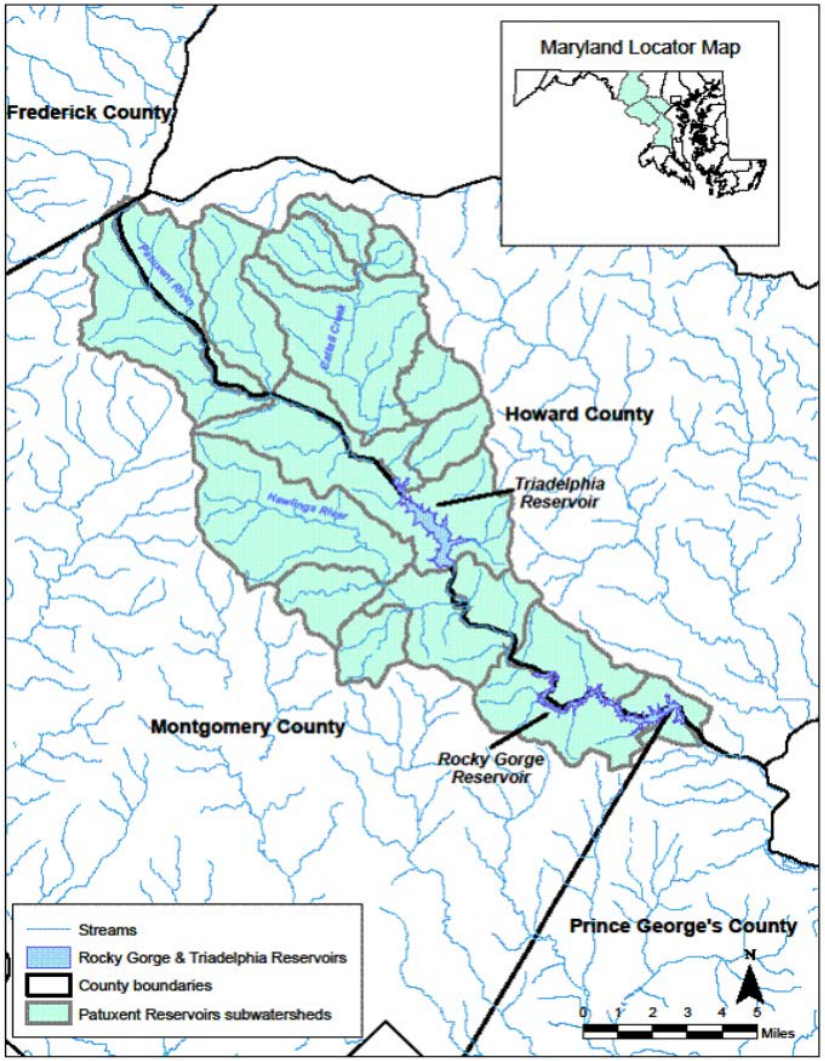

WSSC Patuxent Reservoirs Water Quality Monitoring Program
Patuxent River Conference
18 June 2015

Outline

- Reservoir facts and figures
- Drinking water requirements
- Monitoring program
- TMDL
- Partnership
- Looking forward



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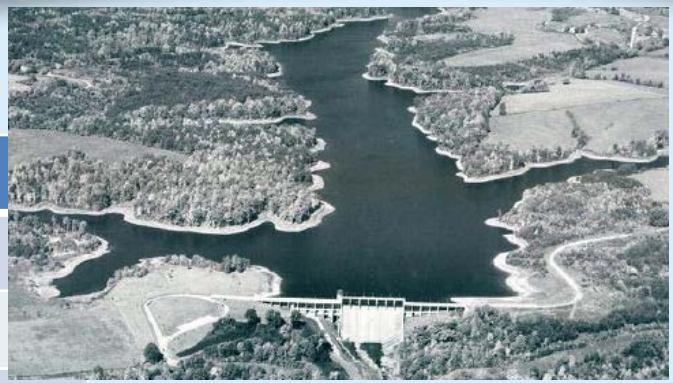
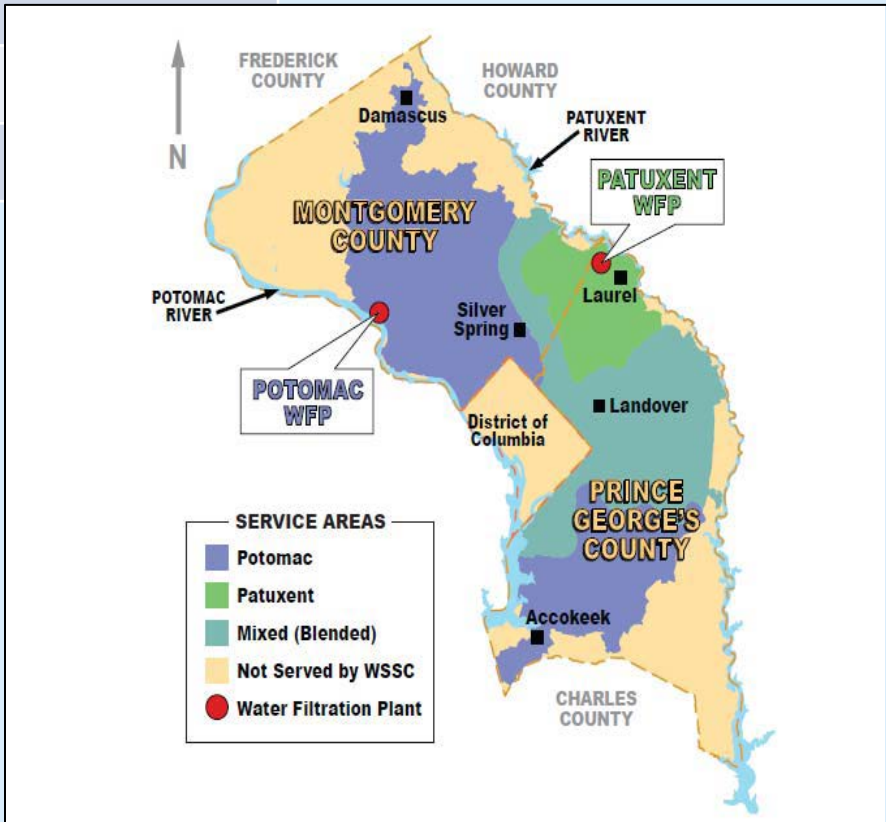
Reservoir Facts & Figures

