

# Overview of Stormwater Management in Virginia

Stuart McKenzie,  
NNPDC Environmental Planner



# Background

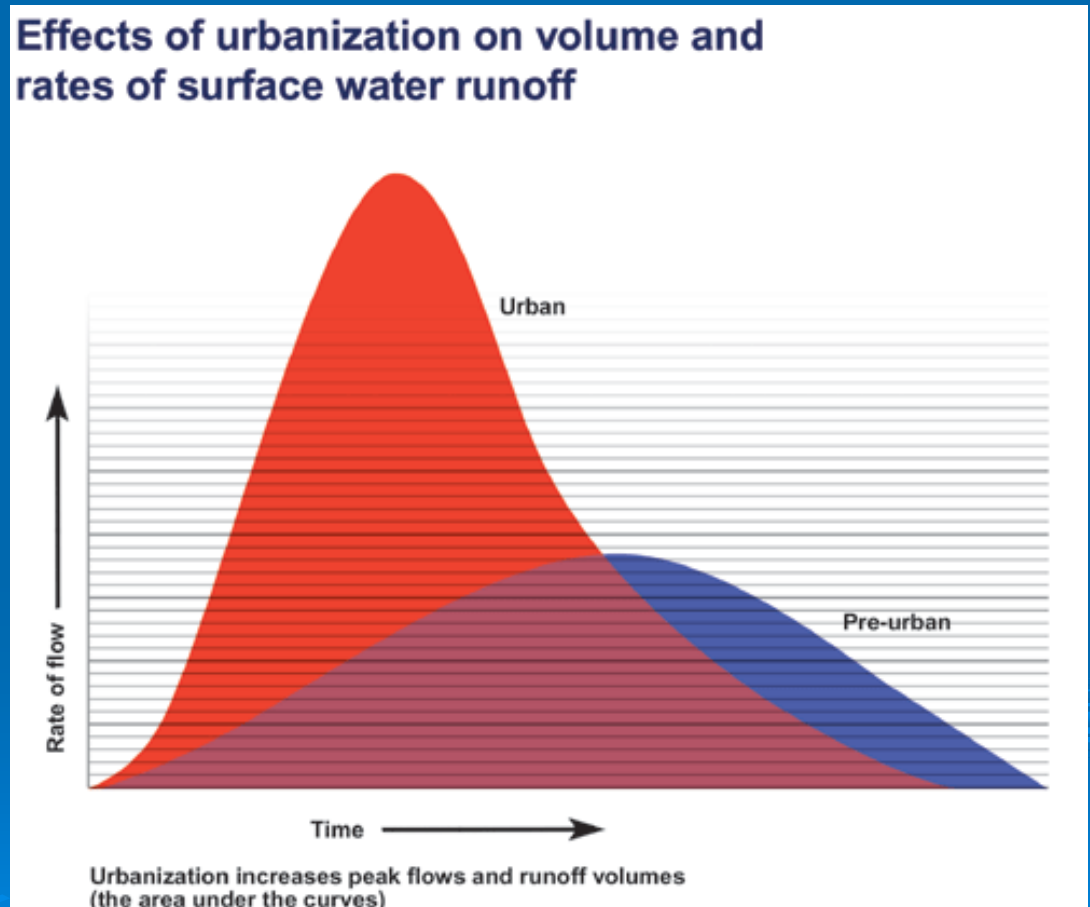
- In the 1950's into the 1960's stormwater management was not required by the State or Federal Government
- In the 1960's stormwater started to be managed in efforts to protect properties and roads from flooding, under the National Flood Insurance Act.

# Background (continued)

- The design philosophy during the 60's and 70's was to conduct stormwater off of a developed property as efficiently (fast) as possible
- Therefore developers graded developed lots to drain to the VDOT curb (or drainage ditch)
- No limits on impervious areas meant that during rain events large volumes of water were directed down stream channels

# Background (continued)

As you can see from the graph at the right, increased impervious area (urbanization) causes an increased rate of flow (velocity) and total volume of surface water runoff from rainstorms, as well as decreases the duration of surface runoff event.





