million Saltwater Anglers
- 40.5 Million Freshwater Anglers

49.4 Million
— Total Anglers —

Angler participation and spending presented here reflect 2018 estimates. The 13% increase in license sales in the U.S. through September 2020 compared to the year before, and 66% increase in excise tax collections since 2018 indicate economic contributions for 2020 could be significantly greater.

SOUTHWICK ASSOCIATES

Patrick Mulhern

Name, age, life long Bristol Borough resident. BB is a Quant and historic little river town in lower Bucks county, established in 1681.

I currently own and operate Personal Training Transformation, LLC. I started PTT 25 years ago, Former owner of PTT Water Adventures 5 years. Co-owner of Driftwood Water Adventures, LLC 8 years with Co-Owner Bobby Moyer, also science teacher BBSD. Former Dive Rescue/ Recovery Specialist

I'd like to share with you my first hand experience on three important topics to consider, the water quality in the Delaware River Basin past and present, recreation activities along the DRB past and precent and the economic impact that recreation has on the surrounding areas of the DRB.

Water Quality past present
My childhood,
Today
Most improved waterway in the country

Fishing- Sturgeons, herring, Stripers are back
River Otters, muscles, clams and even crabs on Neshaminy Creek

Recreation
Present
PT Transformations
After donating a Gym to YMCA
PTT Water Adventures
Bobby Moyer Falls-TCP interested in water activity
State asked us to fill a void at Tyler State Park
-Most years we grow at least 10% based on customers served.
Last year we served about 10,000 customers

Kayaking, paddle boarding, rowing teams, powerboats and sailboats of all sizes, wakeboarding, waterskiing, tubing, jet skis
Fishing, swimming

Past
Carnival
Canoeing
Rowing clubs/schools
Fishing- Sturgeons, herring, Stripers
trapping

Economic impact
BBBA Business Person of the Year
Bristol Borough Day Docks
Pre Dock Vacancies
Post Docks Vacancies
Burlington Island

Increase in Kayakers and SUP launching, Patronizing BBB

My opinion as a Professional Clinical Exercise Specialist. Quality of life and life sports. Anything that threatens this harmonious movement is detrimental to our region. We can not step backwards!

Thank you for allowing my testimony in this matter.

Patrick W. Mulhern
215-882-4850