

An Introduction to the Delaware River Basin Commission

Lafayette College

October 2, 2019

Chad Pindar, P.E.

Manager of Water Resource
Planning



Photo: David B. Soete



Agenda

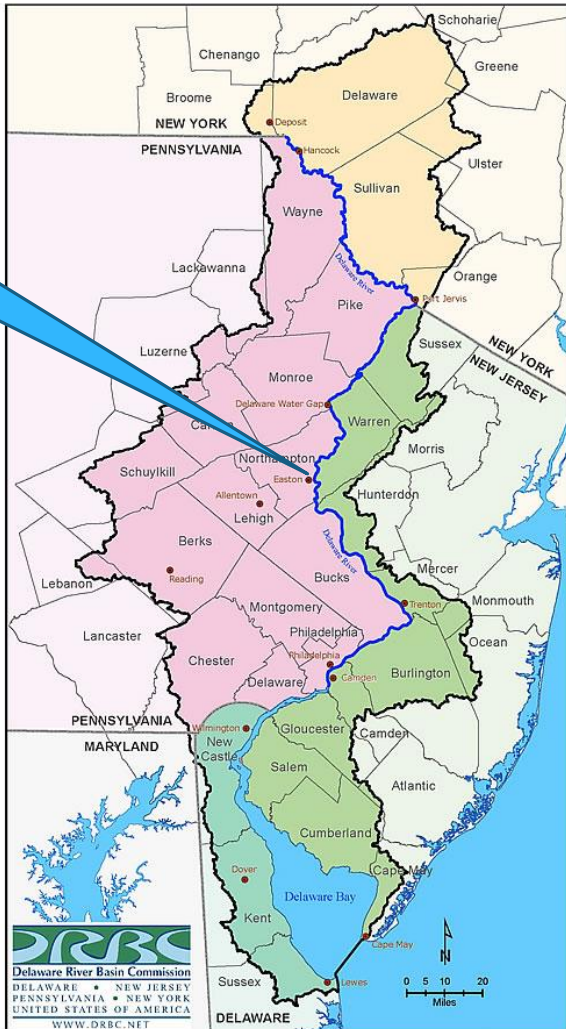
- Who is DRBC?
- Why was DRBC created?
- What does DRBC do?
- How do we do it?
- Future Challenges
- Questions



“A river is more than an amenity, it is a treasure”

-US Supreme Court Justice
Oliver Wendell Holmes

We are here.



Fast Facts:

- Delaware River Main stem river is **330 miles long**
- Delaware River forms an interstate boundary over its entire length
- **13+ million people** (about 5% of the U.S. population) rely on the waters of the Delaware River Basin
- **Drains 13,539 square miles** in 4 states.
- Water **withdrawal** in the Basin = **6.6 billion gallons/day**
- **Significant Exports: NYC (up to 800 MGD) and NJ (up to 100 MGD)**
- Longest, un-dammed U.S. river east of the Mississippi (dams are located on tributaries, not the main stem Delaware)
- **Contributes over \$21B in economic value** to the region.

What is an interstate compact?

- An arrangement between two or more states that is designed to solve their common problems and that becomes part of the laws of each state.
- Under Article 1, Section 10, Clause 3 of the US Constitution states: “No state shall, **without the Consent of Congress**...enter into any Agreement or Compact with any other State”.

Who is DRBC? - Delaware River Basin Commission

Founded by Compact in 1961

Five Equal Members:

