

Delaware River Basin Commission

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Drought Management

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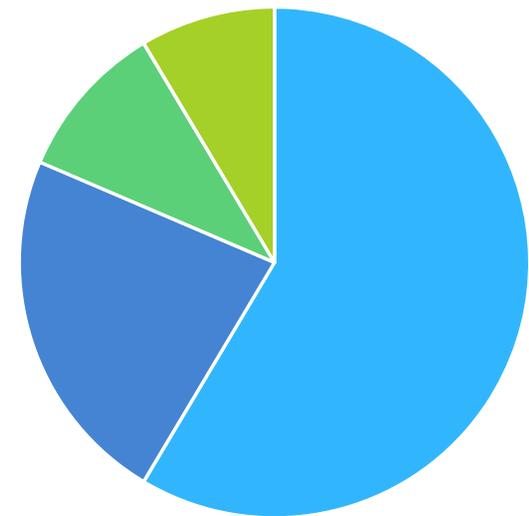
Basinwide Droughts

	Enter Drought Watch	Enter Drought Warning	End Drought Watch/Warning	Enter Drought	Declare Drought Emergency	End Drought Emergency
1960s					7/7/65	3/2/67
1980s	10/17/80	12/1/80		1/15/81	1/15/81	4/27/82
	11/13/82	12/8/82	3/27/83			
	11/09/83	--	12/20/83			
	1/23/85	2/7/85		5/13/85	5/13/85	12/18/85
	1/16/89	2/5/89		--	3/21/89 Conditional	5/12/89
1990s	9/13/91	11/7/91	4/25/92			
	9/21/93	--	12/6/93			
	9/15/95	10/13/95	11/12/95			
	10/27/97	--	1/13/98			
	12/14/98	12/23/98		--	8/18/99 ⁽⁸⁾	9/30/99
2000s	10/29/01	11/4/01		12/1/01	12/18/01	11/25/02

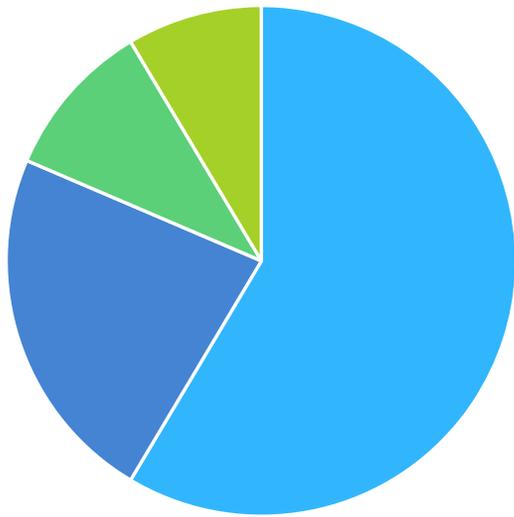


Commission Roles and Authorities

- * Emergency Declarations (but states have primacy for water conservation) – Compact 3.3(a) and 10.4
- * **Drought Operations for Major Reservoirs**
- * Emergency Storage
- * Consumptive Use Replacement
- * Drought Management and Contingency Plans
- * Voluntary Conservation



