Conowingo Dam Update

Talking Points for the
Clean Chesapeake Coalition Meeting

Maryland Department of the Environment

August 17, 2017

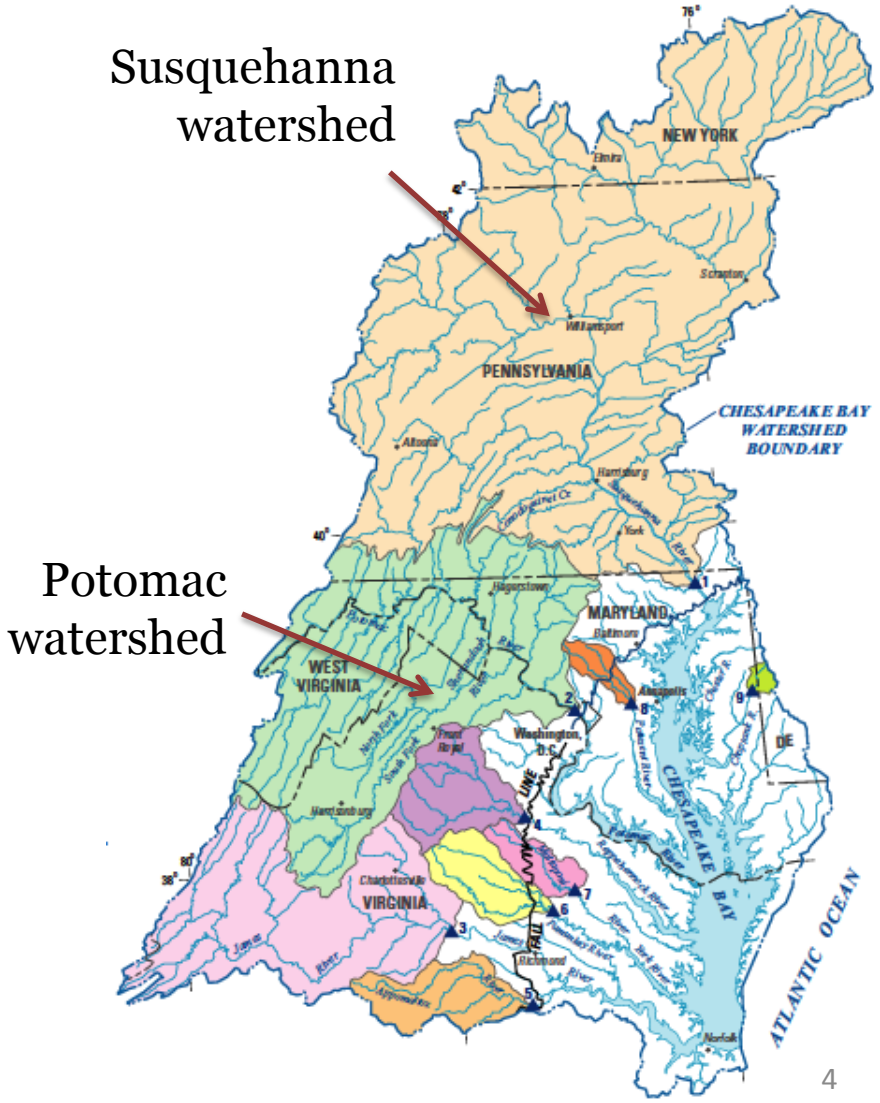
2017-18: Data collected and studies completed, A time for decision and actions

- Chesapeake Bay Partnership addresses Conowingo infill under Bay TMDL
  - Incorporates new science
  - Decisions to be made on assignment of responsibility
- MD Section 401 Water Quality Certification Progress
- Beneficial reuse demonstration project moving forward

