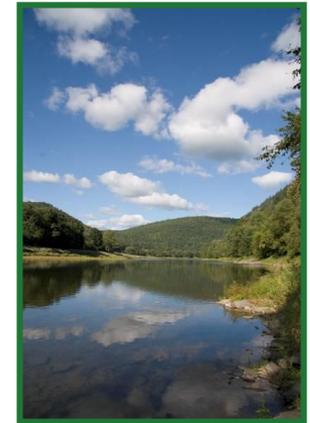


Delaware River Basin Commission

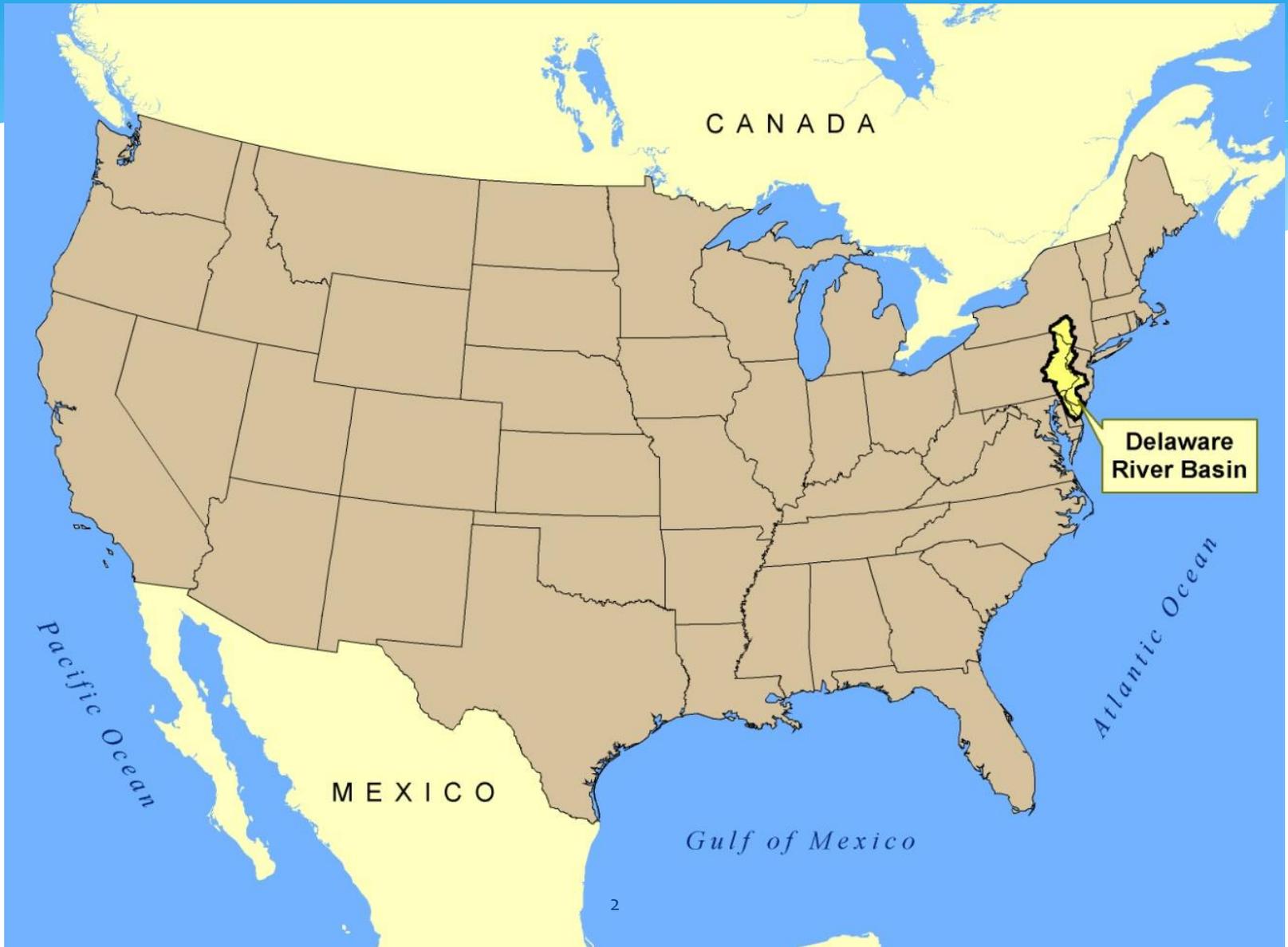
Overview of DRBC

Namsoo Suk, Ph.D.
Director, Science and Water
Quality Management

March 27, 2019

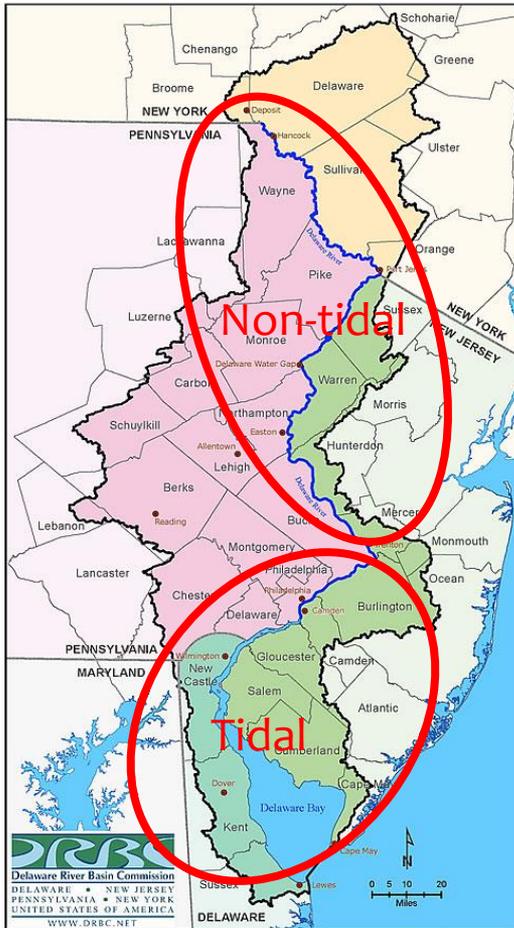


Delaware River Basin



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

-US Supreme Court Justice
Oliver Wendell Holmes



Fast Facts:

- Delaware River Main stem river is **330 miles (531 km) long**
- Delaware River forms an interstate boundary over its entire length
- **~13.3 million people** (about 5% of the U.S. population) rely on the waters of the Delaware River Basin
- **Drains 13,539 square miles (35,066 km²)** of watershed in 4 states.
- Water **withdrawal** in the Basin = **6.6 billion gallons a day**
- **Significant Exports: NYC (up to 800 MGD or 3.03 million m³/day) 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.

Delaware River Basin Commission Founded in 1961

Five Equal Members:

- Delaware
- New Jersey
- Pennsylvania
- New York
- Federal Government



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

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



The 1937 *Philadelphia Record* editorial page cartoon depicts the time when the tidal Delaware was an open sewer, where pollution in some stretches robbed the river of all its oxygen needed to support fish and other aquatic life.

DRBC's Charge

- Manage water resources without regard for political boundaries
- Regulate water quantity (*equitably allocate, maintain streamflow*) and water quality (pollution control & abatement)
- Plan and Develop (*e.g., Basin Plan 2004; State of the Basin Reports; stored water; future water needs*)
- Coordinate between federal, state & local governments and private entities with roles in managing water resources
- Educate the basin community about water resources

How Does DRBC Work?

- One vote for each state and federal government
- Members gave up portion of their sovereignty to manage a watershed
- DRBC is *OF*, not *ABOVE* the states
- Engage Stakeholders/Partners
- Forum for Adaptive Management

DRBC Functional Responsibilities

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

Based upon 1961 Delaware River Basin Compact

Project Review/Permitting

DRBC regulates large water withdrawals and discharges from the basin's waters.