	Triadelphia	Rocky Gorge
Constr. / In service	1942 / 1944	1952 / 1954
Capacity (billion gal.)	6.66 (2004)	5.54 (2005)
Surface area (acres)	824	618
Normal depth (feet)	52	74
Mean pool elev. (feet)	366.4	286.4



- Supply ≈ 1/3 of WSSC customers (650,000)
- Minimum flow (MDE permit)



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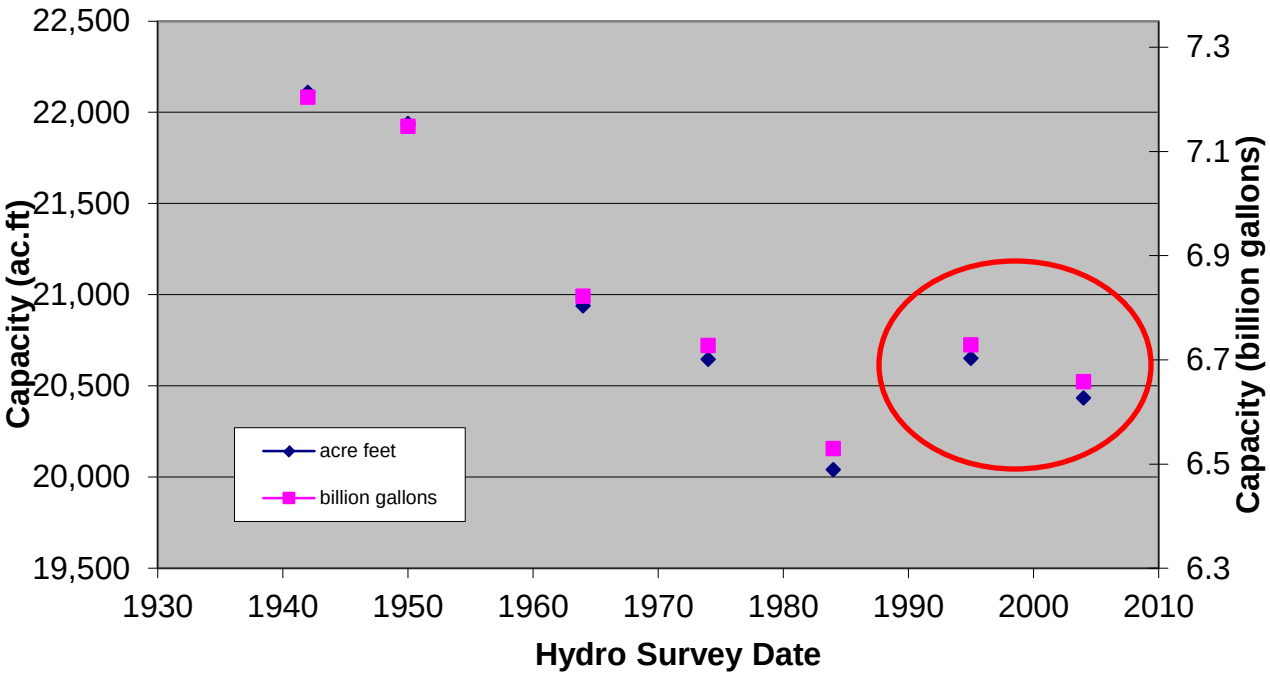
Capacity Loss

- Ten-year bathymetric surveys (sedimentation)
  - Triadelphia: 6.8% (62 years)
  - Rocky Gorge: 7.9% (51 years)
- Loss rates
  - ac.ft/yr/mi^2
  - 0.3-0.5 Pax.
  - 0.4-1.2 Balto.



