

# Delaware River Basin Flood Mitigation Task Force: Progress to Date

- Governor's Charge
- Task Force Composition
- Report Development Timeline
- Report Architecture/Overview
- Flood Analysis Model
- Implementation Considerations
- Next Steps



# Governor's Charge

- Form an Interstate Flood Mitigation Task Force
- Develop a Preliminary Action Plan (12/30/06)
- Develop a Flood Analysis Model
- Implement Short-Term Actions early 2007

# Report Development Critical Path

- 9/21/06: Governor's Letter received
- 10/25/06: Organization/Steering Meeting
- 11/14/06\*: Technical Meeting #1
- 12/05/06\*: Technical Meeting #2  
Preliminary Action Plan, Draft 1
- 12/15/06: Preliminary Action Plan, Draft 2 Presented
- 12/20/06: Full Task Force Meeting Draft 2 Finalized
- January 2007: Final Public Review Draft
- Jan.-Mar. 2007: Public Comment Process
- \* Roll-up of Multiple Focus Area Committee Meetings and Conference Calls

# Interstate Task Force Composition

(31 members)

**Federal:** USACE, NOAA/NWS, FEMA, USGS, USDA/NRCS

**State Agencies:** DNREC, NJDEP, PADEP, NYSDEC, NYCDEP, NJOEM, PEMA, NYSEMO, PA DCED

**Elected Officials:** Congress (Delaware River Basin Task Force Members), State Legislature (PA and NJ), County and Municipal (Delaware Co, NY and Yardley, PA)

**Regional Agencies:** NJ Water Supply Authority, Lehigh Valley Planning Commission, Delaware River Joint Toll Bridge Commission

**Local Emergency Management:** Sullivan Co. NY, Lambertville, NJ

**Citizen/Academic Interests:** Riverkeeper, Temple University

# Priority Management Areas

- Reservoir Operations: Rick Fromuth (DRBC)
- Structural and Non-Structural Measures: David Dech (Warren Co., NJ) and Scott Steigerwald (PADEP)
- Stormwater Management: Amy Shallcross (NJ Water Supply Authority)
- Floodplain Mapping: Joe Ruggeri (NJDEP)
- Floodplain Regulations: Vince Mazzei (NJDEP)
- Flood Warning: Peter Gabrielsen (NOAA/NWS) and Laura Tessieri (DRBC)

# Public Meeting Schedule

- Delhi, NY (Feb. 8; 60 people)
- Wilmington, DE (Feb. 15; 5 people)
- Ewing, NJ (Feb. 20; 75 people)
- Easton, PA (Feb. 27; 100+ people)
  
- Generally good press coverage

# High Level Themes

- Reservoir Operations
- Governance
  - Accountability
  - Enforcement
  - Investment
- Delivery of Government Services
- More Resource: Acquisition and Elevation
- Revisit Supreme Court Decree
- Immediacy of the Problem

# General Comments

- Task Force Composition
- Proactive vs. Retreat
- Budget Constraints: Prioritize Low Cost Actions
- Time Constraints: Prioritize Short-term Actions
- Follow-through needed to implement plan and its recommendations
- Allocation of appropriate staff/funding as necessary



