



# Effects of Conowingo Reservoir Sedimentation on Loads to the Bay

**Presentation by Scott Phillips, USGS**

**Based on a report by:**

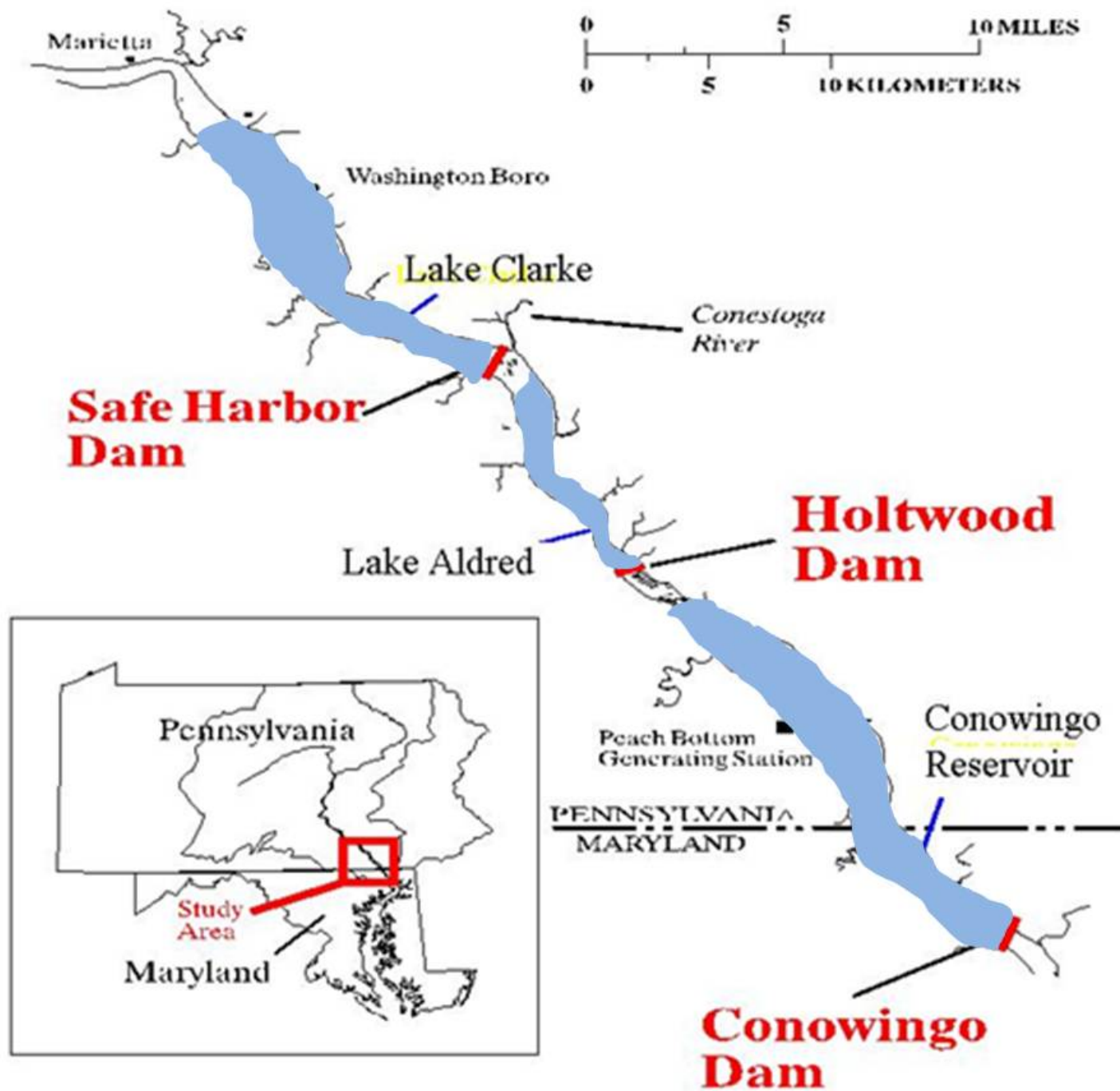
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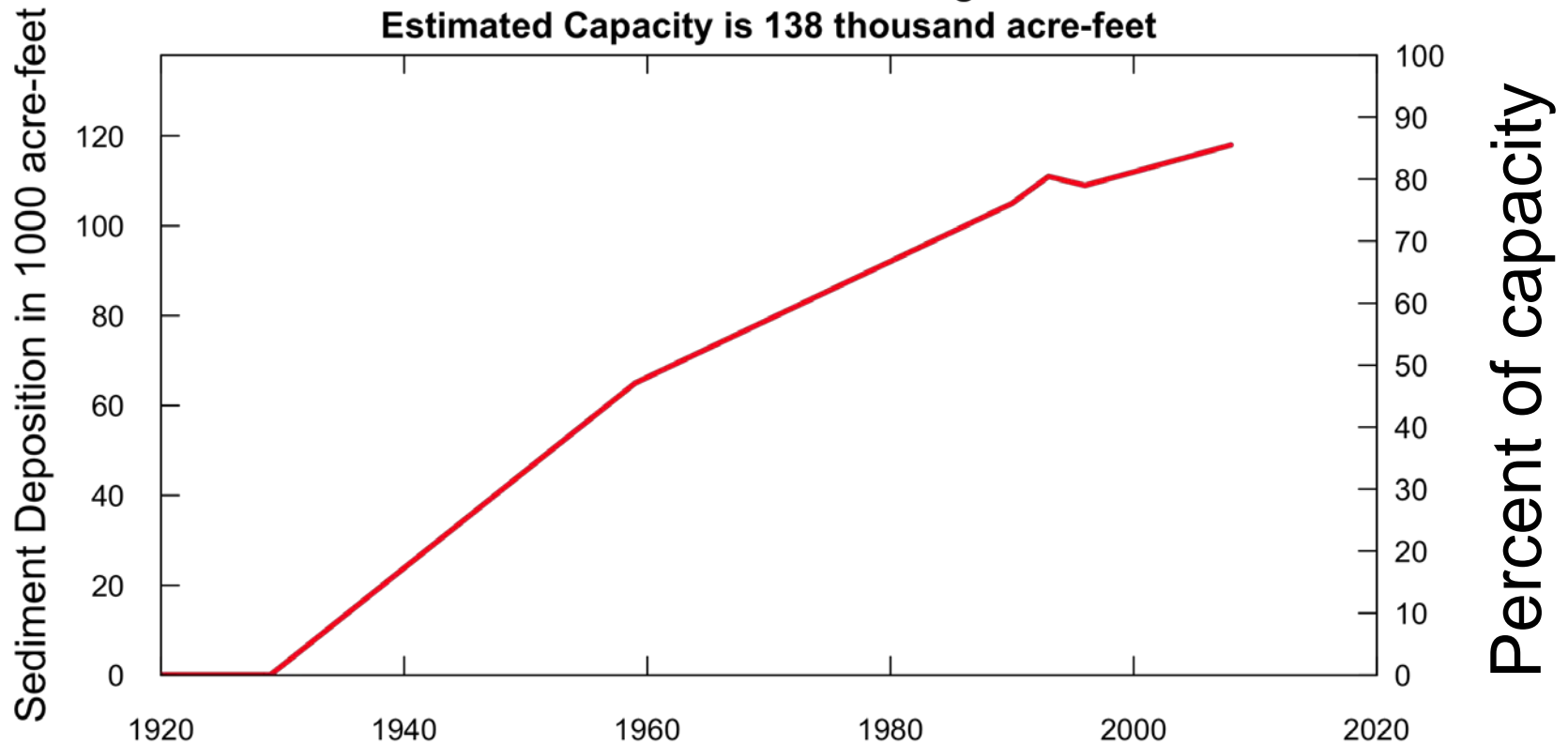
# Report