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Drinking Water

DW Treatment Challenges

- Pathogens
- TOC – disinfection by-products
- Pesticides and organics
- Emerging contaminants
- Taste and odor – algal blooms
- Fe, Mn – seasonally discolored water
- Sodium chloride – seasonal, long term

Annual WQ Reports (WSSC website)

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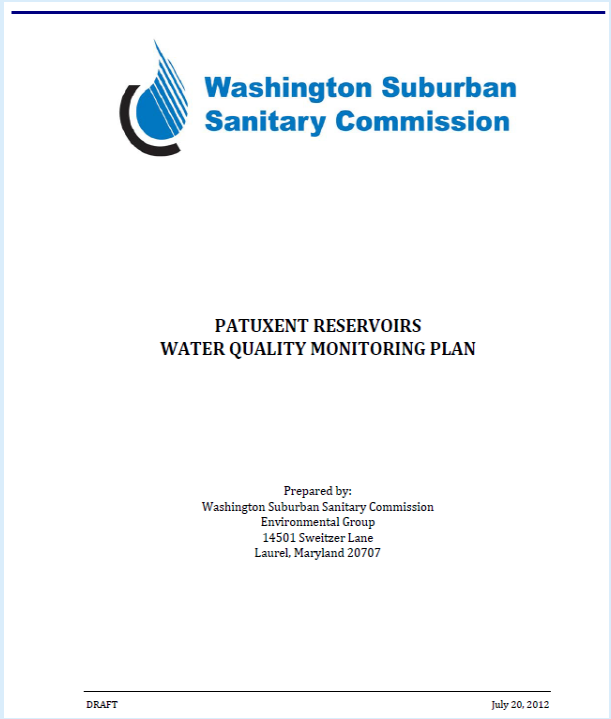
Monitoring Program Timeline

- Early studies (consultants): 1981, 1991
- WSSC reservoir monitoring (1993 – present)
- Tributary monitoring (1998-2001)
- Data for calibrating ICPRB model (TMDL, 2008)
- WQ Monitoring Plan (2012)
- QAPP (needed)


Washington Suburban Sanitary Commission

PATUXENT RESERVOIRS
WATER QUALITY MONITORING PLAN

Prepared by:
Washington Suburban Sanitary Commission
Environmental Group
14501 Sweitzer Lane
Laurel, Maryland 20707

DRAFT July 20, 2012

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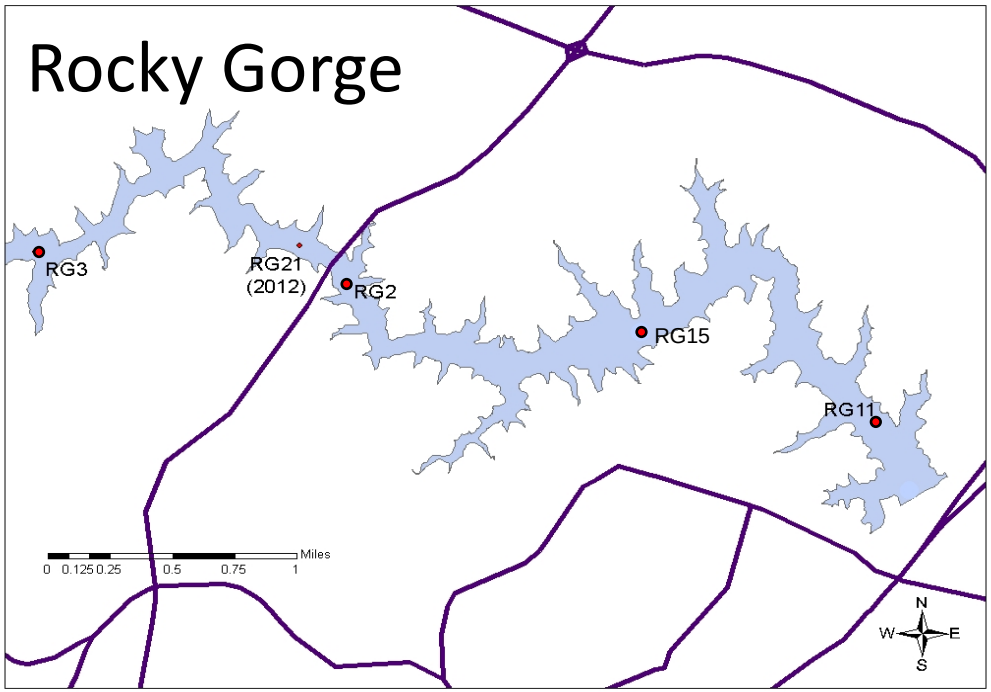
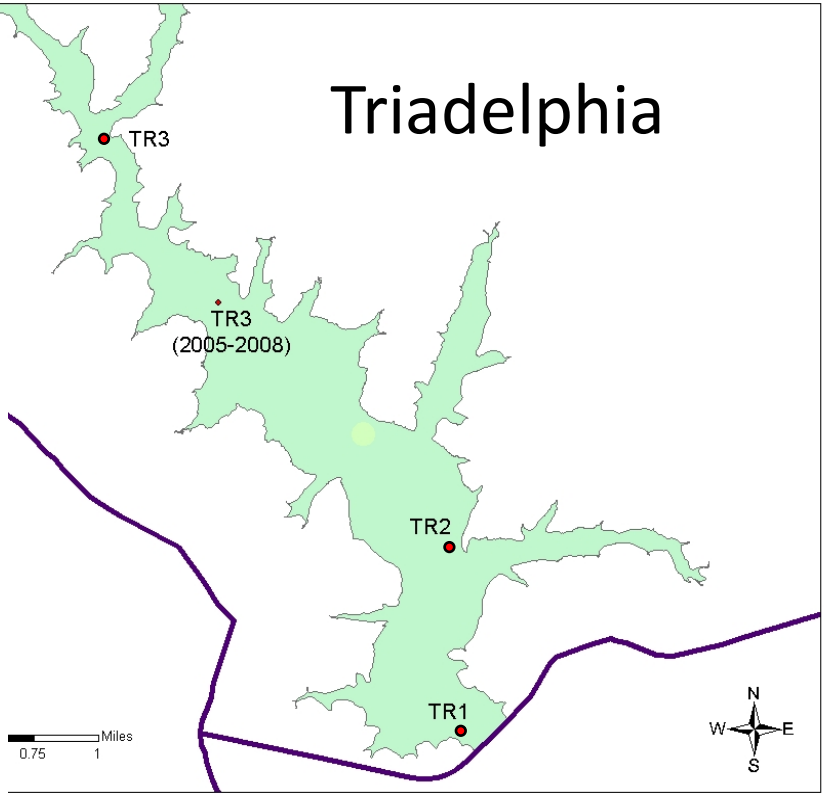
Monitoring Station Locations