Water Withdrawals:

- Over 100,000 GPD on 30-day average; 10,000 GPD in SEPA GWPA
- Dockets/Permits are issued every 10 years

Wastewater Discharges:

- Over 50,000 GPD on 30-day average; 10,000 GPD in SPW
- Dockets are issued every 5 years

Other projects in the basin that may also be subject to commission review include bridges, water impoundments, natural gas and liquid petroleum transmission pipelines, and electric transmission and bulk power lines.



Flow & Drought Management

- * 1954 U.S. Supreme Court Decree – settled an interstate suit over water allocation (NJ vs. NY)
 - * Required NYC to build reservoirs on the river’s headwaters to use for water supply
 - * Limited the amount of water NYC could divert from the basin (800 mgd)
 - * Reservoir releases need to be made to meet specific flow targets (1,750 cfs at Montague and 3,000 cfs at Trenton)
 - * NJ can also withdrawal water from the basin (100 mgd)
 - * Decree parties do not 100% equal DRBC members
- * During the 1960s Drought there was not enough water! Additional negotiations were made, which altered the decree and formed the basis of DRBC’s drought management program.

Cannonsville Reservoir - NY



From full to nearly empty in 6 months

Photos: NYCDEP

DRBC Drought Operating Plans

Reservoirs for Interstate Flow Management in the Delaware River Basin



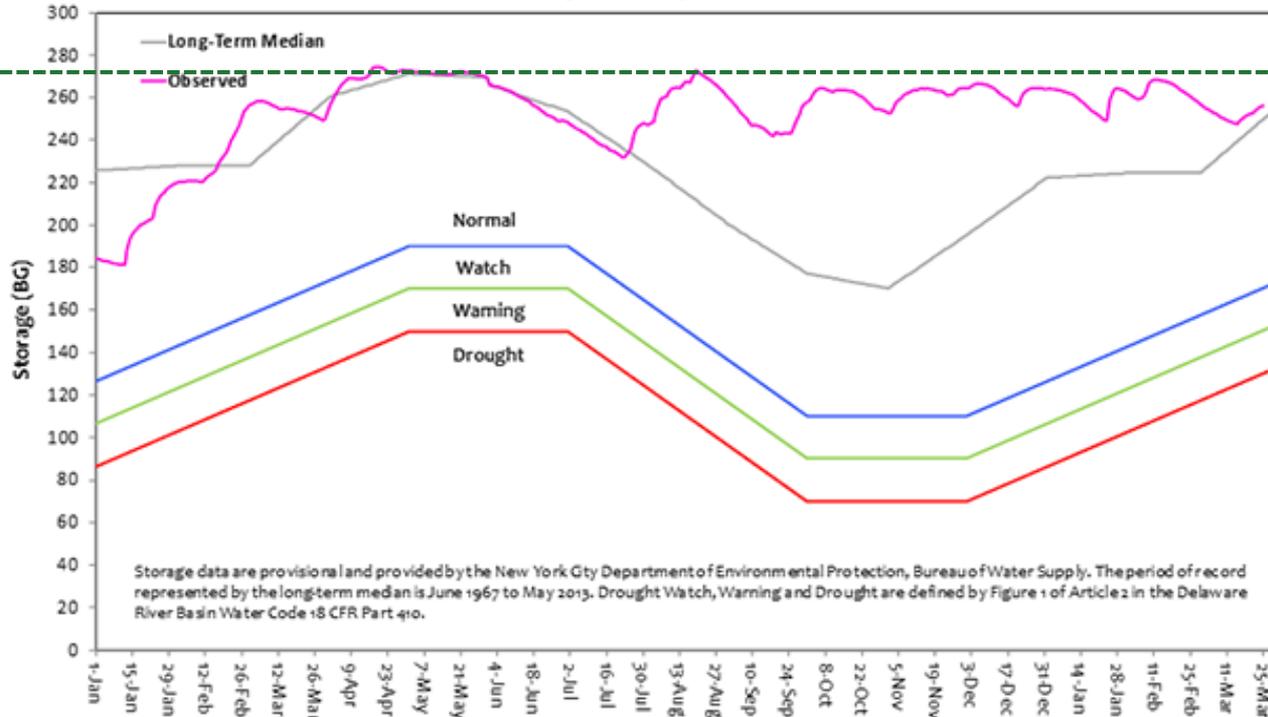
- Storage levels in the NYC Delaware Basin Reservoirs drive the Basinwide Operating Plan
 - * Cannonsville
 - * Pepacton
 - * Neversink
- Storage levels in Two U.S. Army Corps of Engineers Reservoirs drive the Lower Basin Operating Plan
 - * Beltzville
 - * Blue Marsh
- Merrill Creek Reservoir
- If certain thresholds are crossed, phased reductions of out-of-basin transfers and flow targets are automatically invoked and releases of water can be required from several basin reservoirs.