Pre-emptive in Drought Management



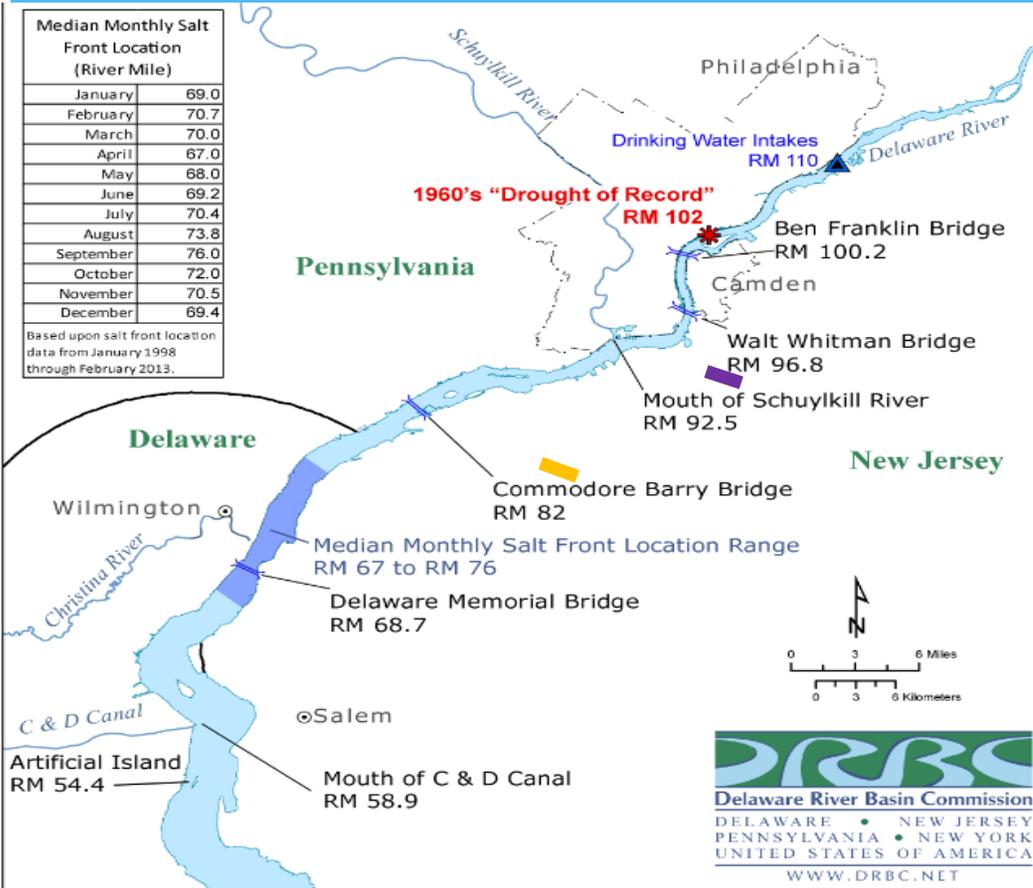
- * **Drought Operations Plans**
- * **Plan/Project Review**
- * **Water Conservation**
- * **Water Audits**
- * **SE PA Groundwater Protected Area**

Commission's Role

The Commission's drought **planning and response** actions complement the states' drought actions by addressing the **essential conservation of regional reservoir storage** for purposes of water supply and flow augmentation for the Delaware River and salinity control in the Delaware Estuary.



Salt Front



Chlorides

7-Day Avg. RM Location of 250 mg/l

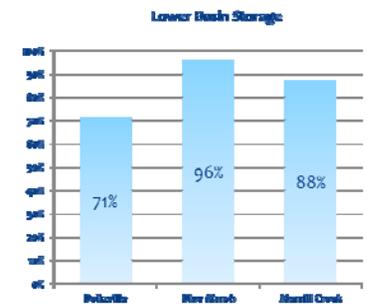
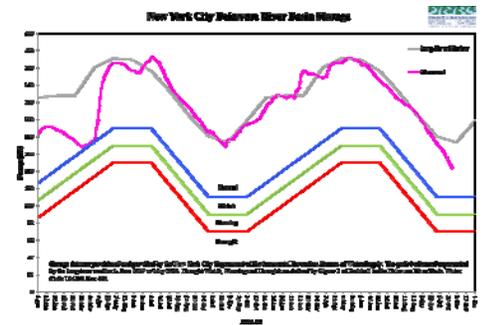
Current R.M. 86

Normal R.M. 72

The Flow Objective at Trenton was designed to repel salinity for the protection of drinking water treatment facilities and industrial intakes.

Two Drought Operating Plans

- * Basinwide – triggered by combined storage in NYC Reservoirs
 - * Cannonsville
 - * Pepacton
 - * Neversink
- * Lower Basin – triggered by DRBC-owned lower basin storage
 - * Beltzville - Lehigh
 - * Blue Marsh - Schuylkill



Low Flow Augmentation

- * Two flow objectives: Montague and Trenton
- * Montague - to ensure the lower basin states receive water
- * Trenton – to ensure freshwater flows into the estuary for:
 - * Protection of drinking water and industrial intakes
 - * Limitation of chloride intrusion into the PRM aquifer
 - * Protection of wildlife (fish, oysters)

Consumptive Use Replacement

- * 1960s Commission Study - Power Utilities
 - * largest water users
 - * largest water use sector
- * Requirements for replacement of consumptive use in dockets
- * Construction of Merrill Creek Reservoir by power companies
- * Use of other sources



What Happens?