Some Background

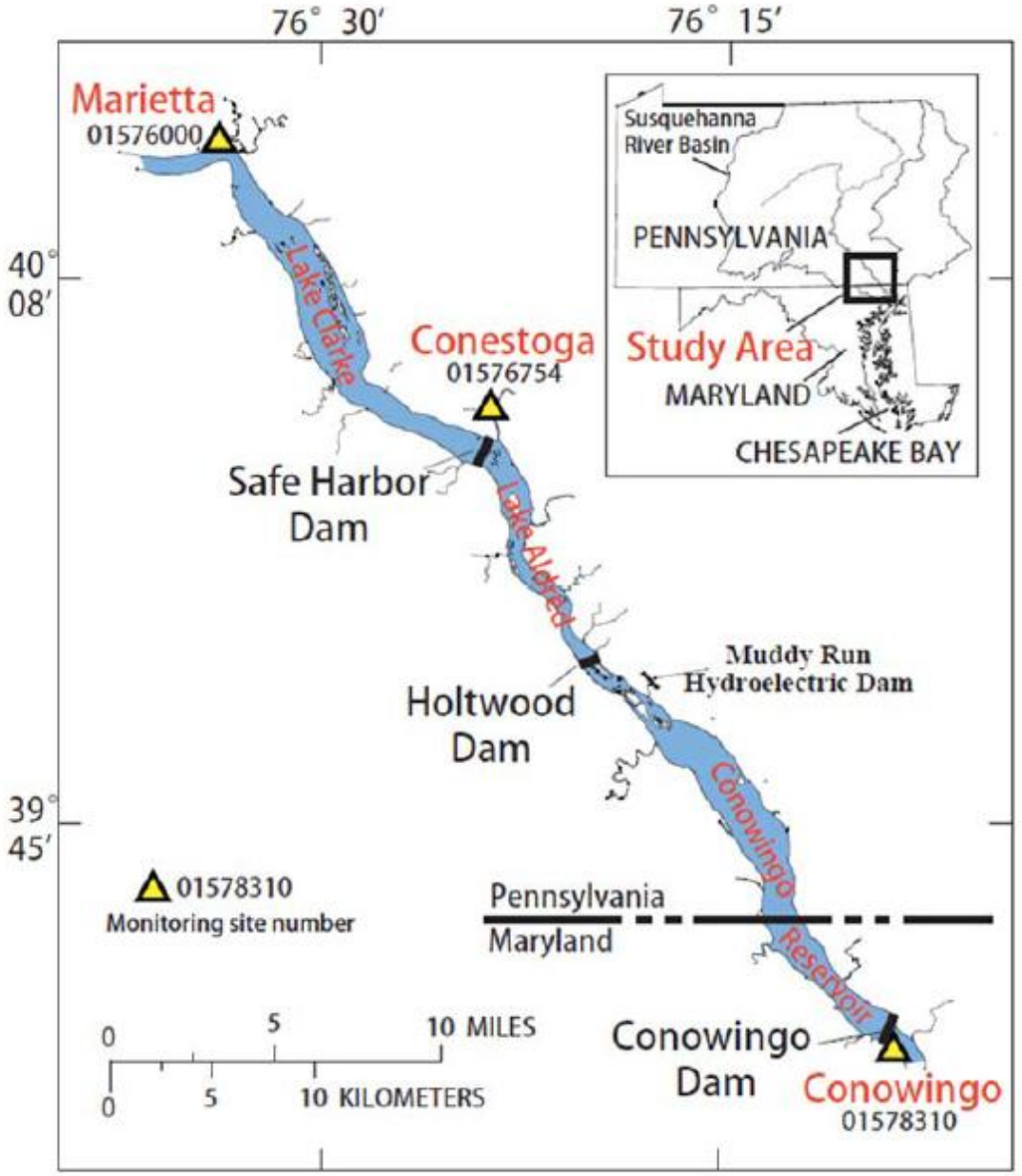
Susquehanna River Has a Major Influence on Chesapeake Bay Water Quality

- 43% of Chesapeake Bay watershed
- 47% of freshwater flow into the Bay
- 41% of nitrogen loads to the Bay
- 25% of phosphorus loads to the Bay
- 27% of sediment loads to the Bay
- Influences Bay water quality well into Virginia's portion of the Bay



Source: Linker (2014)

Lower Susquehanna River Reservoirs



Sources: Langland, USGS, Bay Journal, Lower Susquehanna River Keeper

History of the Lower Susquehanna River Reservoirs: 1900-2020

1900

1910 – Holtwood Dam constructed

1920

1920 – Holtwood Dam reaches equilibrium

1928 – Conowingo Dam constructed

1931 – Safe Harbor Dam constructed

1940

1950 – Safe Harbor Dam reaches equilibrium

1960

1960s – Historical lowest flows in Susquehanna

1972 – Tropical Storm Agnes

1980

1979 – Systematic water quality monitoring begins on the Susquehanna River at Conowingo Dam

1996 – "Big Melt" flood event

2000

2001 – SRBC convenes "Susquehanna Sediment Task Force" Symposium; publishes report