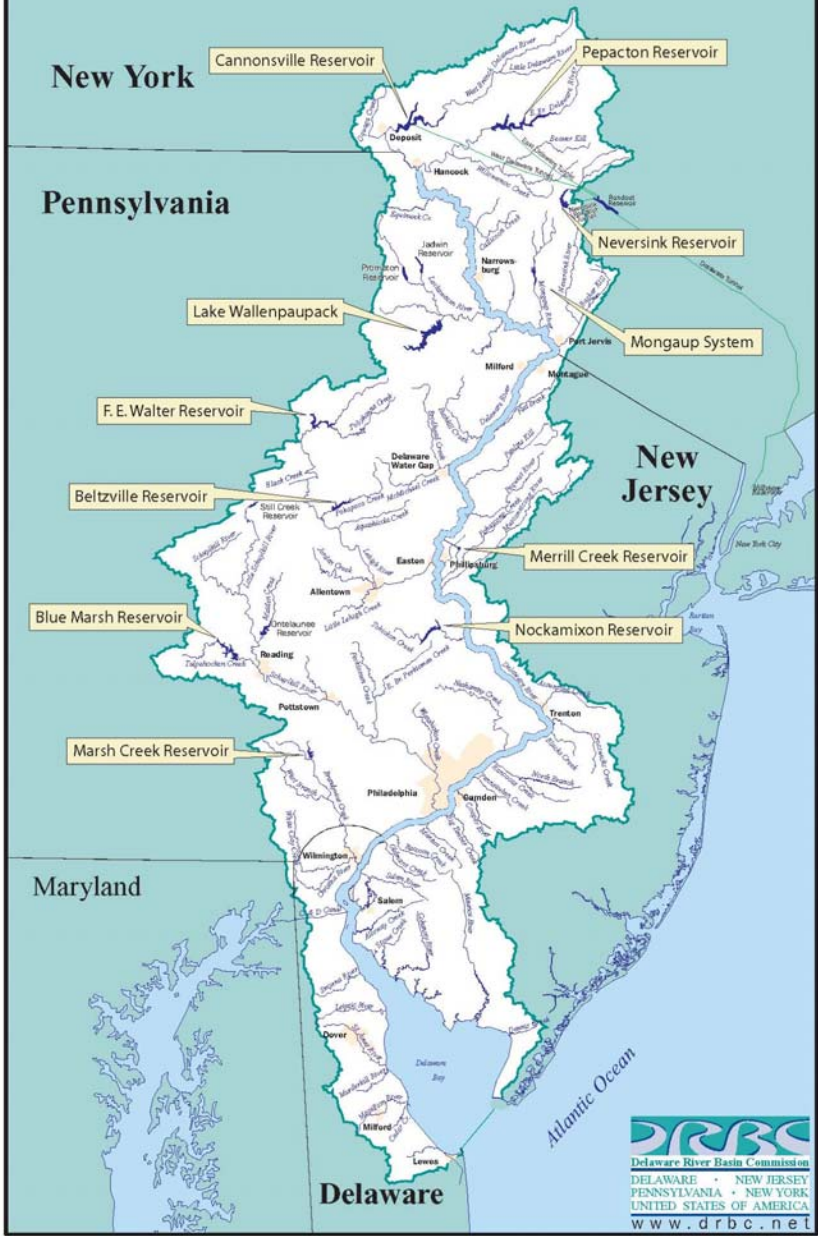


*Photograph provided by U.S. Army Corps of Engineers*



# Reservoir Operations

# Reservoirs in the Delaware River Basin



## Percent of Drainage Area Impounded by Reservoirs

| <u>Station</u> | <u>Drainage Area</u> | <u>% Impounded (NYC)</u> | <u>% Impounded (All)</u> |
|----------------|----------------------|--------------------------|--------------------------|
| Callicoon      | 1820                 | 45                       | 45                       |
| Montague       | 3480                 | 26                       | 42                       |
| Belvidere      | 4535                 | 20                       | 32                       |
| Riegelsville   | 6328                 | 15                       | 29                       |
| Trenton        | 6780                 | 14                       | 28                       |

Unregulated area increases as distance from dam increases.