- TS Lee
- Loads
- Influence of reservoirs
- Susquehanna





**History of Sediment Deposition  
In the lower 11.5 miles of Conowingo Reservoir  
Estimated Capacity is 138 thousand acre-feet**



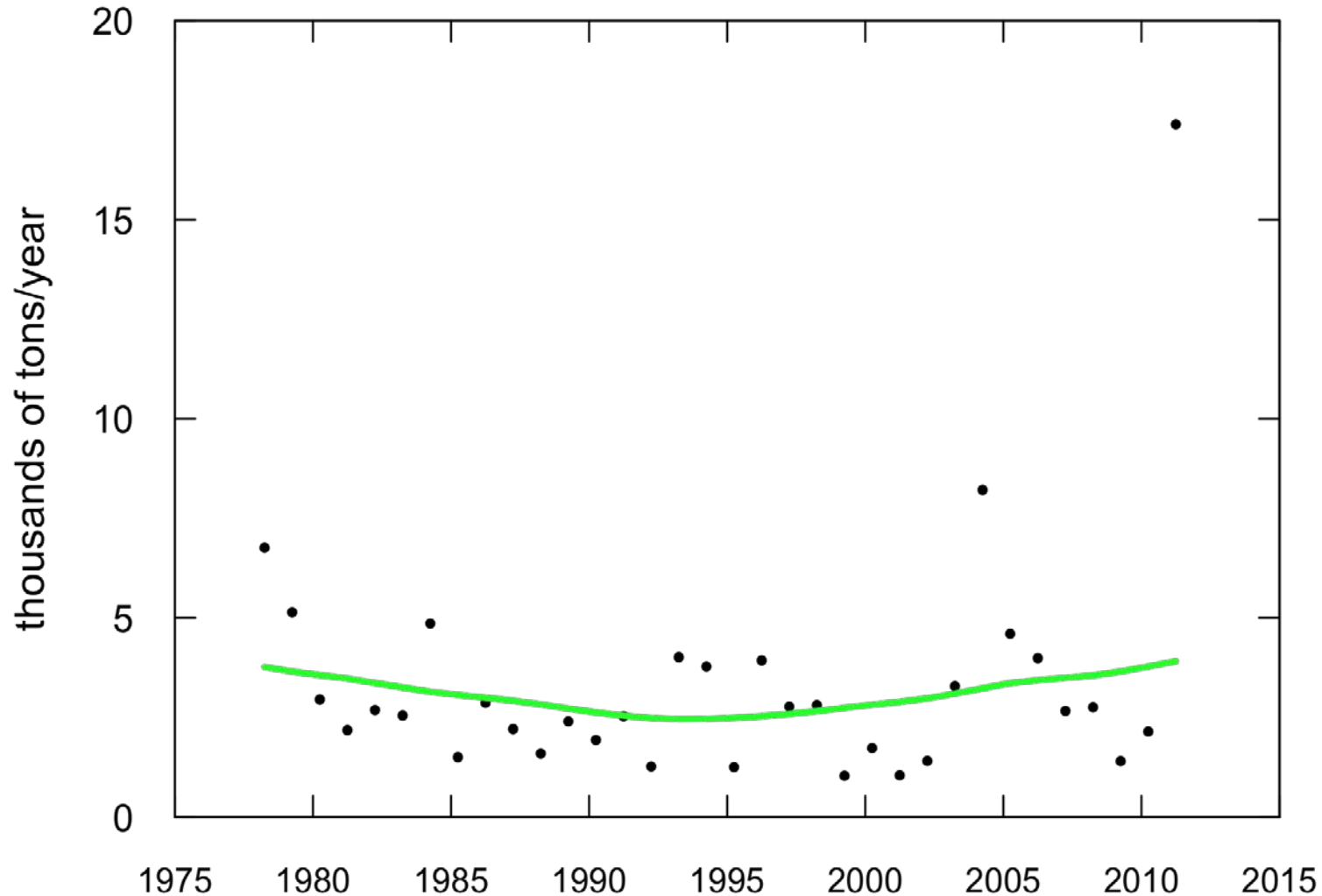
Source: Langland, 2009, USGS  
<http://pubs.usgs.gov/sir/2009/5110/>

# Annual Load of Phosphorus

(In  $10^3$  tons/yr)

Susquehanna River at Conowingo, MD Total Phosphorus  
Water Year

Flux Estimates (dots) & Flow Normalized Flux (line)



Flow  
Normalized  
Load  
Up 55%  
Since 1996

# Susquehanna loads to the Bay

	Change since 1996	Predicted change when reservoirs “filled”
<b>TN</b>	<b>-3%</b>	<b>+2%</b>
<b>TP</b>	<b>+55%</b>	<b>+70%</b>
<b>SS</b>	<b>+97%</b>	<b>+250%</b>

# Implications:

- As the reservoirs fill:
  - This leads to more frequent scour of sediment/TP
  - Less trapping of sediment and TP
- Increase in sediment and phosphorous loads
  - Nitrogen less effected
- Upstream practices to reduce P and sediment may be counter balanced by reservoir effects
- More difficult to achieve standards in upper Bay
  - Water clarity most impacted; less for DO

# Management Opportunities and Next Steps

- USACE-partner study on watershed options
- FERC relicensing
- 2017 Mid-Point Assessment of TMDL
- Upcoming USGS report on load trends
- More information on report: [chesapeake.usgs.gov](https://chesapeake.usgs.gov)