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Field Monitoring Equipment

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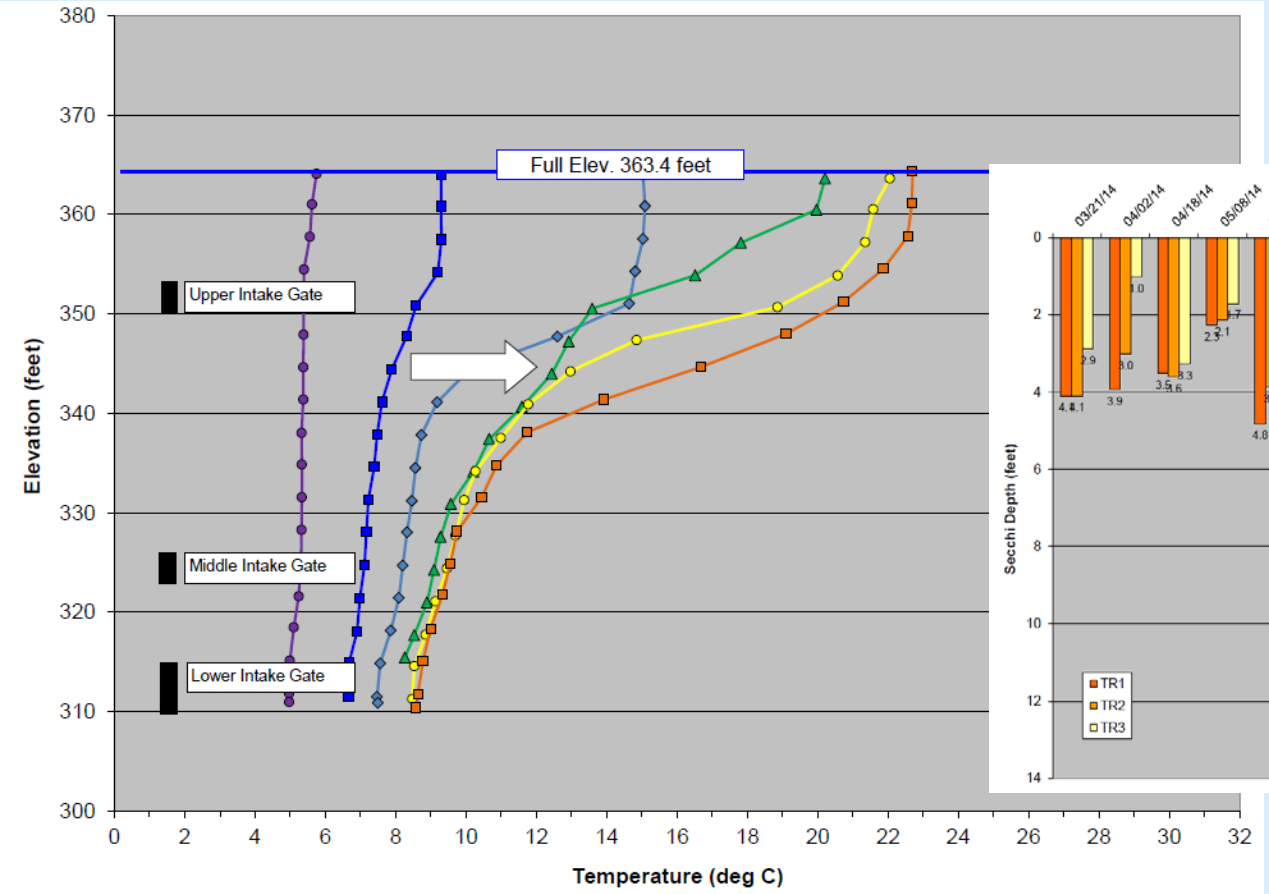
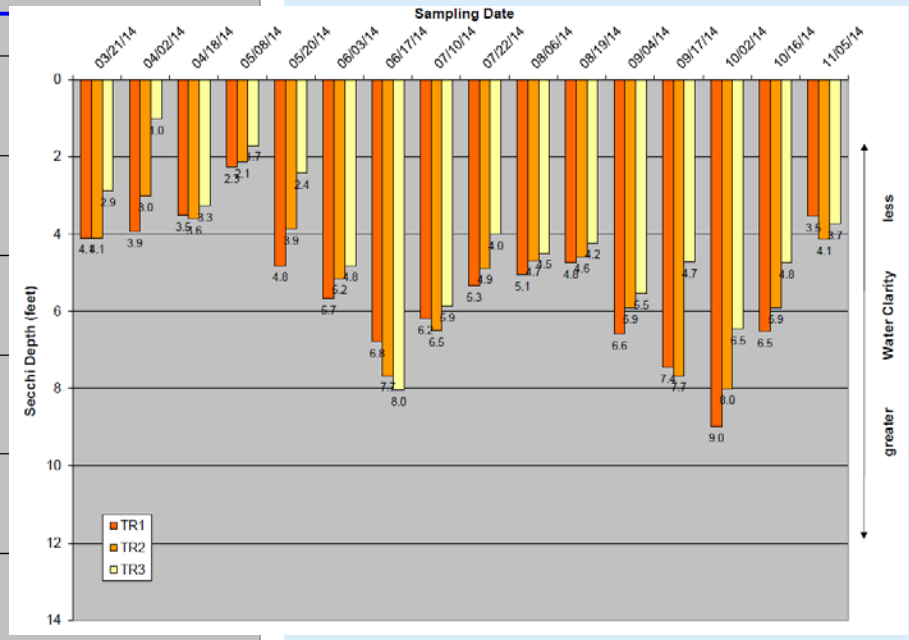
Water Quality Parameters