- Delaware



- New Jersey



- Pennsylvania



- New York



- Federal Government

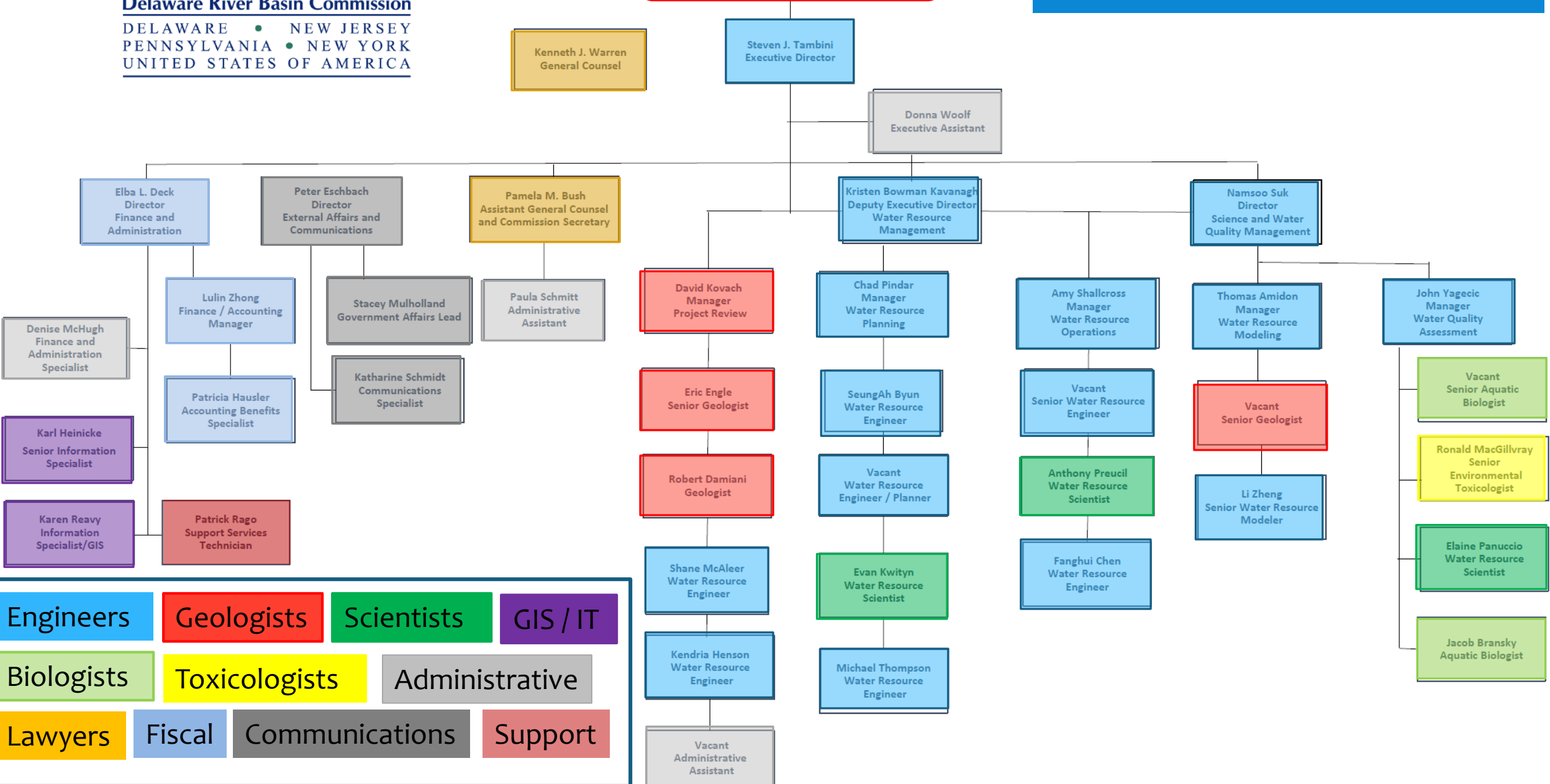


Note: New York City and Philadelphia are “advisors” and not members



Who is DRBC?

DRBC Commissioners
DE, NJ, NY, PA, and US



Engineers	Geologists	Scientists	GIS / IT
Biologists	Toxicologists	Administrative	
Lawyers	Fiscal	Communications	Support

Why was the DRBC created?

- Water supply shortages and disputes over the apportionment of the basin's waters;
- Severe pollution in the Delaware River and its major tributaries;
- Serious flooding



Why was the DRBC created?

- 4 States
- 42 Counties
- 838 Municipalities
- **New York City**

To address the Need for Basin-Scale Planning and Management

Question: How many students grew up within the Delaware River Basin?