## Delaware River Basin



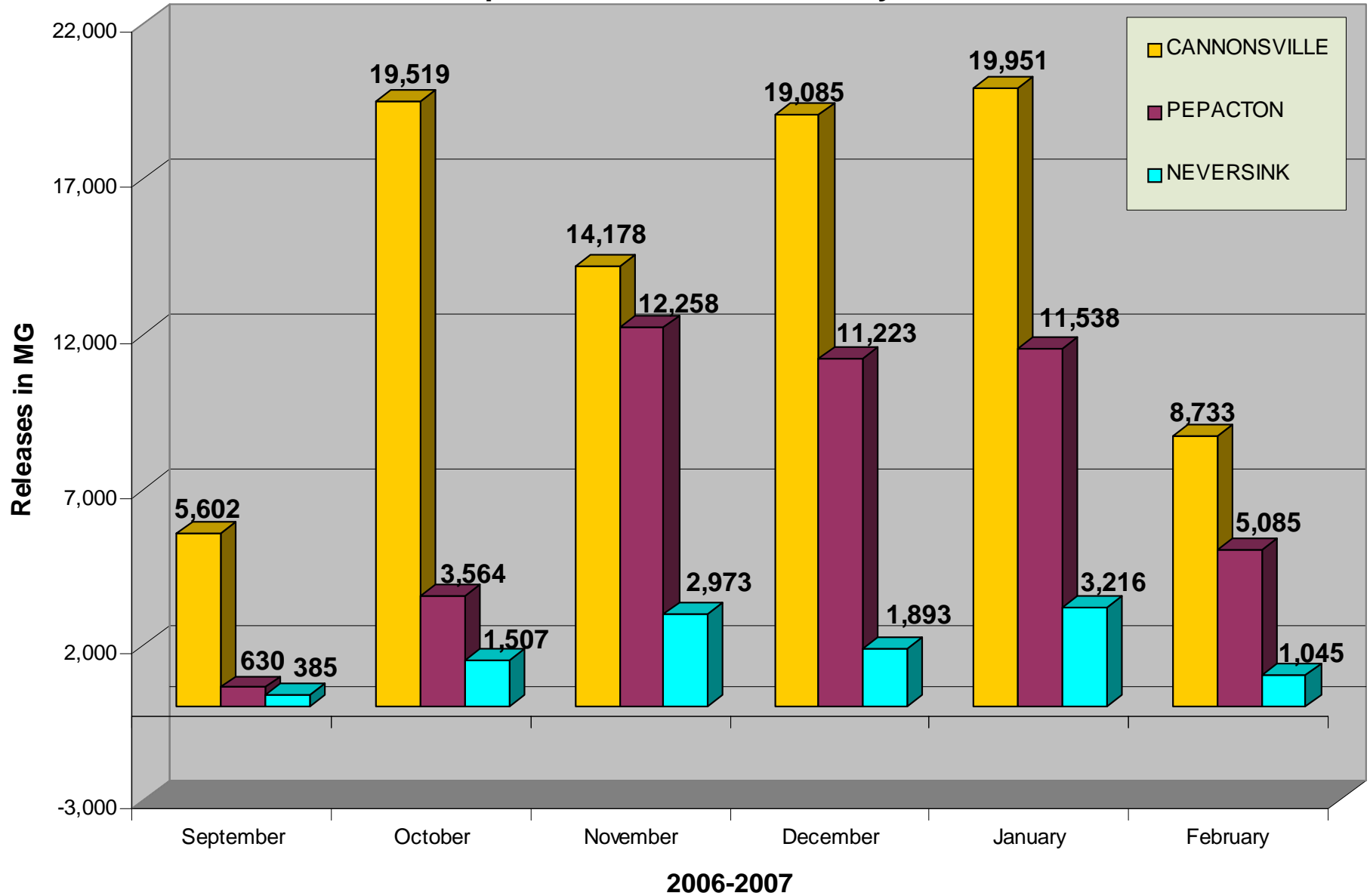
## **R-3: Evaluate Discharge Mitigation Programs for Reservoirs**

- Analysis to include seasonal and snowpack based voids (In effect: Temporary Spill Mitigation Program)
- Potential release and diversion capabilities, as well as flood stages immediately downstream of dams, should be further evaluated. The maximum rate at which reservoirs can be lowered without adverse impacts on water supply or downstream flooding must be determined.

### Issues:

The capacity of a reservoir's outlet valves and piping (release works) is a critical limiting factor in the ability to lower reservoir levels and maintain voids.

# Temporary Spill Mitigation Program September 22, 2006-February 19, 2007



**NYC DEP Temporary Spill Mitigation  
Program Releases:  
September 22, 2006 through February 19, 2007**

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*In Millions of Gallons*

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| <b>CANNONSVILLE</b> | <b>PEPACTON</b> | <b>NEVERSINK</b> |
|---------------------|-----------------|------------------|
| <i>87,068</i>       | <i>44,298</i>   | <i>11,019</i>    |

|                     |                   |
|---------------------|-------------------|
| <b>Grand Total:</b> | <b>142,385 MG</b> |
|                     | <b>142 BG</b>     |