- Hydrolab profiles (Depth, DO, pH, Temperature, ORP, Conductance/TDS)

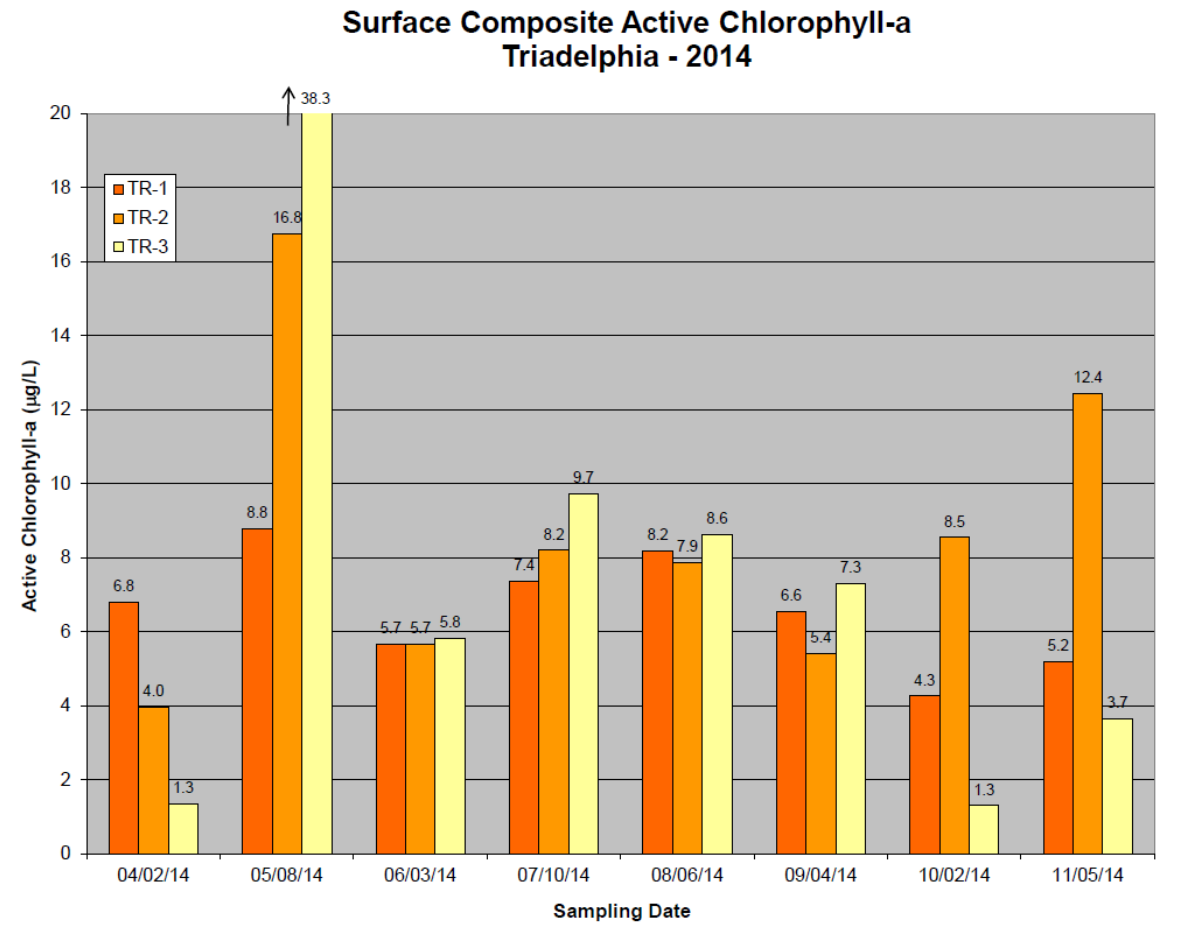


- Clarity (Secchi)



Water Quality Parameters

- Laboratory analyses (grab samples, composites)
  - Chlorophyll a
  - Nutrients:
    - Ammonia, TKN, NO2+NO3