Most Recent NYC Delaware River Basin Reservoir Storage

New York City Delaware River Basin Storage
3/26/2019



100%
(271 bg)



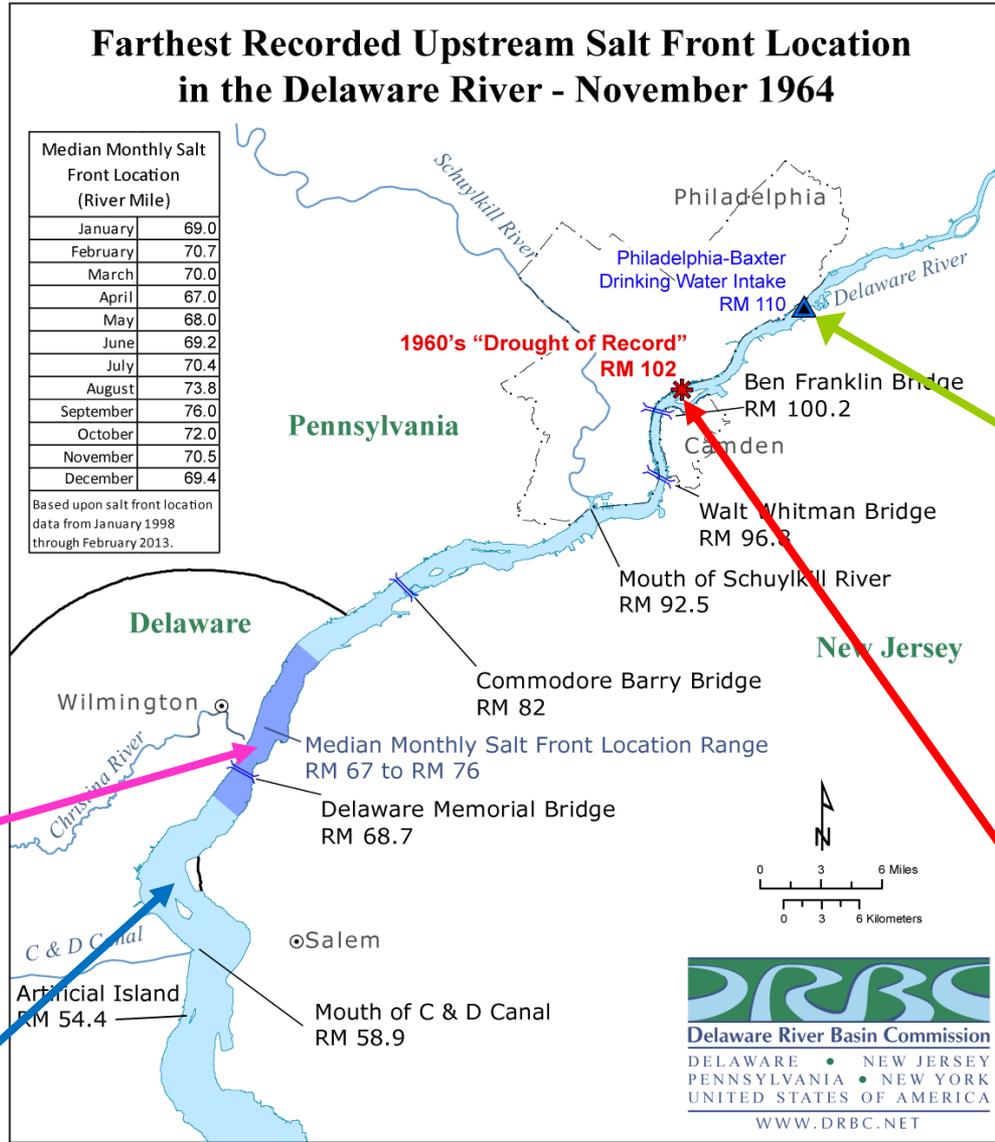
Storage data are provisional and provided by the New York City Department of Environmental Protection, Bureau of Water Supply. The period of record represented by the long-term median is June 1967 to May 2013. Drought Watch, Warning and Drought are defined by Figure 1 of Article 2 in the Delaware River Basin Water Code 18 CFR Part 410.