~ 9 Million NYC residents rely for the DRB for ~ %50 of their water

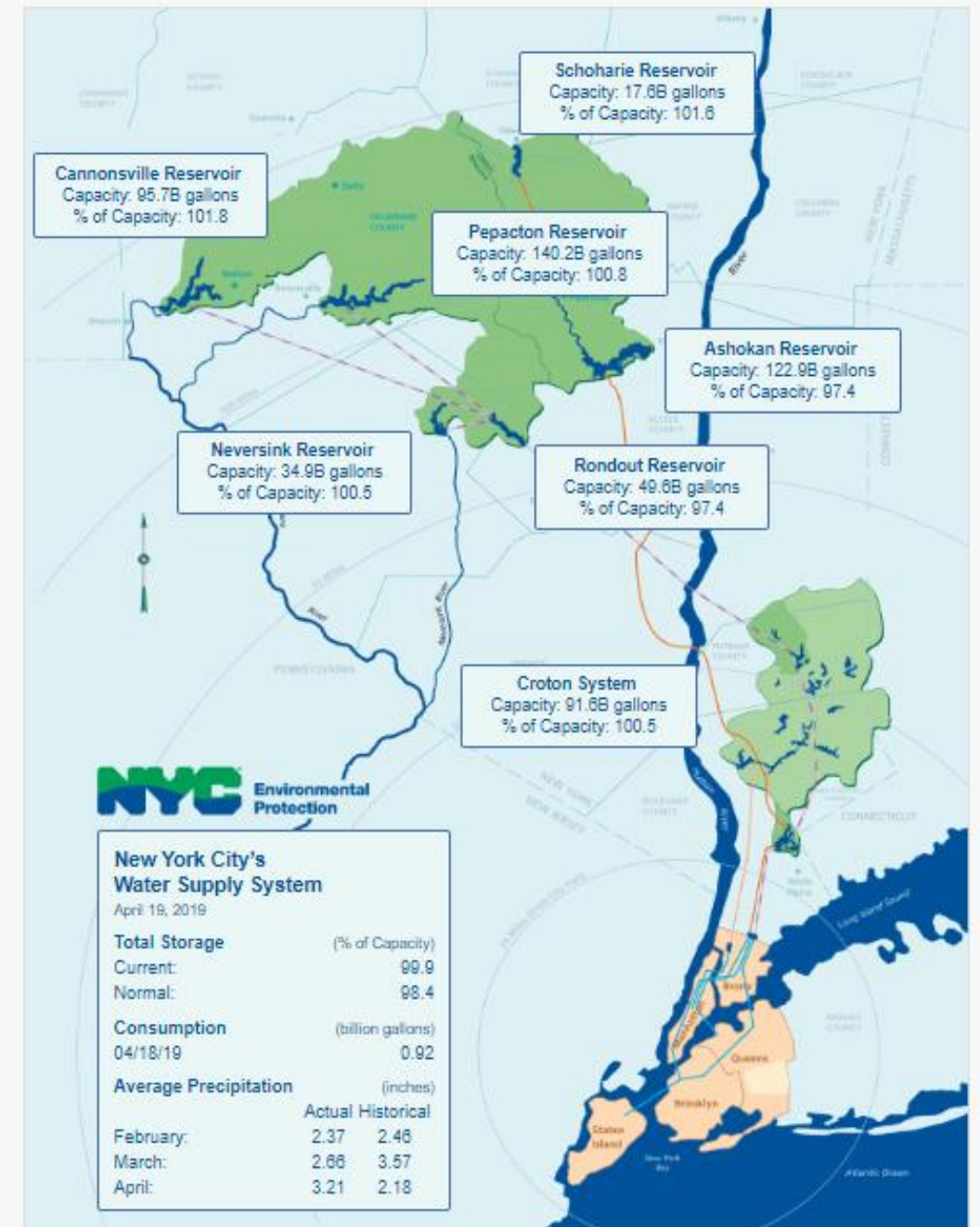
Map Key

- Delaware River Basin Boundary
- ▭ County Boundary
- ▭ Municipal Boundary



Why was DRBC created? Interstate Water Disputes

- 1921: New York City Board of Water Supply investigates additional sources to supplement Catskill system
- 1920's: Unsuccessful efforts to reach interstate agreement
- 1929: New Jersey petitions U.S. Supreme Court to enjoin NYC and NYS from constructing DRB reservoir
- 1931 Supreme Court Decree



What does DRBC do?

Primary Functional Responsibilities






- **Water Supply**
- **Drought Management**
- **Flood Loss Reduction**
- **Water Quality**
- **Watershed Planning**
- **Regulatory Review (Permitting)**
- Outreach/Education
- Recreation

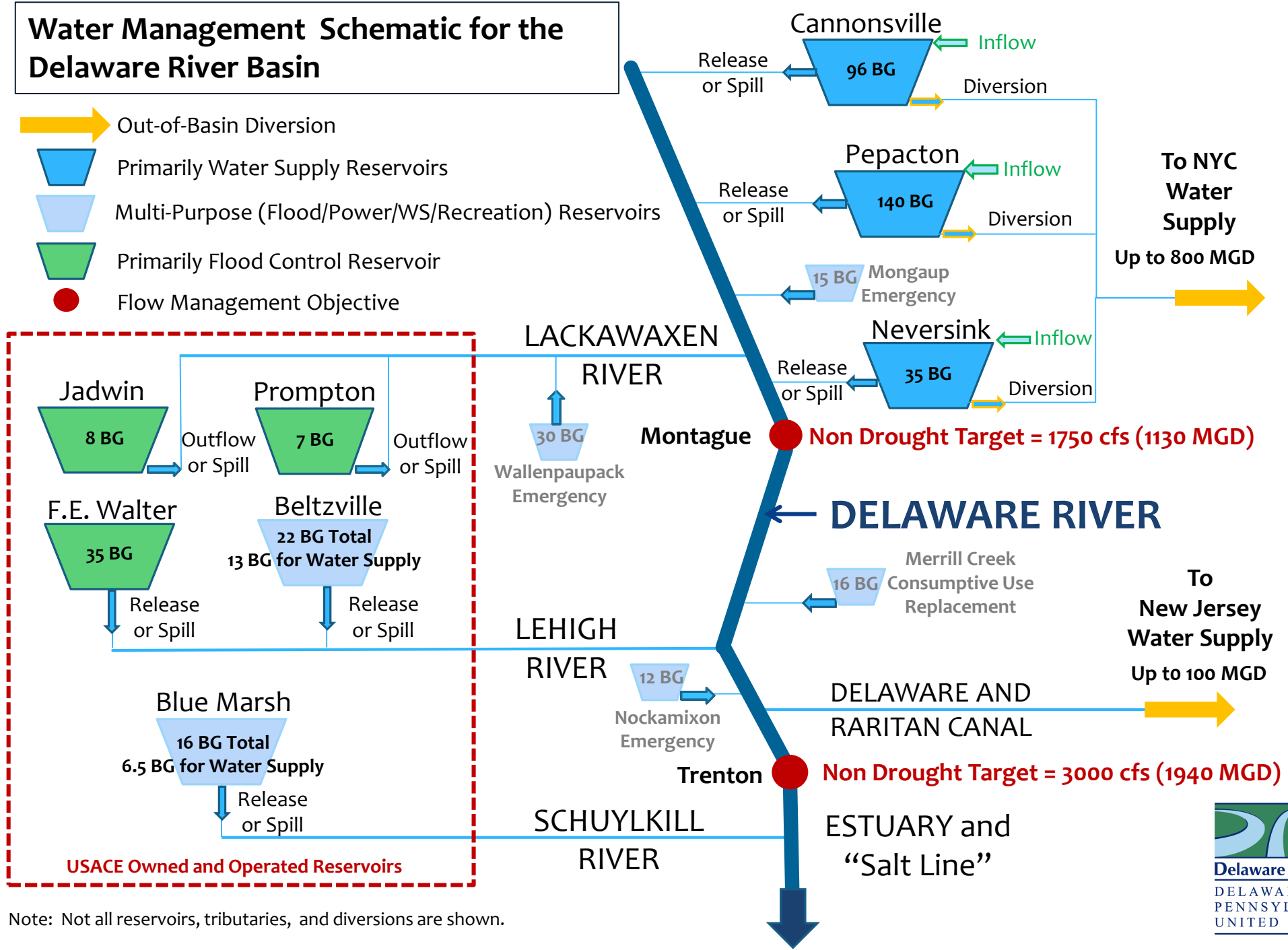
Essentially “Quantity” and “Quality”