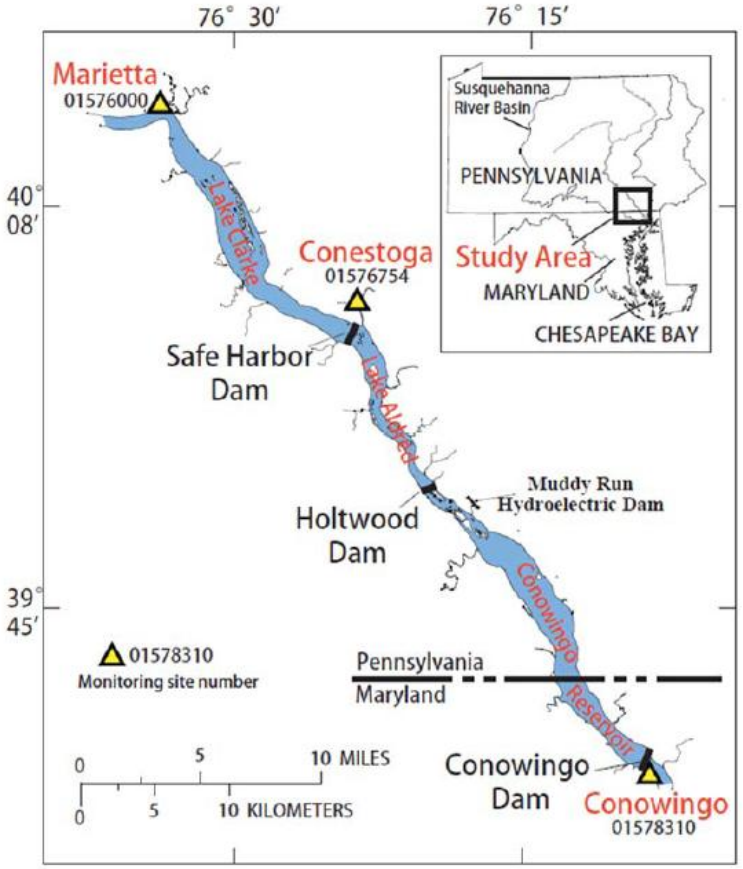
2010 – Chesapeake Bay TMDL established

2012 – Hirsch 2012 scientific paper publishes clear evidence for Conowingo Reservoir at or near dynamic equilibrium

2015 – Lower Susquehanna River Watershed Assessment

2017 – Bay TMDL Midpoint Assessment

2020



Source: Langland, USGS, Personal Communication

Infill Occurred Sooner than Expected

The 2010 Chesapeake Bay TMDL said…

"EPA's intention is to assume the current trapping capacity will continue through the planning horizon for the TMDL (through 2025). The Conowingo Reservoir is anticipated to reach a steady state in 15 – 30 years, depending on future loading rates, scour events and trapping efficiency."

"Under these assumptions, the waste load allocations (WLA) and load allocations (LA) would be based on the current conditions at the dam."

Source: Appendix T. Sediments behind the Susquehanna Dams Technical Documentation: Assessment of the Susquehanna River Reservoir Trapping Capacity and the Potential Effect on the Chesapeake Bay (U.S. EPA 2010)

State of the Science

Significant New Monitoring And Research Since 2011 Indicate <u>Conditions have Changed</u>

- U.S. Geological Survey (USGS) (2012, 2014, 2015)
- U.S. Army Corps of Engineers (2015)
- Johns Hopkins University (2013, 2015, 2016)
- CBP Scientific and Technical Advisory Committee (2014, 2016)
- Enhanced Monitoring and Modeling funded by Exelon and conducted by Gomez and Sullivan, University of Maryland and USGS (2014-2016)
- 5 new reports from UMCES just released

Take Away Science Messages

- Conditions are different and the net reservoir trapping ability is near zero.
- The loss of net trapping has an impact on how upstream pollution management practices will translate into downstream impacts on water quality.
- Loss of net trapping ability has an effect on outputs of TN, TP, and SS, but the effect is greatest on SS and least on TN.
- The fate and transport of the scoured material is important and new information is available for factoring in the influence of particulate nutrients on Bay WQ
- The key issue is not just scour during flood events, but also the net trapping over the entire range of flow conditions
- Indications are that water quality standards may not be in attainment under full implementation of State WIPs, and assuming Conowingo infill conditions

The implications and policy options for the MPA and Phase III WIP

Timeline for 2017 Midpoint Assessment Decisions by the Chesapeake Bay Partnership

- **December 2016**: Framework for determining which jurisdictions will be responsible for addressing the additional nutrient and sediment loads resulting from infill of the Conowingo Reservoir
- **August - October 2017**: Determine how much additional nutrient and sediment loads must be addressed resulting from infill of the Conowingo Reservoir and decide upon allocation rules
- **October 2017**: Draft Phase III WIP planning targets fully reflect best understanding of additional loads from infill of the Conowingo Reservoir
- **March 2017**: Final Phase III WIP planning targets fully reflect best understanding of additional loads from infill of the Conowingo Reservoir

Source: December 2016 PSC Meeting

How the Policy Questions are currently framed?

- **Who** is responsible for additional load reductions?
- **How** will responsibility assigned?
- **When** will the additional reductions be required to be met?