    - Total Phosphorus
  - TOC, alkalinity, color, turbidity
  - Sodium and Chloride
  - Previously: VOCs, pesticides, fecal bacteria, Fe + Mn



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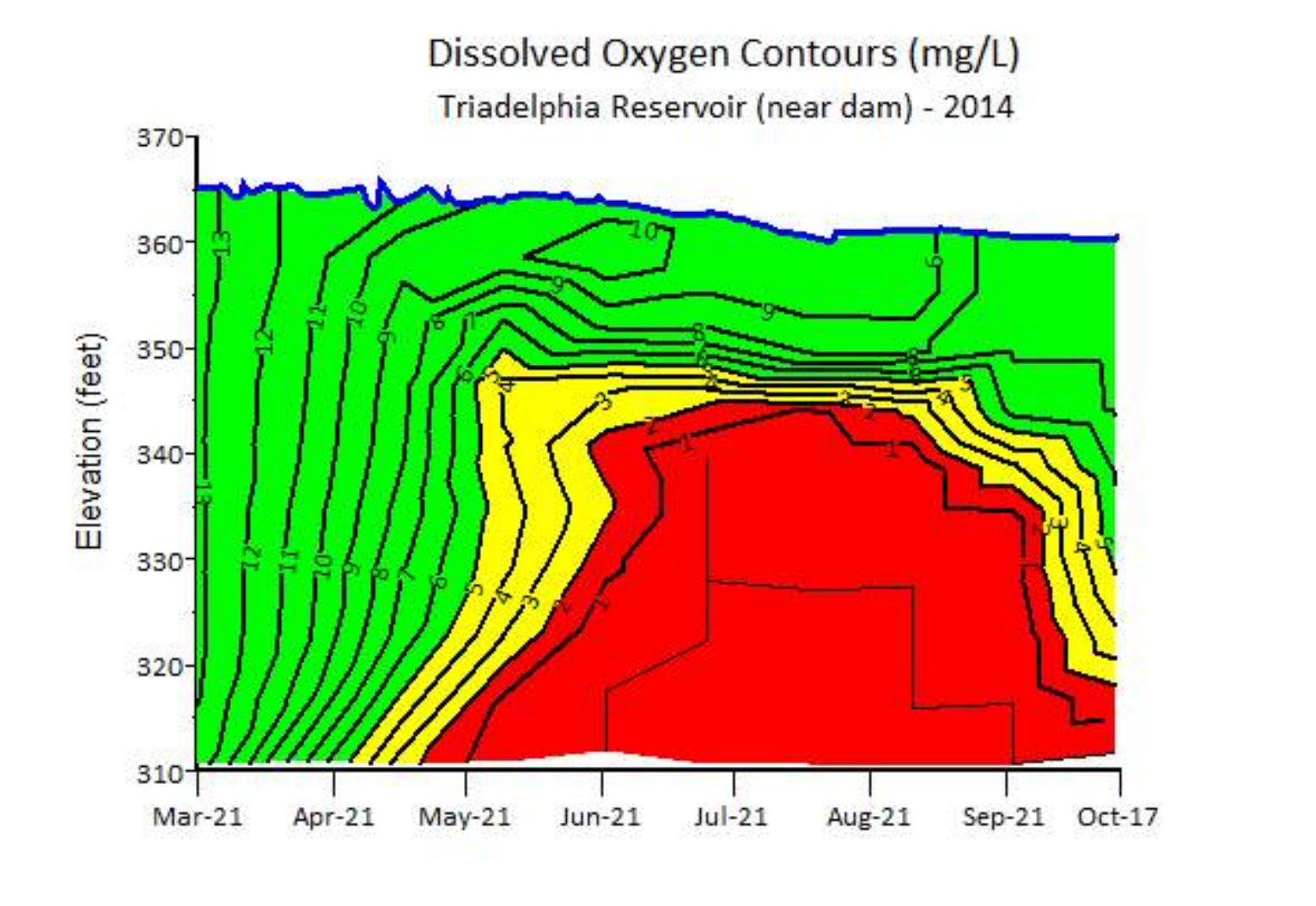
Seasonally Stratified Dissolved Oxygen