Quantity – An adequate and sustainable supply of water.

Quality – Clean and healthy water resources.

Water Management Schematic for the Delaware River Basin

-  Out-of-Basin Diversion
-  Primarily Water Supply Reservoirs
-  Multi-Purpose (Flood/Power/WS/Recreation) Reservoirs
-  Primarily Flood Control Reservoir
-  Flow Management Objective



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



Water Quantity - Drought Years

<u>Decades</u>	1950s	1960s	1970s	1980s	1990s	2000s	2010s
Reservoir Completed	A B C	D E F	G H	I			
<u>Drought Years:</u>							
Drought Watch or Warning							
Drought Emergency							

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.

Water Quality – Establish “Uses”

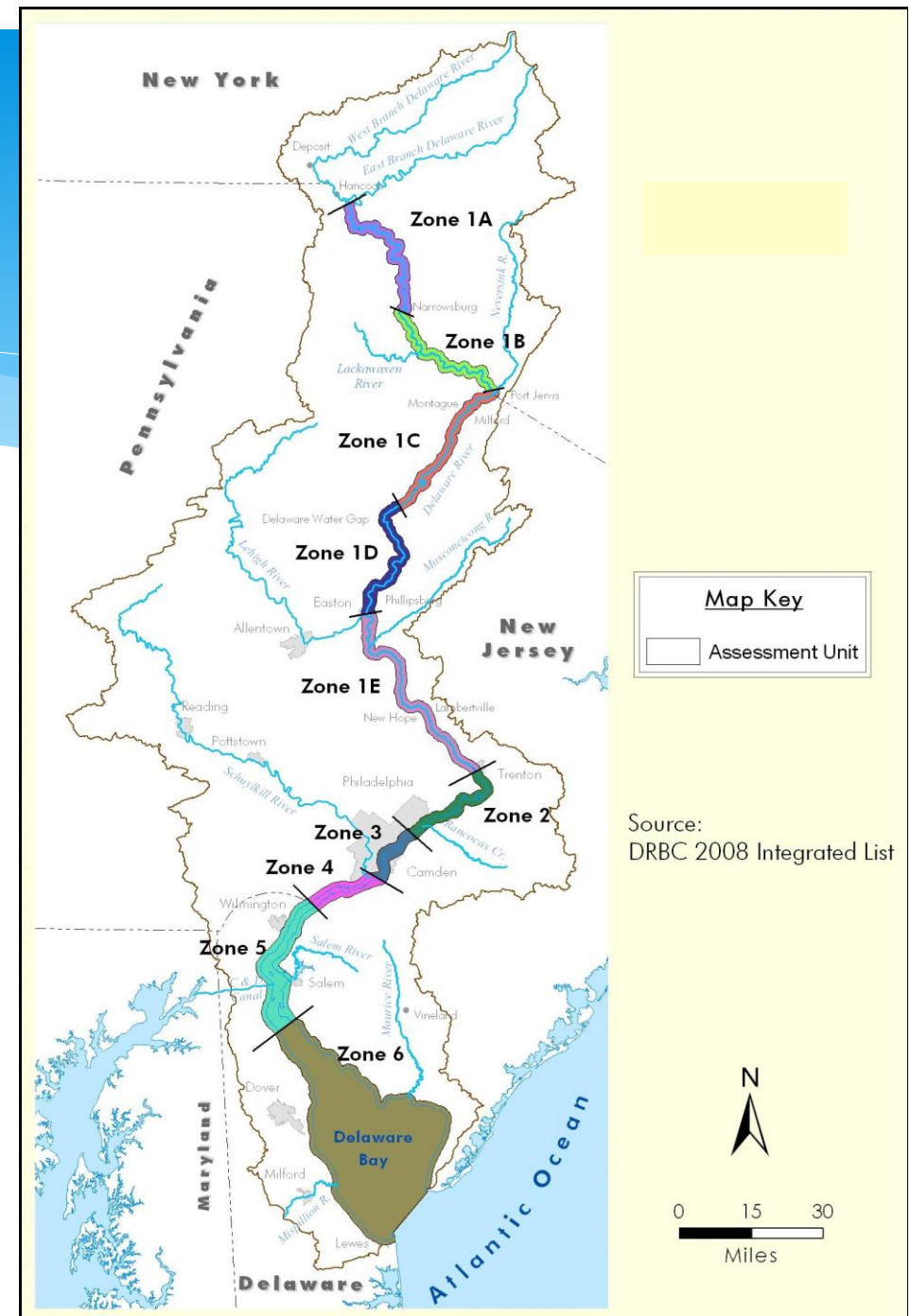
- Public drinking water (after reasonable treatment)
- Recreation
- Wildlife, fish and other aquatic life
- Regulated waste assimilation