*Total Useable Storage in 3 Reservoirs = 271 BG*

*53% of Usable Storage has been released to date.*

*All Data is Provisional*

*Source: NYC DEP Daily Reservoir Reports*

# Reservoir Operations Comments

- Temporary Spill Program not aggressive enough
- Temporary Spill Program needs to be permanent
- Release rates need to be increased, especially downstream of Pepacton
- Focus on storage targets, not release amounts
- Diversions to Hudson River: Shaft #6
- First priority – Create a void in the reservoirs
- Silting of reservoirs



# Structural and Non-Structural Measures

- Prioritize and Provide Greater Funding for Acquisitions, Elevations and Flood-proofing of Structures in the Floodplain
- Maintain Existing Flood Control Structures; Support State Dam Safety Programs
- Support a Comprehensive Basin-wide Flood Mitigation Study by the U.S. Army Corps of Engineers.



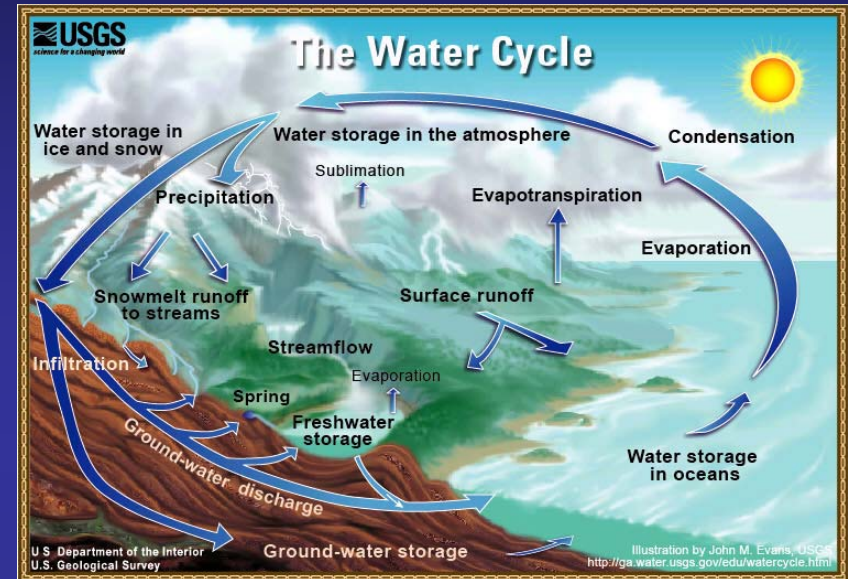
*New Hope, PA; Photo provided by John Miller*

# Structural and Nonstructural Comments

- Basin municipalities/counties need to be prioritized to receive FEMA acquisition funds
- Greater funding needs to be committed to elevation
- Greater funding/grants needed to elevate utilities out of basements
- Storm sewers need to be retrofitted with backflow prevention; (69 outfalls need to be addressed from Trenton to Ewing)
- FEMA Disaster Mitigation funding (HMGP) should be directed solely to impacted counties

# Stormwater Management

- Implement Watershed-based Stormwater Management Plans
- Provide for Long-term Maintenance of Existing Stormwater Infrastructure
- Encourage Non-structural Stormwater Management
- Evaluate, Expand Incentives and Encourage Enforcement of Existing Stormwater Regulations
- Develop Stream Restoration and Debris Removal Guidelines



# Stormwater Management Comments

- Debris in streams needs to be addressed
- Restoration grant programs (FEMA, NRCS) have constraints frustrating to locals
- Funding needed to restore streams, should be made available on a watershed basis
- Local input should be sought in developing any guidelines
- Towns cannot afford unfunded mandates
- Erosion is a serious problem
- Development is exacerbating flooding

# Floodplain Mapping & Floodplain Regulations

- Coordinate Flood Study and Map Updates; Incorporate Development and Residual Risk Zones
- Catalog, Evaluate and Update Existing State and Local Floodplain Regulations