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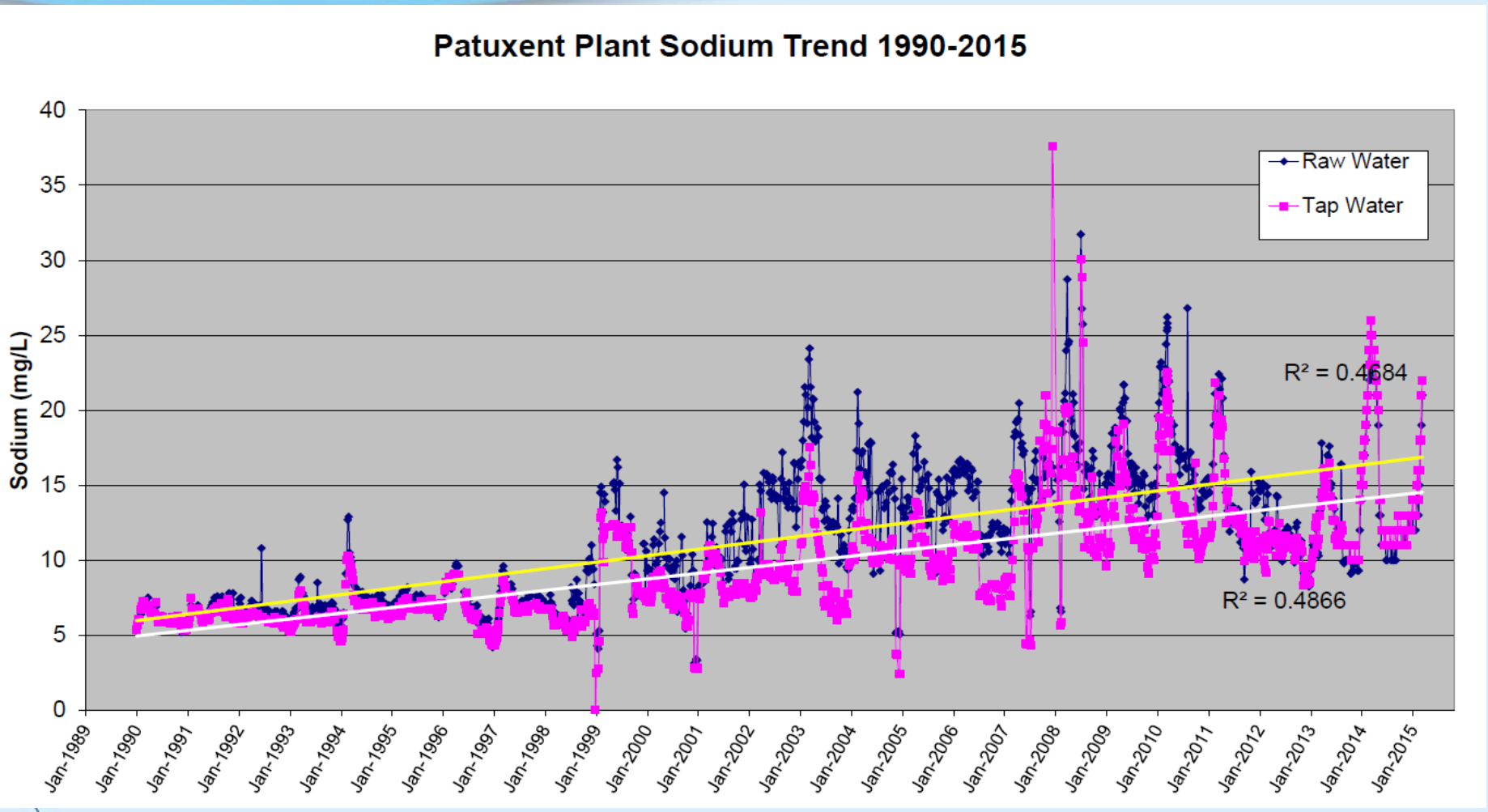
Sodium Trend



