

Delaware River Basin Commission

Upstream- Downstream

*Delaware River Watershed
Forum – October 22, 2014*

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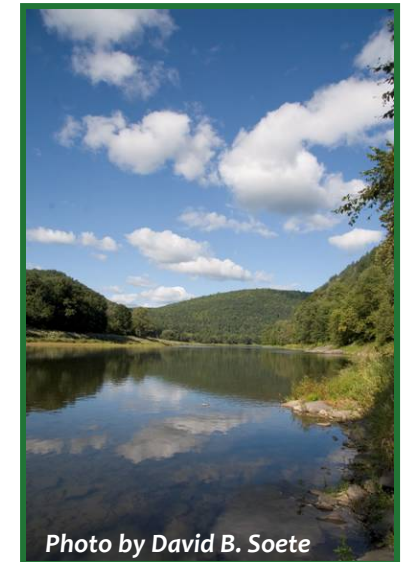


Photo by David B. Soete



Delaware River Watershed Facts

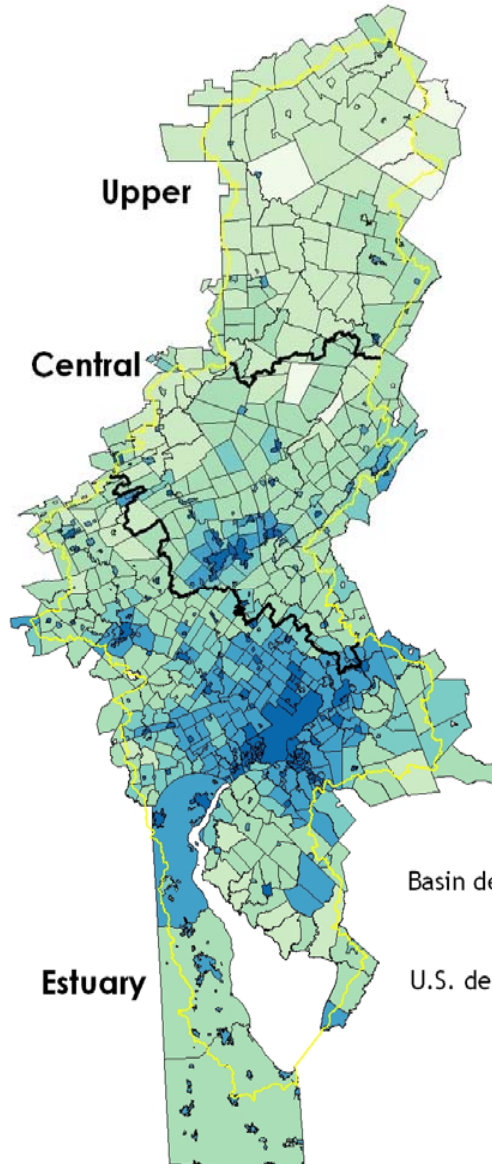
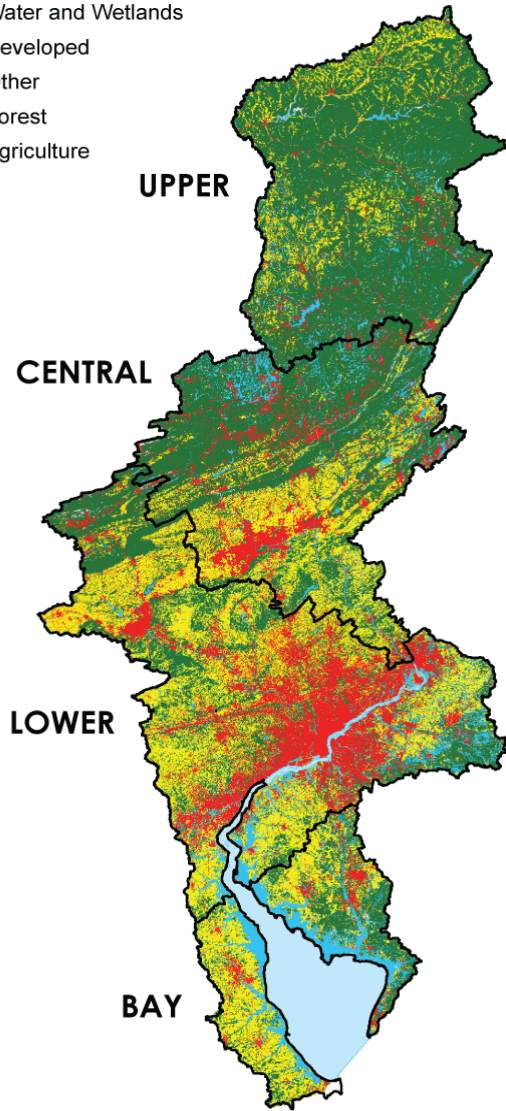
- Entire 330 mile mainstem fr. Hancock NY to the mouth of Delaware Bay forms an interstate boundary
- Over 15 million people (5% of the U.S. population) rely on basin waters
- Drains 13,539 sq. miles, or 0.4 of 1% of the total continental U.S.
- Longest undammed river east of the Mississippi
- 216 tributary streams
- 4 states (PA, NJ, NY, DE) and less than 10 sq. miles in MD
- 42 counties
- 838 municipalities