Photo: David B. Soete

Water Quality – Set Standards

- ❑ From 1962, Commission adopted Water Quality Regulations pursuant to Article 5 of the Compact;
- ❑ To protect aquatic life and human health for both carcinogenic and non-carcinogenic effects.
- ❑ Updated and revised periodically to the present;
- ❑ Includes standards for mainstem Water Quality Management Zones, interstate tributaries, and some basin wide standards.



Water Quality - Monitoring

- 1) Fish Tissue
- 2) Ambient Water
- 3) Sediment



- 4) Atmosphere
- 5) Point Sources



Water Quality - Assessments

Delaware River and Bay Water Quality Assessment Report (305b)

- * Every even numbered year – next 2020
- * <https://www.nj.gov/drbc/quality/reports/wq-assessment-rpts.html#2>

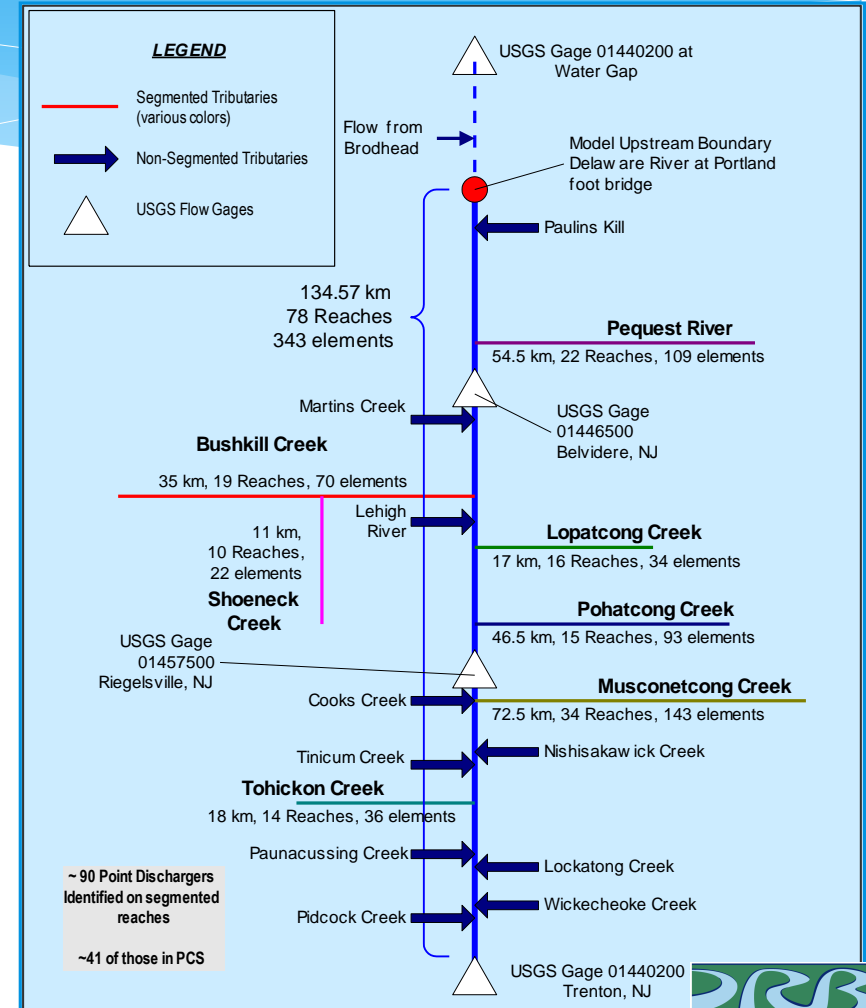
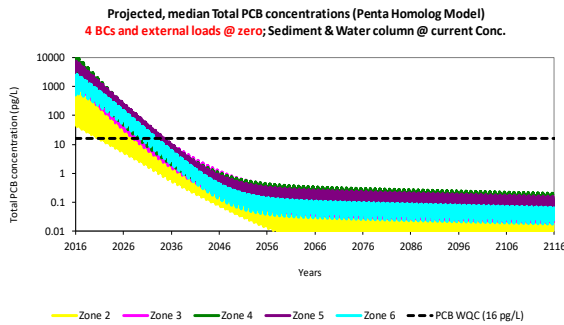
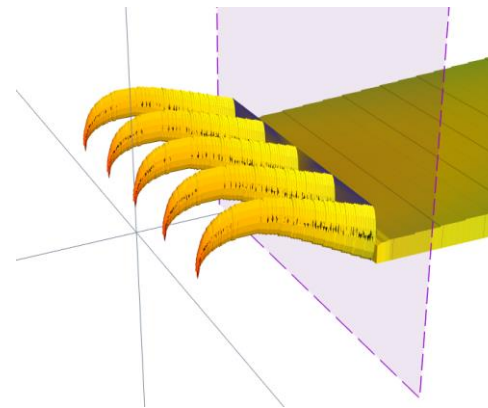
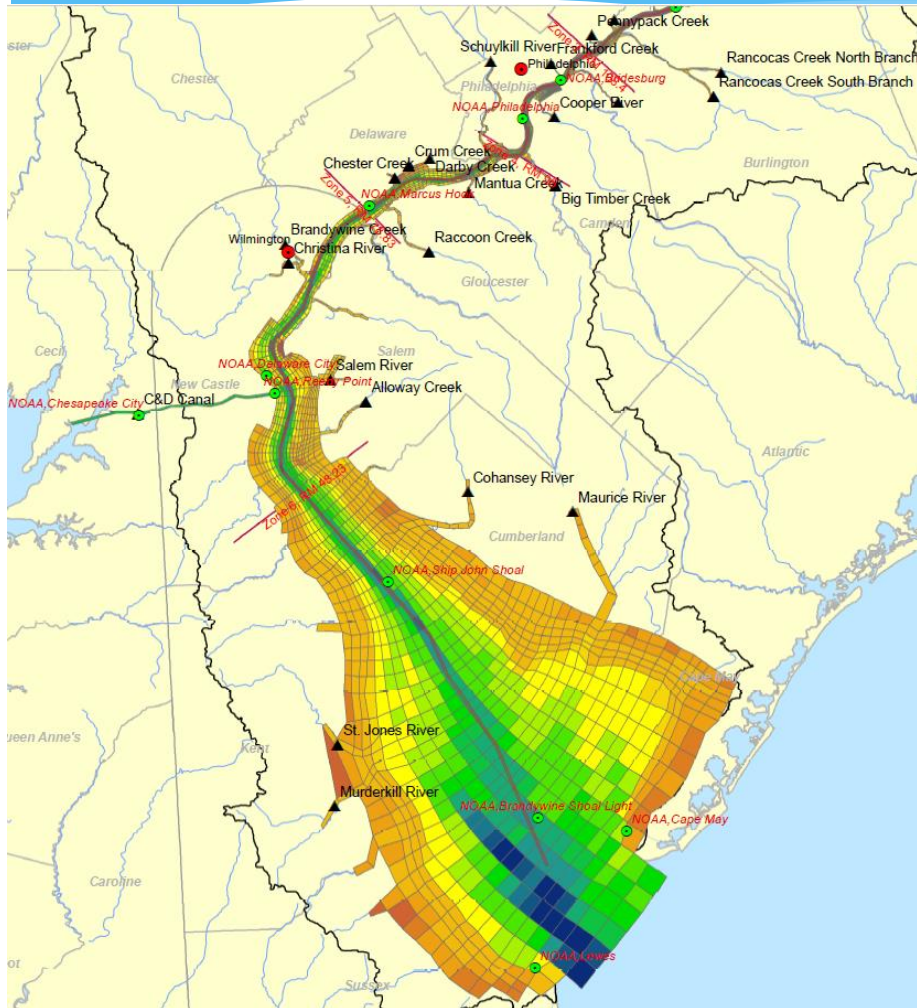
Technical Report for the Estuary & Basin (TREB) ~ 5 years

Near real-time assessments

- * <https://drbc.net/Sky/waterq.htm>



Water Quality – Develop and Apply models



How do we do it?

1. Regulatory Agency

- * DRBC issues dockets (approvals) for projects that impact water resources
 - * Discharges : effluent limitations
 - * Withdrawals : quantity restrictions / temporal restrictions
 - * Reservoirs : minimum releases / operating plans
- * Establish ambient water quality standards

2. Planning Agency

- * Long term water supply planning
- * Reservoir and river flow modeling
- * Water quality modeling – dockets, TMDLs, etc.

3. Monitoring & Assessment

- * Measure and assess water, sediment, biota



Martins Creek Power Plant. Credit: DRBC

How do we do it? Significant Regulatory Programs

DRB Compact Section 3.8:

- No project having a **substantial effect on the water resources** of the Basin shall... be undertaken... unless it ... [is] submitted to and approved by the Commission.
- The Commission shall approve a project whenever it finds... that such a project **will not substantially impair or conflict with the comprehensive plan...**
- Typical regulatory programs:
 - Water withdrawals
 - Wastewater treatment/discharges
 - Flood Plain
 - Other projects



Groundwater withdrawal. Credit: DRBC

How do we do it?