* Basinwide

- * Reduced conservation releases
- * Reduced flow objectives
- * Reduced out-of-basin diversions
- * Consumptive Use Replacement
- * Use of additional reservoirs

* Lower Basin

- * Similar to basinwide, except Montague, NYC Diversion and Releases
- * Reduced Trenton Flow Objective – base on salt front location
- * Choice of six operating plans

DELAWARE RIVER BASIN
WATER CODE

WITH AMENDMENTS THROUGH
DECEMBER 4, 2013

18 CFR PART 410



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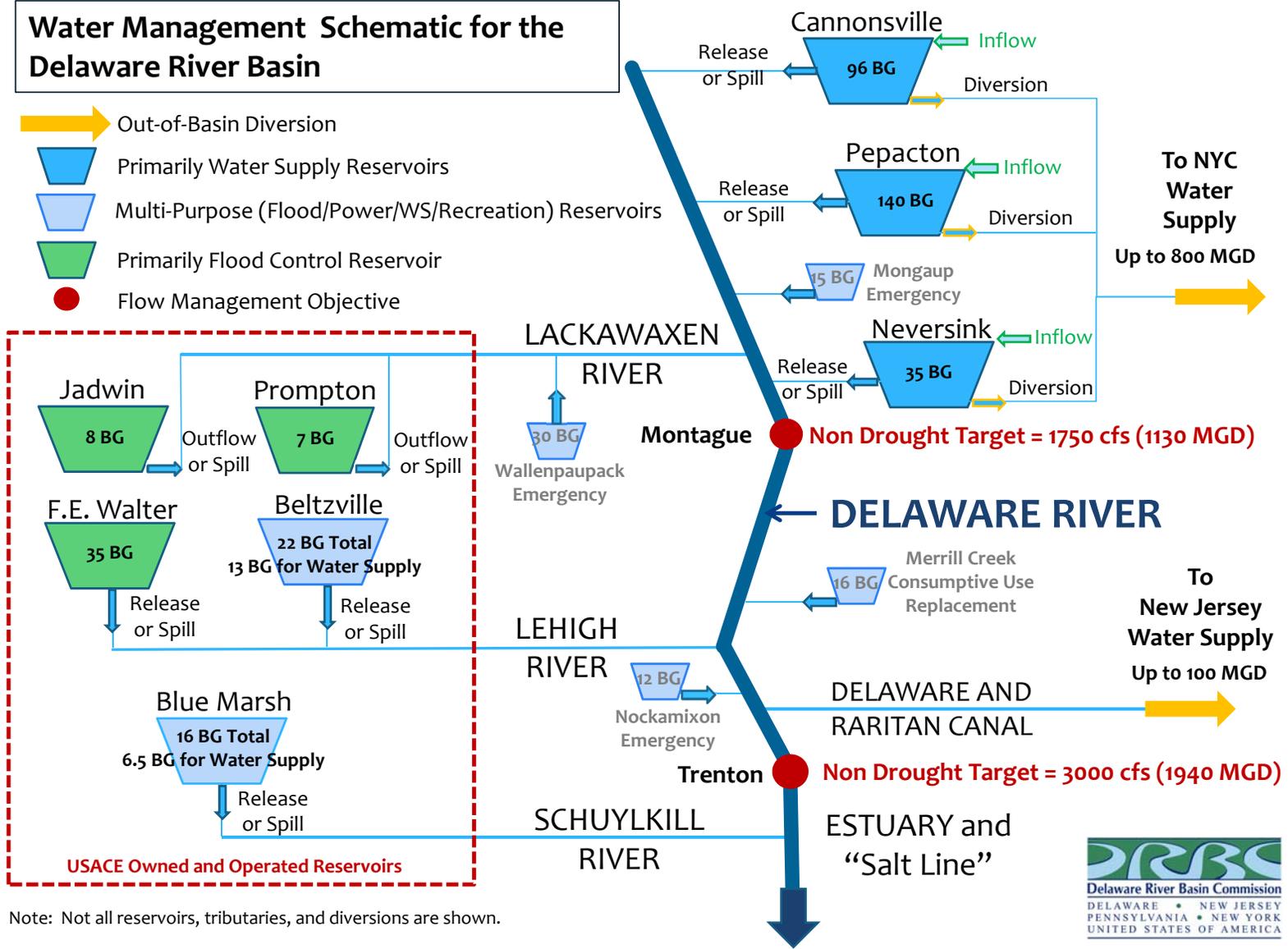
Sources of Water

- * Excess Release Quantity (specified in Decree)
- * DRBC Storage in USACE Reservoirs
- * Emergency
- * Consumptive Use Make-Up



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 Reservoirs
-  Flow Management Objective



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



Summary

- * The Commission's drought actions **complement the states**
- * DRBC's primary role is the **conservation of regional reservoir storage** for purposes of flow augmentation and salinity control in the Delaware Estuary.
- * Plans identify **phased reductions** in flow objectives, out-of-basin diversions and conservation releases, and **additional storage** for Commission use in meeting Trenton
- * Plans are **automatically implemented** based on reservoir storage conditions.
- * Major power users must implement **consumptive use replacement**.

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