Land Use and Population

Fig. 4.14 Map of Basin Land Use 2001

- Water and Wetlands
- Developed
- Other
- Forest
- Agriculture

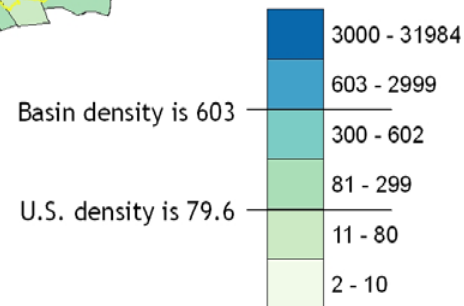


60% Forested
 24% Agricultural
 9% Urban & Residential
 7% Surface Water & Other

80% of the population lives
 in 40% of total area

Appalachian Plateaus
 > 33% of land area
 < 3% of population
 85% forested

People per square
 mile by municipality

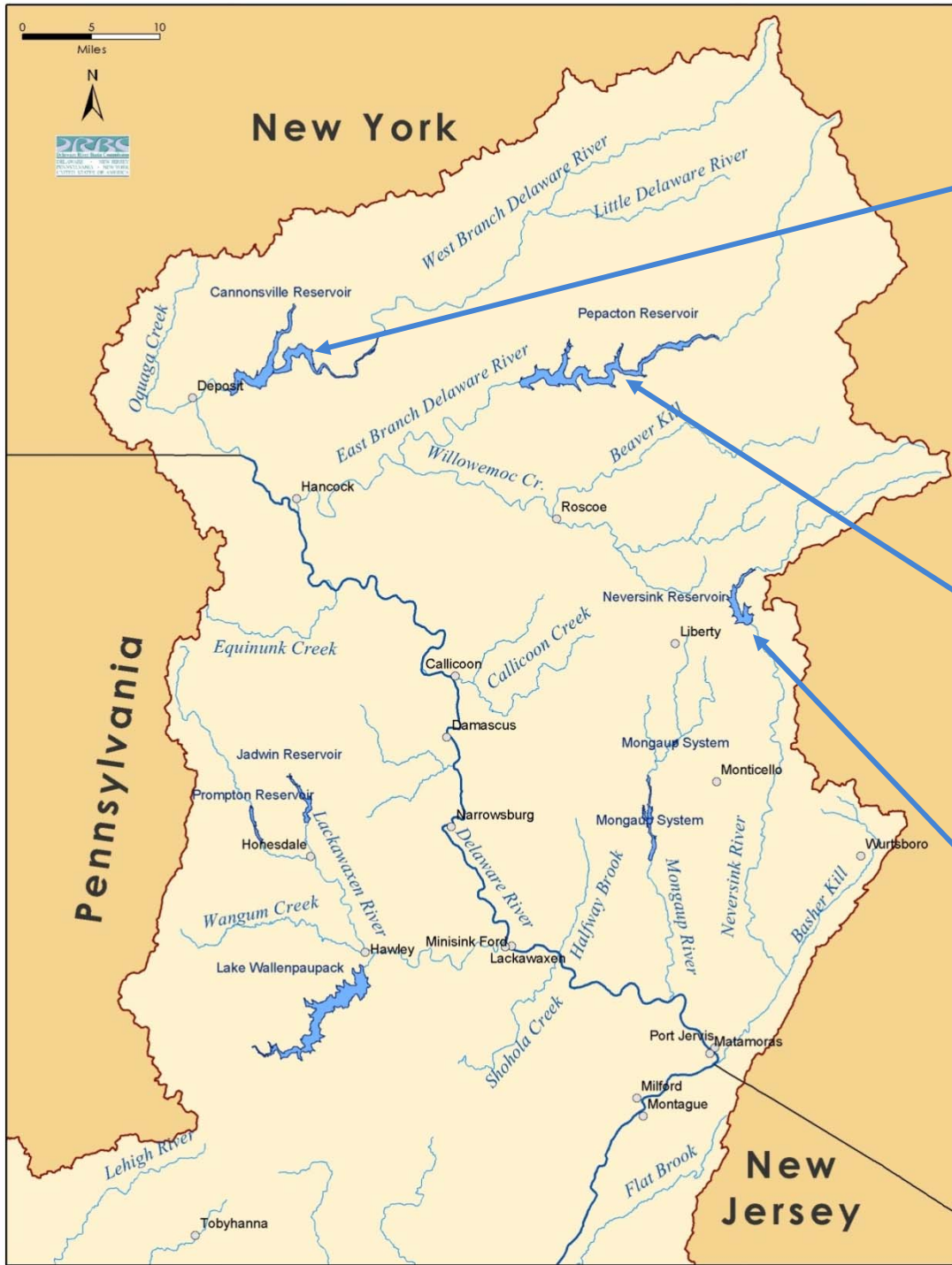


Source: 2000 Census





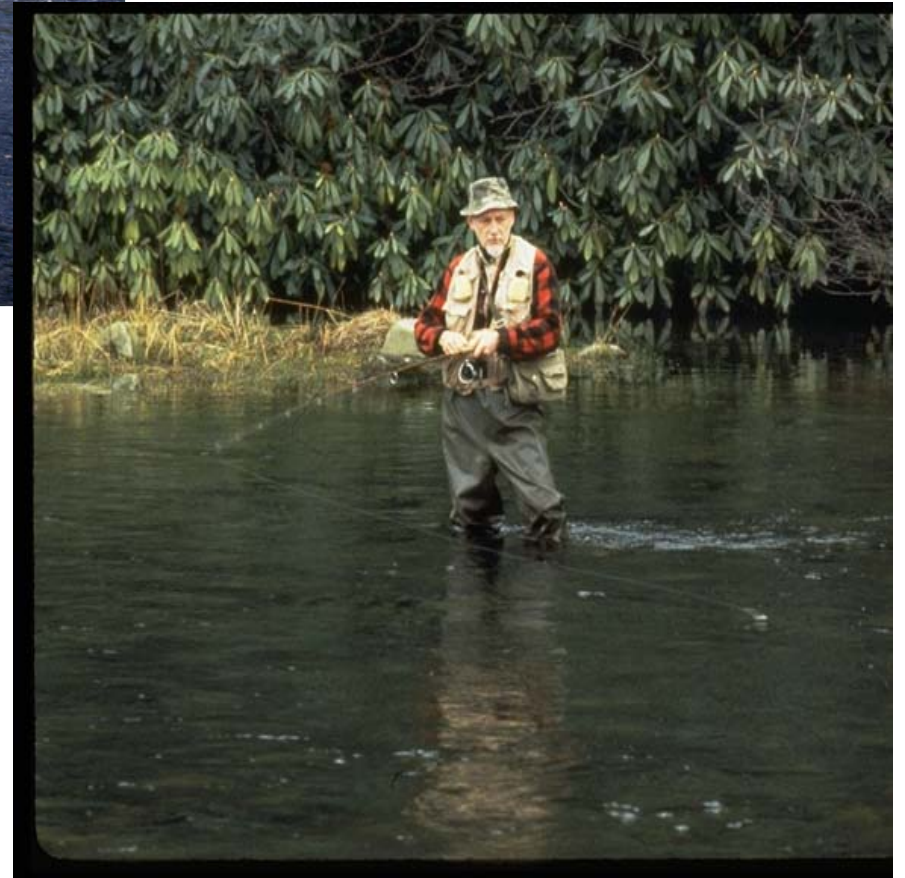
Hawk's Nest Overlook



Photos Courtesy of NYC DEP



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



Wild & Scenic Rivers

Of 3.5 million miles of rivers in the U.S., < ¼ of 1% (11,434 mi.) are part of the National Wild and Scenic Rivers System.

Three-quarters of the non-tidal Delaware – approx. 150 miles – have been included in the National Wild and Scenic Rivers System.

- **Upper Delaware Scenic & Recreational River - 73 miles**
- **Middle Delaware – Water Gap National Recreation Area – 40 miles, 67,000 acres in PA & NJ**
- **Lower Delaware – 67 miles**

“Outstandingly remarkable values” include extremely high water quality.