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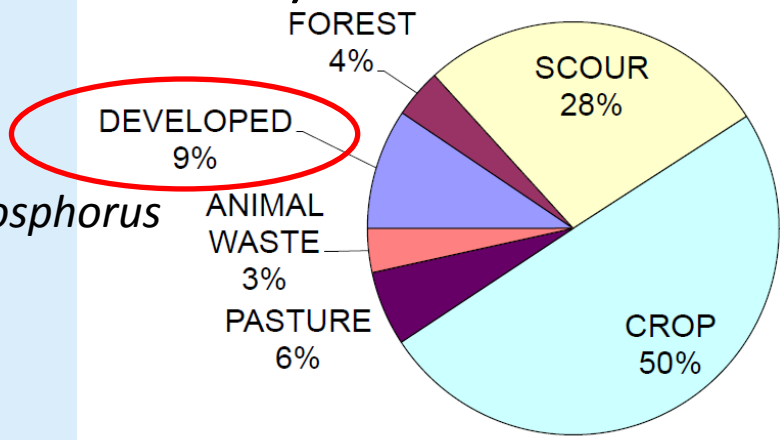
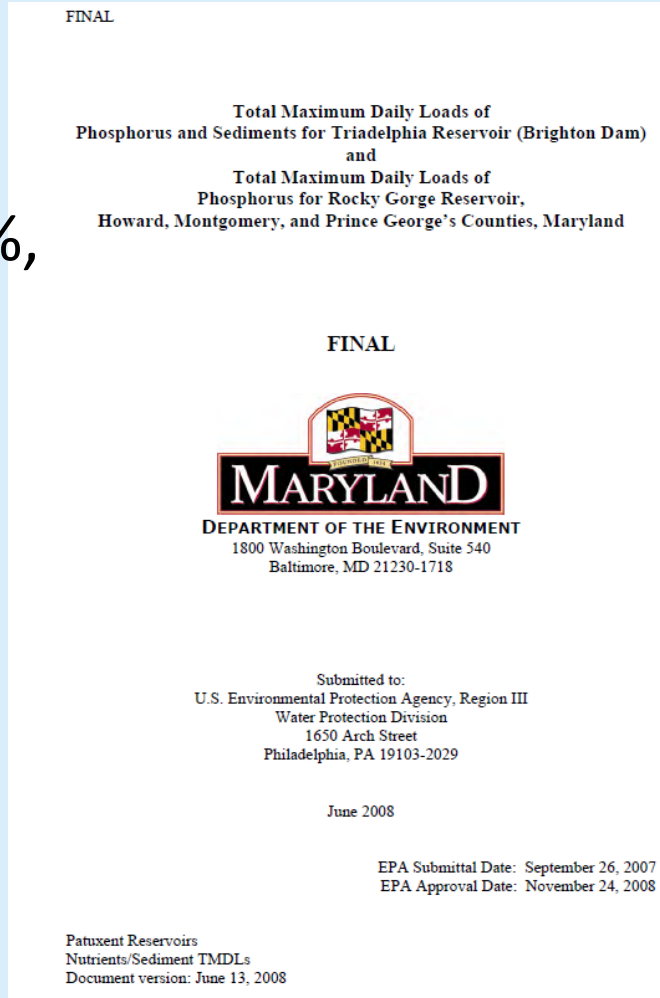
TMDL

Impaired for Use I-P (Rocky Gorge, RG) & Use IV-P (Triadelphia, TR)

- Sediment and nutrients (phosphorus)
- Load reductions (Phosphorus – TR 58%, RG 48%) (Sediment – TR 29%)
- Implementation challenge (dominant non-point sources)

TR – Phosphorus





FINAL

Total Maximum Daily Loads of Phosphorus and Sediments for Triadelphia Reservoir (Brighton Dam) and Total Maximum Daily Loads of Phosphorus for Rocky Gorge Reservoir, Howard, Montgomery, and Prince George's Counties, Maryland

FINAL

MARYLAND
DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard, Suite 540
Baltimore, MD 21230-1718

Submitted to:
U.S. Environmental Protection Agency, Region III
Water Protection Division
1650 Arch Street
Philadelphia, PA 19103-2029

June 2008

EPA Submittal Date: September 26, 2007
EPA Approval Date: November 24, 2008

Patuxent Reservoirs
Nutrients/Sediment TMDLs
Document version: June 13, 2008

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Partnership

Patuxent Reservoirs Watershed Protection Group

- Established 1996
- Policy Board + Technical Advisory Committee
- TMDL progress evaluation

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Looking Forward

- TMDL Implementation Plans (?)
  - Responsibilities
  - Funding
- Automated vertical profilers (planned 2015)
- Harmful algal blooms (monitoring 2015+)
- Tributary monitoring (USGS)
  - Nutrient loads
  - TMDL tracking

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WSSC Website: http://www.wsscwater.com

Point to "**Water Quality**" and/or

"**Environmental Stewardship**" for further details

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