DRBC Advisory Committees

- Flood
- Regulated Flow
- Water Management
- Toxics
- Water Quality
- Monitoring Advisory & Coordination



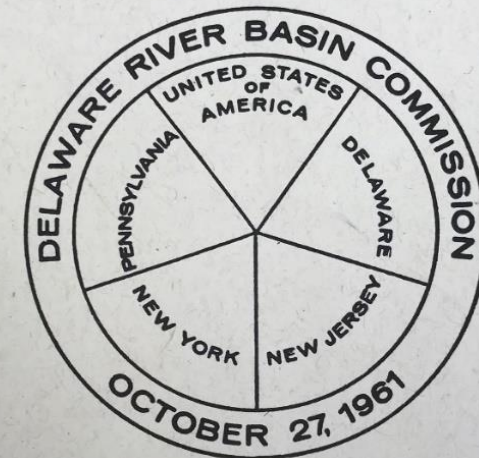
How do we do it? - Planning

- Compact – Planning Powers and Duties (Section 3.2)
 - Comprehensive Plan (Section 13.1)
 - >Water Resources Program (Section 13.2)

Compact : Article 4 Water Supply

4.1 Generally. The commission shall have power to **develop, implement and effectuate plans and projects for the use of the water of the basin** for domestic, municipal, agricultural and industrial water supply. To this end, without limitation thereto, it may provide for, construct, acquire, operate and maintain dams, reservoirs and other facilities for utilization of surface and ground water resources, and all related structures, appurtenances and equipment on the river and its tributaries and at such off-river sites as it may find appropriate, and may regulate and control the use thereof.

DELAWARE RIVER BASIN COMPACT



How do we do it? - Comprehensive Plan

- Specific **projects** and facilities and statements of **policy** and **programs** may be incorporated, deleted or modified to reflect changing conditions, research and new technology.
- Versions
 - ✓ 1st CP – March 28, **1962**; approved by Resolution 62-4. 21 (proposed) Reservoir/Storage Projects.
 - ✓ 2nd CP (draft) – September **1973** – Never adopted via Resolution (reliance upon Tocks Island).
 - ✓ 3rd CP – July **2001**, adopted by Resolution No. 2001-27.
- Resolution No. 2001-27 recognized an ongoing “Comprehensive Plan” related effort by the Watershed Advisory Council (1999-2004). That effort ultimately resulted in goal-based plan (vs. an updated CP).

How do we do it? - Water Resources Program

- WRP required by the Compact (Articles 3.2 & 13.2)
- Required to be updated annually, sets strategic plan for DRBC program direction “during the ensuing six years or such other reasonably foreseeable period” (lately 3 years)
- Program presented in two parts:
 - **Section I - Conditions**
 - **Section II – Work Program**
- FY2019-2021 recently approved