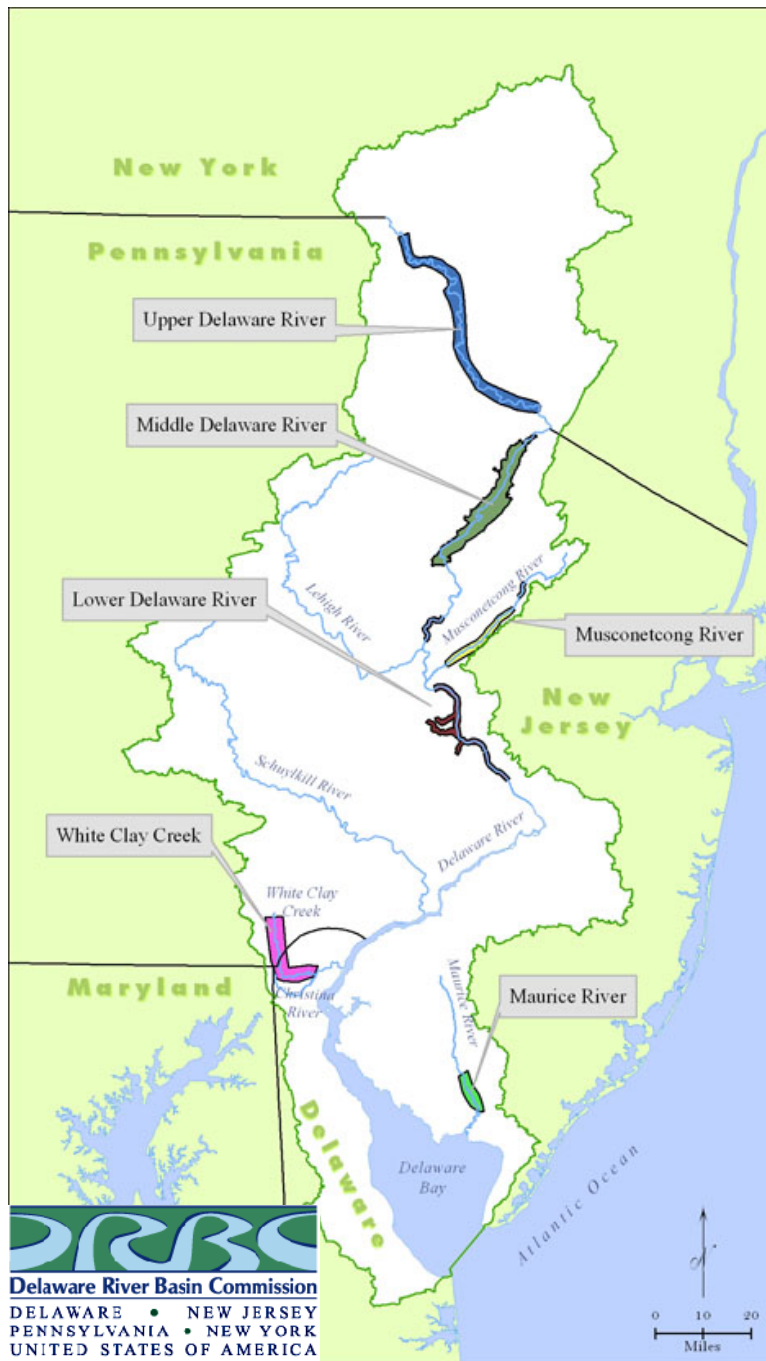




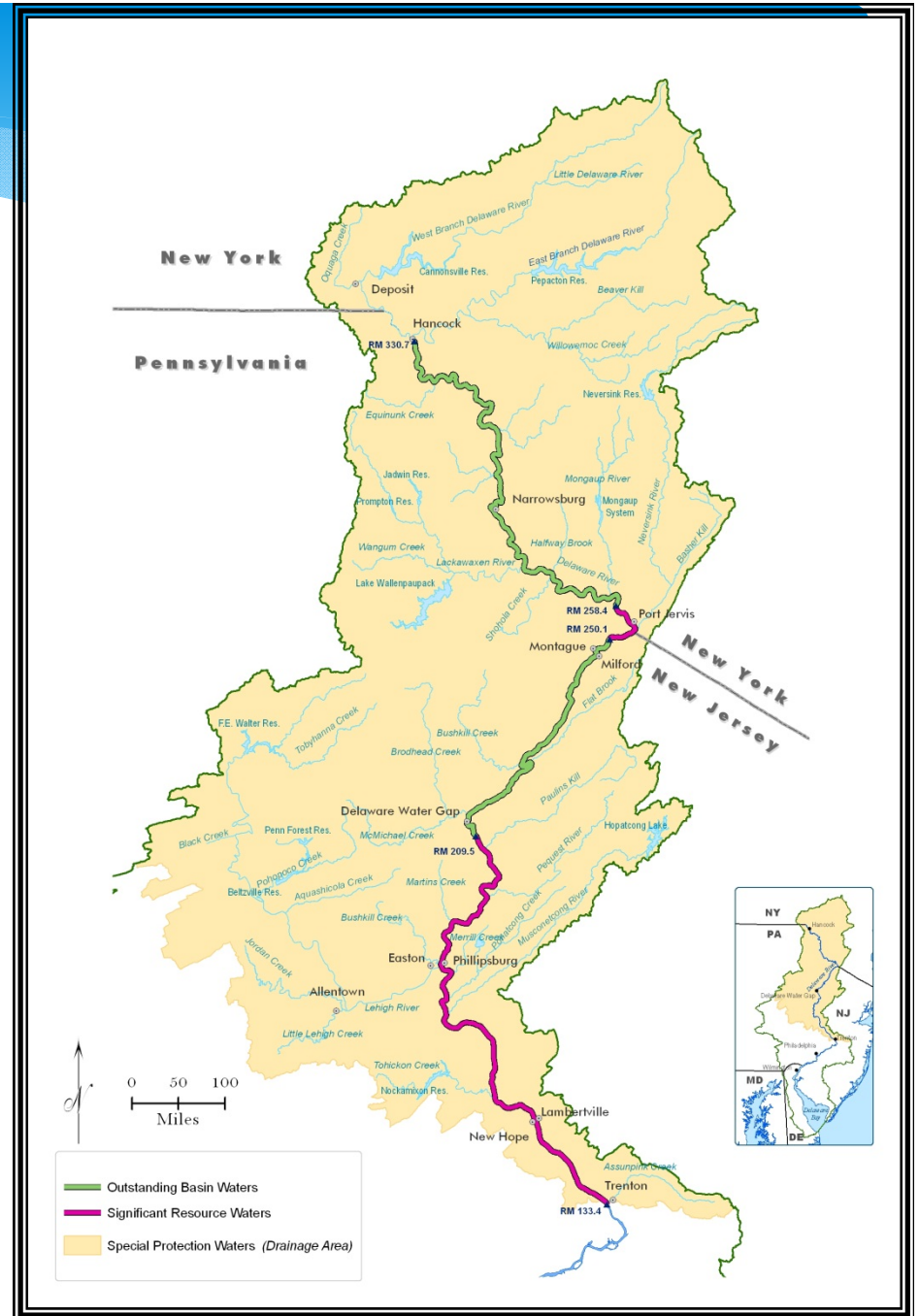
Photo by David B. Soete



Special Protection Waters

- Upper and Middle Delaware River designated SPW in 1992 (point discharges only)
- Non-point source requirements were added in 1994
- Lower Delaware was permanently designated in July 2008

It is the policy of the Commission that there be no measurable change in existing water quality except towards natural conditions in waters considered by the Commission to have exceptionally high scenic, recreational, ecological, and/or water supply values.



SPW Requirements

Point Sources:

1. No-discharge alternatives to a direct discharge
2. Natural treatment alternatives
3. Best Demonstrable Technology (BDT) minimum for direct discharges
4. No Measurable Change (NMC) at water quality control points
5. No mixing zone for direct discharges to OBW
6. Emergency power, alarms, EMP

Non-Point Sources:

Non-Point Source Pollution Control Plan – applies to wastewater discharge and water withdrawal service areas