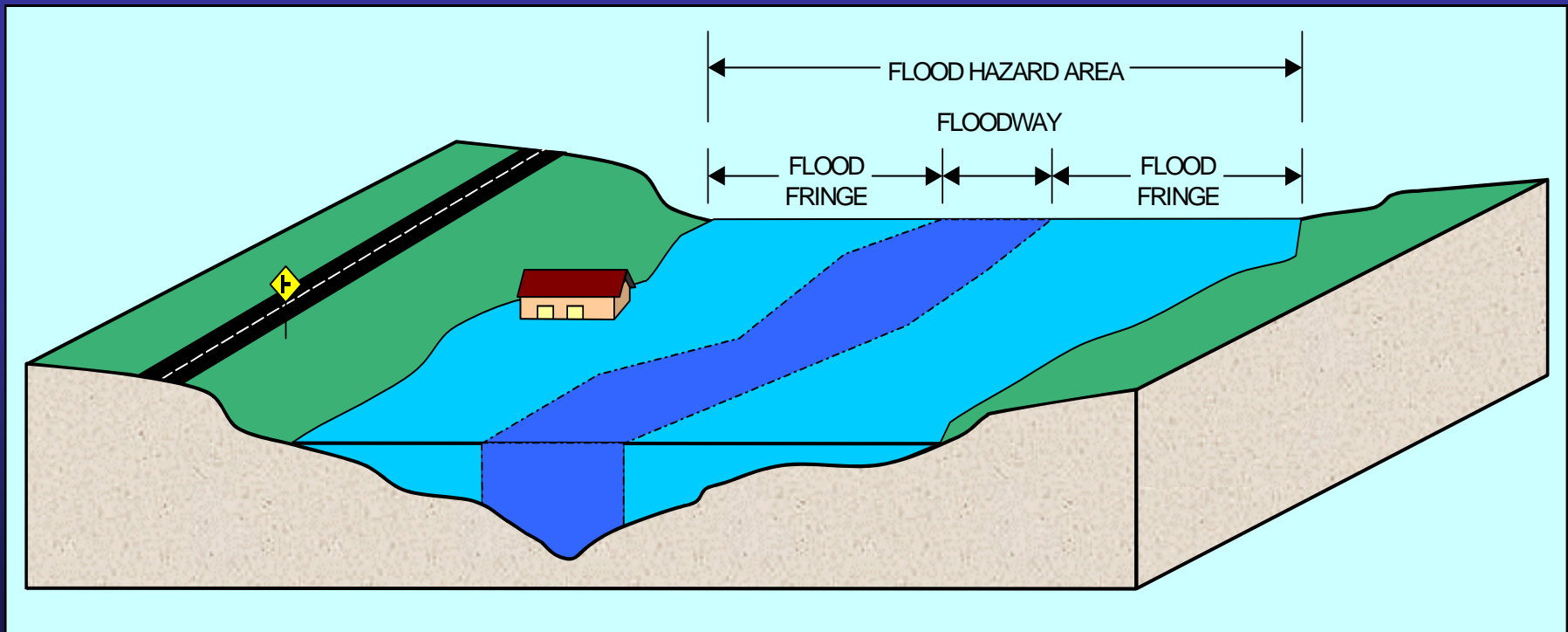


FIGURE A THE FLOOD HAZARD AREA IS COMPRISED OF THE FLOODWAY AND FLOOD FRINGE

# Floodplain Mapping/Regulation Comments

- Vertical Coordination/Enforcement
- Concern with effects of new mapping on local economy
- Better elevation data needed now
- Land owner rights
- Proposed development should consider future flood studies and delineations
- Local towns need development, but they need safe development

# Flood Warning

- Evaluate Gage Network and Forecast Points
- Extend Rating Tables; Flood Harden Gages
- Flash Flood Forecasting
- Flood Inundation Maps
- Dam Emergency Action Plans
- Education/Outreach
- Coastal Flooding Impacts



Map provided by U.S. Army Corps of Engineers, Philadelphia District

# Flood Warning Comments

- Stream gaging, modeling and prediction and is crucial for adequate flood warning
- Public education and awareness campaign needed
- Gages downstream of Cannonsville and Pepacton need to be updated to provide online access to real-time data. (East Branch at Downsville and West Branch at Stilesville)
- Emergency response to potential ice jam



# Implementation Considerations

- Roles and Responsibilities of Agencies
- Implementation time frame; identification of short term actions
- Resource Identification: Staffing levels/Funding
- Interstate Coordination
- Local Support

# Next Steps

- Public Meetings: Comments and Response
- February 28<sup>th</sup> DRBC Commission Meeting
- March 16 Task Force Meeting
- Transmit Final Report to Governors
- Early Action Items
- Tracking Implementation Progress