Delaware River
Basin Commission

Water Resources Program

FY 2019-2021

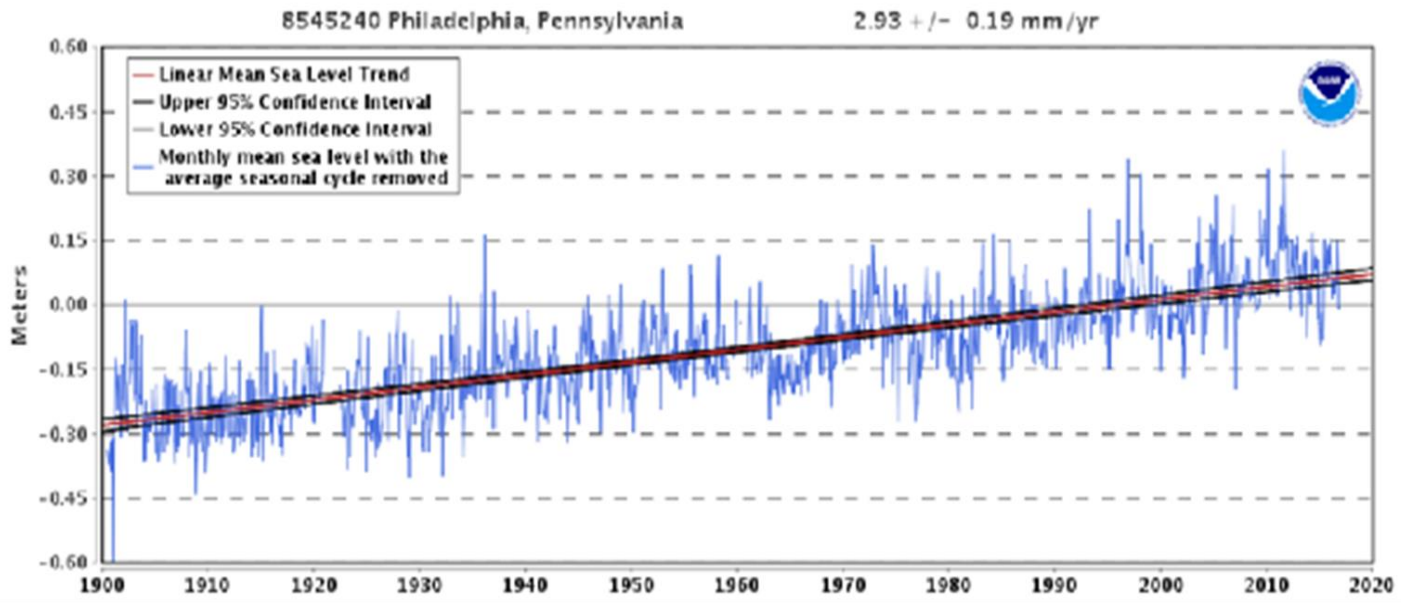
March 13, 2019

Future Challenges



Endangered Species – Atlantic Sturgeon
credit: NOAA: Fisheries.noaa.gov

Climate Change

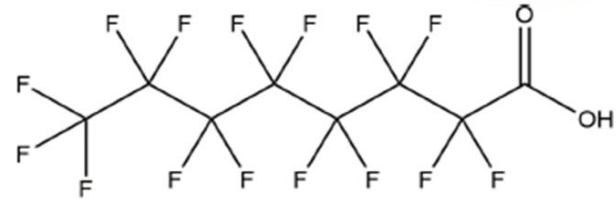


Sea Level Rise:
NOAA

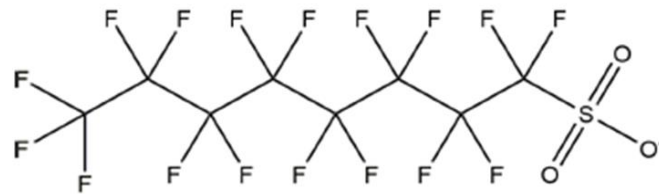


Future Challenges

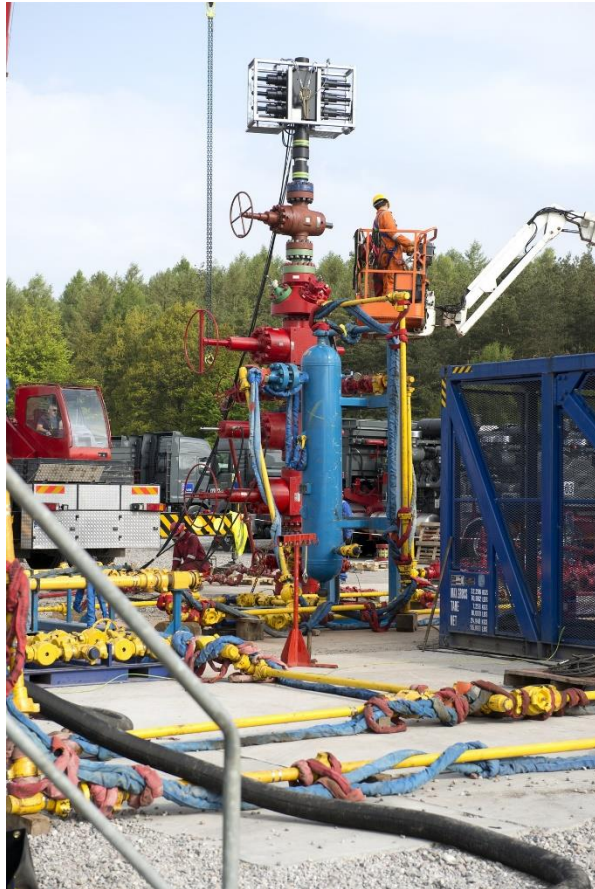
PFOA / PFOS



Perfluorooctanoic acid (PFOA)



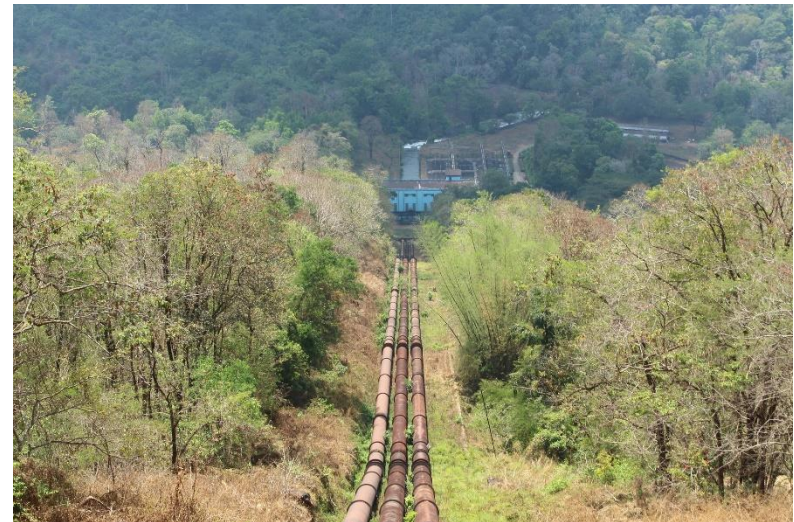
Perfluorooctane sulfonate (PFOS)



Hydraulic
Fracturing

Linear
Infrastructure:
Pipelines &
Electric
Transmission

Microplastics



Questions?



Delaware River Basin Commission

DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Chad Pindar, P.E.
**Manager, Water Resource Planning
Section**

Chad.Pindar@drbc.nj.gov
www.drbc.net

<https://www.linkedin.com/company/delaware-river-basin-commission/>

<https://www.instagram.com/drbc1961/>

<https://www.youtube.com/user/delrivbasincomm/>

<https://www.flickr.com/photos/drbc1961/collections/>

<https://twitter.com/DRBC1961/>

Managing Our Shared Water Resources since 1961