Useable Storage	2018-19				BG Above Drought Watch = 86	BG Above Daily Storage Median = 6
	Cannonsville	Pepacton	Neversink	Total		
BG	90.0	132.0	34.7	256.7	BG Above Drought Warning = 106	BG Above One Year Ago = 5
%	96.4%	94.7%	99.9%	96.0%	BG Above Drought = 126	

This hydrograph shows reservoir storage levels as compared to the long-term median. It also shows the levels that varying drought operations go into effect.

Reservoir releases are made to help control salinity intrusion, or the upstream migration of salty water from the Delaware Bay during low-flow conditions.

Salt Front



Normal Mar. Location: RM 70

3/26/2019 RM 62

Water Supply Intakes: RM 110

1960's Maximum RM 102

The salt front or salt line is defined as the 250 parts-per-million (or milligram-per-liter) chloride concentration. The seven-day average location of the salt front is used by DRBC as an indicator of salinity intrusion in the Delaware Estuary. The salt front's location fluctuates along the Delaware River as streamflow increases or decreases in response to changing inflows, diluting or concentrating chlorides in the river. River Mile (RM) 0 is located at the mouth of the Delaware Bay (i.e., where the bay meets the Atlantic Ocean).

Recreation on the Tidal Delaware

The City of Philadelphia and other urban areas are seeing a return to their waterfronts as the river's water quality improves. Former industrial sites are being redeveloped as parks and trails, bringing people back to the river and creating new stewards for the resource.



Pic: Delaware River Waterfront Corp.

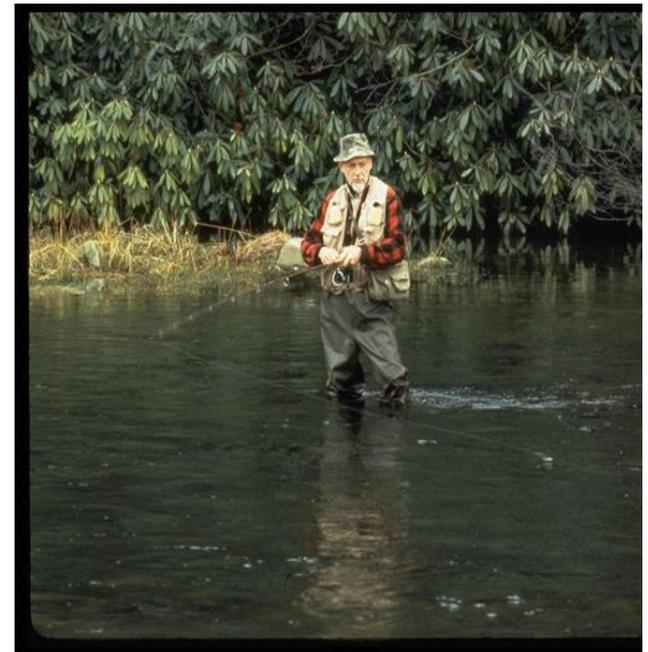


Pic: Lane Fike





Reservoir releases have created a world-class trout fishery in the Upper Delaware River and tributaries.



Next Topics

- ❑ Water Supply Planning & Use Overview
- ❑ Water Quality Management Programs
 - Special Protection Waters Program
 - PCB TMDLs for the Delaware Estuary and Bay
 - Dissolved Oxygen Criteria Update Project
- ❑ Regular and Special Monitoring Programs