Delaware River Port Complex – One of World's Largest Fresh Water Ports



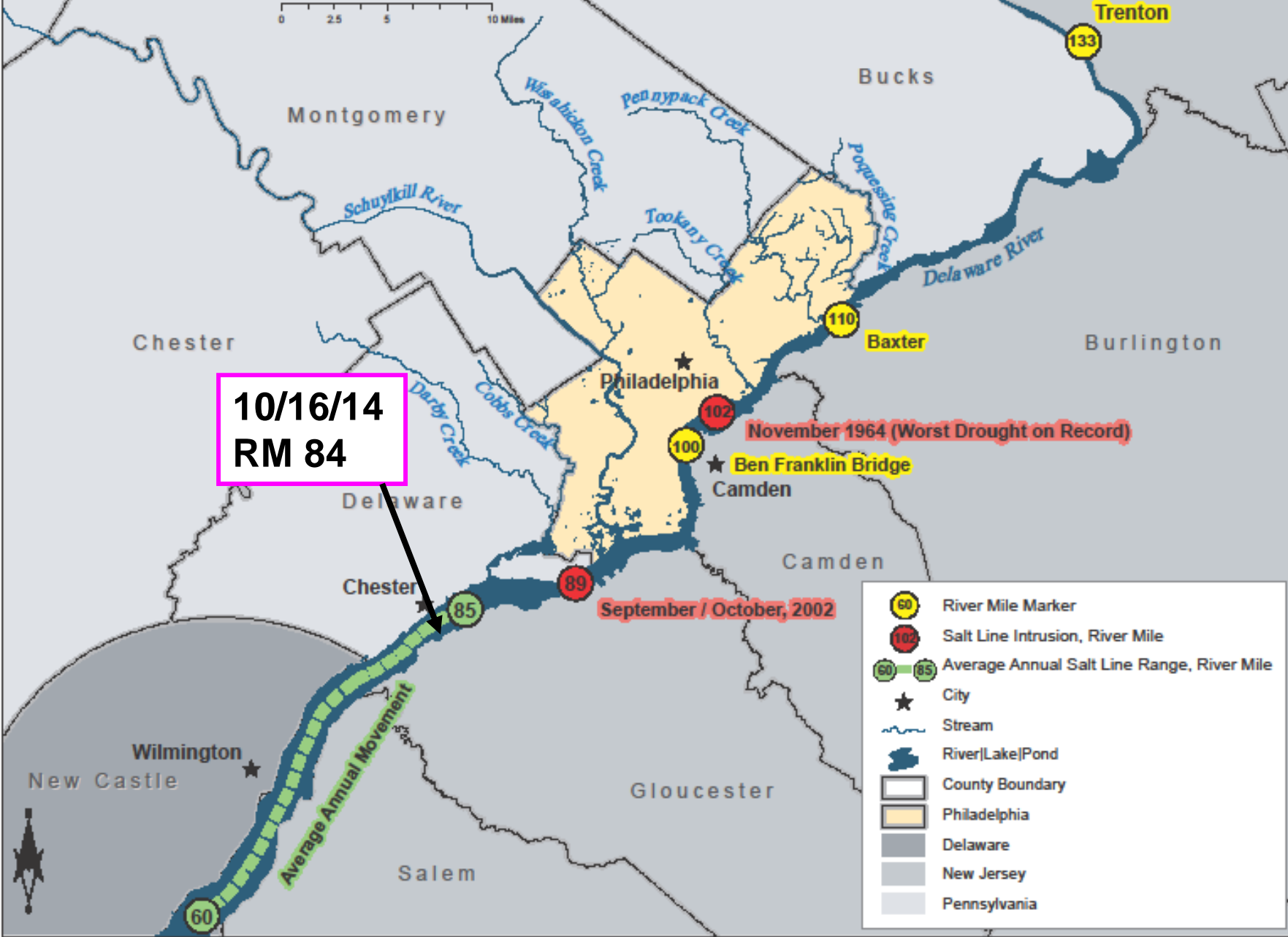


Walt Whitman Bridge – RM 96.8

photo © kbc119 (GoogleEarth)