Source: December 2016 PSC Meeting

Options to Address Increased Loads

- Additional upstream implementation
- Increase reservoir capacity
- More downstream implementation

Update on Maryland water quality certification for Conowingo Dam relicensing

Water Quality Certification

- Clean Water Act §401 provide states with a tool to protect water quality
- Applies to all federal permits and licenses involving a discharge to waters of the U.S. including adjacent jurisdictional wetlands.
- Central feature is the ability to grant, grant with conditions, deny or waive certification
  - Granting certification, with or without conditions, allows the federal permit or license to be issued
  - Denying certification prohibits the federal permit or license from being issued
- Decisions based upon EPA approved water quality standards and guidelines; and other appropriate requirements of state law

Conowingo Relicensing: *History*

- In January of 2014 Exelon submitted an application for WQC
- In November of 2014, MDE issued a Public Notice of the application and announced that "the Department intends to deny the application due to insufficient information provided by the applicant regarding the impacts of the activity on State water quality standards and limitations".
- In December 2014, Exelon withdrew their application and agreed to provide up to $3.5 million for coordinated study to address information gaps to be completed by 2016/17

CWA 401 Water Quality Certification for Conowingo Re-licensing: Recent History

- Exelon requested 401 WQC on May 17, 2017
- MDE acknowledged receipt on June 23, 2017 and conveyed the following to Exelon:
  - Expected timing for public notice (within 2 weeks) and hearing (fall 2017)
  - The scope of MDE review to include an evaluation of water quality impacts of the Dam and its operations to:
    - the reservoir,
    - the River below the Dam, and,
    - downstream in those segments of the Chesapeake Bay whose water quality is determined by science to be impacted by the operation of and discharges from the Dam.
- MDE public noticed the application on July 9, 2017 for 30 days and then extended until August 23, 2017.
- Governor held Conowingo Summit and announced upcoming RFP for dredge material demonstration project August 8, 2017.

CWA 401 Water Quality Certification for Conowingo Re-licensing: ***Water Quality-Related Issues Identified by Exelon***

- DO immediately downstream of the Dam
- Debris management
- Sediment affecting operation of the Dam and sediment introduction from project lands
- Fish passage
- Supplemental eel passage
- Recreational use
- Minimum flow requirements

CWA 401 Water Quality Certification for Conowingo Re-licensing: Current Status

- MDE formed a 401 WQC review team that includes DNR representatives and has been meeting to discuss issues and information and analysis needs.
- MDE is reviewing the Exelon application and analyzing available water quality-related information associated with Dam existence and operations and comparing this information to water quality standards and requirements.
- Reservoir sampling for Chlorophyll a levels underway this Summer.
- Review team is also reviewing public comments on Exelon application and is having preliminary discussions of possible WQ issues and conditions the State may need to consider.
- TMDL mid point assessment underway, which will help inform decision making on any needed additional sediment and nutrient reductions.

CWA 401 Water Quality Certification for Conowingo Re-licensing: ***Moving Forward***

- Expect to publish 45 day notice of Public Hearing in the Maryland Register in early October 2017.
- Public Hearing expected in late November/early December 2017.
- When important new studies or information become available, MDE intends to reopen the comment period for public comments on the new studies or information.
- TMDL Mid Point Assessment Proposed Allocations expected in the Fall/Winter 2017/2018 and Final by April 2018
- Negotiations with Exelon likely to start in the Fall 2017.
- Expect final WQC to Secretary MDE mid May 2018.

Update on Innovative and Beneficial Reuse Project

Conowingo Capacity Recovery and Beneficial/Innovative Reuse Demonstration Project:

What is it?

- Project whose objective is to obtain real world data and information on the feasibility of dredging and beneficial/innovative reuse of Conowingo sediment
- Current specifics include:
  - Hydraulic dredging of 25,000 cubic yards from location approximately 5 miles north of Dam—largely sandy material from near the surface
  - Pump sediment from dredging location to project staging area using pipeline
  - Dewater material at the staging area and return clean water to River
  - Temporarily stockpile material at the staging area
  - Beneficially use or innovatively reuse material
    - Possible end uses include landfill cover and cap, soil and fill material

Current Status

- RFP went out on August 31, 2017
- Responses due back in October 2017
- Goal is to be in the field in December 2017/January 2018 and out by March 2018

Real world information to be gathered

- Permitting process for capacity recovery and innovatively reusing sediments from behind the Conowingo Dam.
- Innovative and beneficial reuse markets available for dredged material.
- Vendors who have the capability to innovatively reuse dredged material from behind the Conowingo Dam.
- Present-day costs for dredging and innovatively reusing dredged material from behind the Conowingo Dam to compare to the costs of upstream Best Management Practices.
- Feasibility for managing the sediment that has accumulated behind the Dam.

Summary

- Studies near final leading to policy and regulatory decisions
- Bay Partnership decisions regarding Conowingo responsibility this fall
- Many opportunities for public comment
- Engagement in federal legislation

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