Historical Salt Line Locations

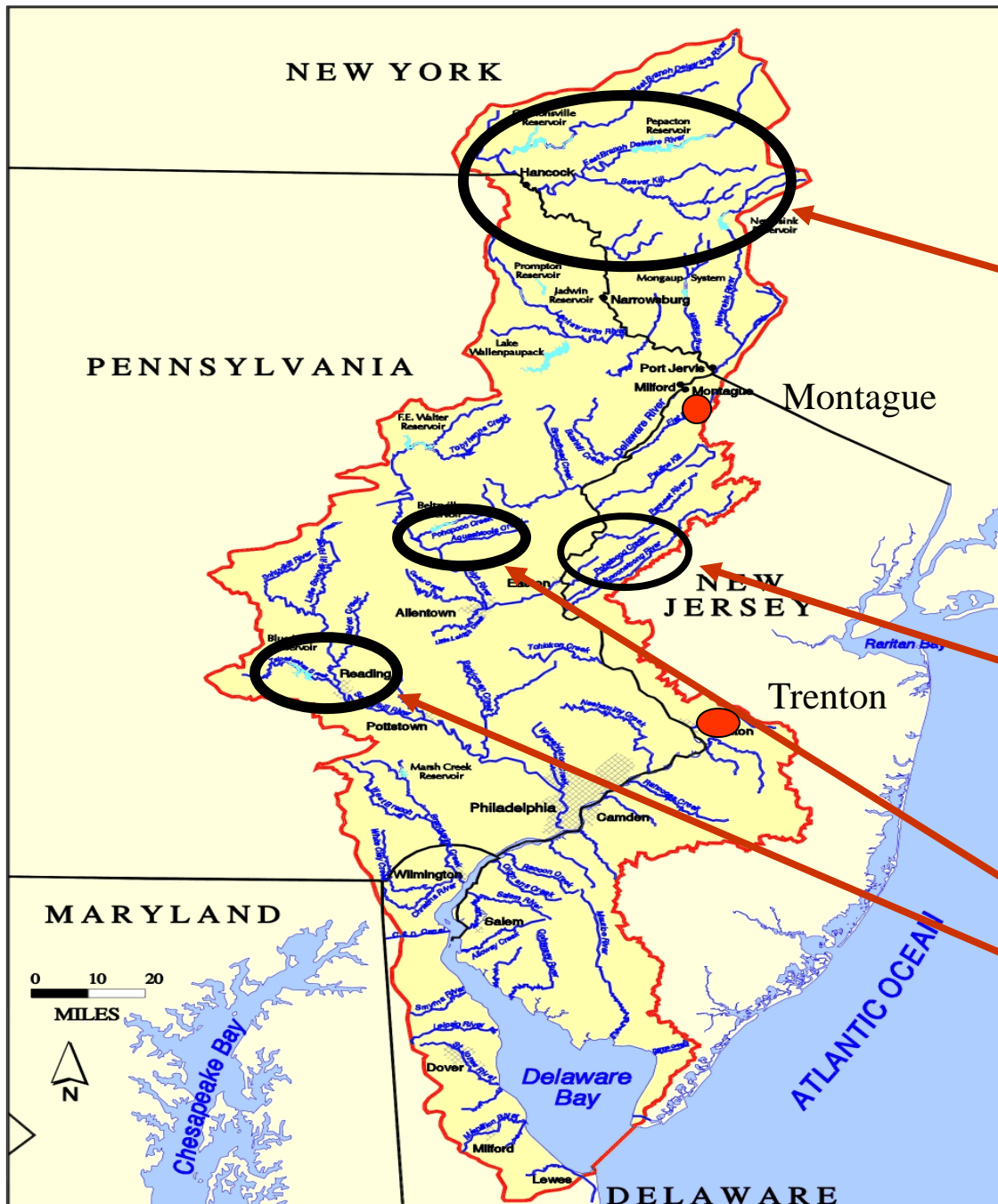
0 2.5 5 10 Miles



10/16/14
RM 84

- 60 River Mile Marker
- 102 Salt Line Intrusion, River Mile
- 60-85 Average Annual Salt Line Range, River Mile
- ★ City
- Stream
- River|Lake|Pond
- County Boundary
- Philadelphia
- Delaware
- New Jersey
- Pennsylvania

Delaware River Basin



DRB Reservoirs

- New York City Delaware Basin Reservoirs drive the Basinwide Operating Plan
 - Cannonsville
 - Pepacton
 - Neversink
- Merrill Creek
- Two USACE Reservoirs drive Lower Basin Operating Plan
 - Beltzville
 - Blue Marsh

Delaware River Basin



DRB Reservoir Operations

- * NYC diversions – 800 MGD
- * New Jersey diversions – 100 MGD
- * Montague flow target – 1750 cfs
- * Trenton flow target – 3000 cfs
- * Salt Line Location – 250 mg/l chlorides @ River Mile 69 (avg)
- * Diversions and releases are adjusted during droughts

Credit: Delaware DNREC Div. Fish & Wildlife



Credit: Greg Breese, USFWS



Credit: NJDEP Div. Fish & Wildlife



Will events like these
become more severe?
More extreme?



Credit: NYCDEP

Major main stem floods
occurred in Sept. 2004,
Apr. 2005 and June 2006

Cannonsville Reservoir,
December 20, 2001 –
6.5% of capacity

Challenges

How do we

- * preserve Water Quality in the non-tidal river?
- * maintain freshwater flows through the Estuary sufficient to protect habitat and urban drinking water supplies?
- * control flooding?
- * Maintain adequate flows during droughts

In the face of

- * growing development pressure in the Upper Basin?
- * prospect of a new drought of record?
- * salt migration with sea level rise

Questions

Do lower basin residents have a financial interest/stake in:

- * preserving forested riparian buffers?
 - * forested headwater areas?
- for the ecosystem services they provide:
- * clean water
 - * flood control
 - * scenic values
 - * recreation
 - * wildlife
 - * tourism

If so, how should we capture and apply that interest?