# Downstream Erosion

With increased stormwater flow from impervious areas, erosion of existing channels is a real problem.



Photo from the Kilmarnock Watershed Assessment Report, 2013.



# Sediment and Siltation Problems

Downstream from the erosion, soil and silt are deposited. The finer sediments travel with the water into the Rappahannock River and Chesapeake Bay.



# Virginia Stormwater Management History

- In 1973, the Virginia Erosion and Sediment Control Law was passed. The law was passed “to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources.”
- In 1988, the Chesapeake Bay Preservation Act was passed with the purpose of protecting “the public interest in the Chesapeake Bay, its tributaries, and other state waters.” The Act contains local regulations that addressed stormwater from new development.

# Virginia Stormwater Management History (continued)

- In 2004, the Virginia General Assembly consolidated state stormwater programs within the Department of Conservation and Recreation (DCR), and directed DCR to update the stormwater regulations





# Chesapeake Bay Cleanup

- Throughout the 1980s and 1990s the Bay States voluntarily attempted to reduce pollution entering the Bay using Tributary Nutrient Reduction Strategies. While progress was made, the Chesapeake Bay remains impaired.
- In 2007, Virginia issued a \$250 million bond for upgrades to sewage treatment plants to reduce Nitrogen and Phosphorous entering the Bay.

# Chesapeake Bay Cleanup (continued)

- Agriculture, due to its large area of the Bay watershed, contributes a significant portion of nitrogen, phosphorous and sediment pollution
- Agriculture has adopted many Best Management Practices (BMPs) that substantially reduce pollution coming from farmlands. No-till agriculture, winter cover crops, buffer strips, contour cropping, split nitrogen application are some of the BMPs that help reduce pollution runoff.

# 1985 Virginia Bay Cleanup: Nitrogen 2009

## Virginia

Total 1985 Baseline  
for Nitrogen:

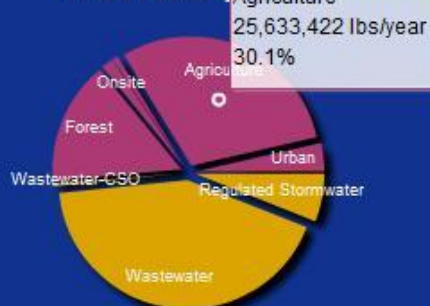
**85,028,256**  
lbs/year

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Total Nitrogen

1985 Baseline by



## Virginia

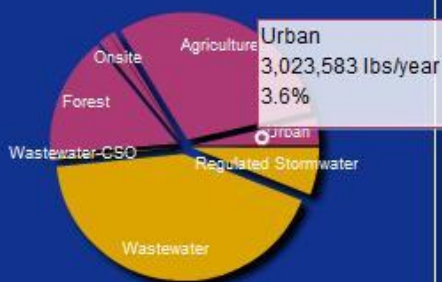
Total 1985 Baseline  
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Total Nitrogen  
1985 Baseline by Sector:



## Virginia

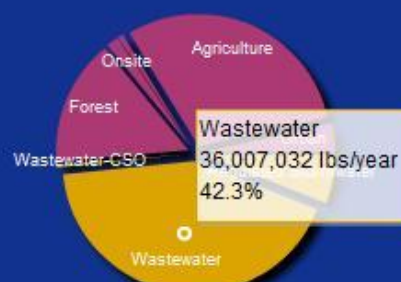
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Total Nitrogen  
1985 Baseline by Sector:



## Virginia

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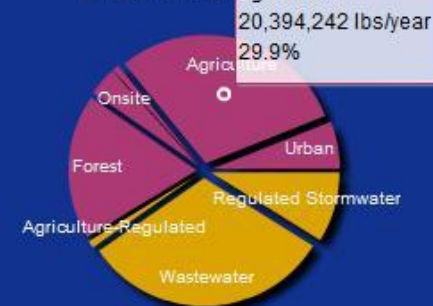
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Total Nitrogen

2009 Baseline by



## Virginia

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Total Nitrogen  
2009 Baseline by Sector:



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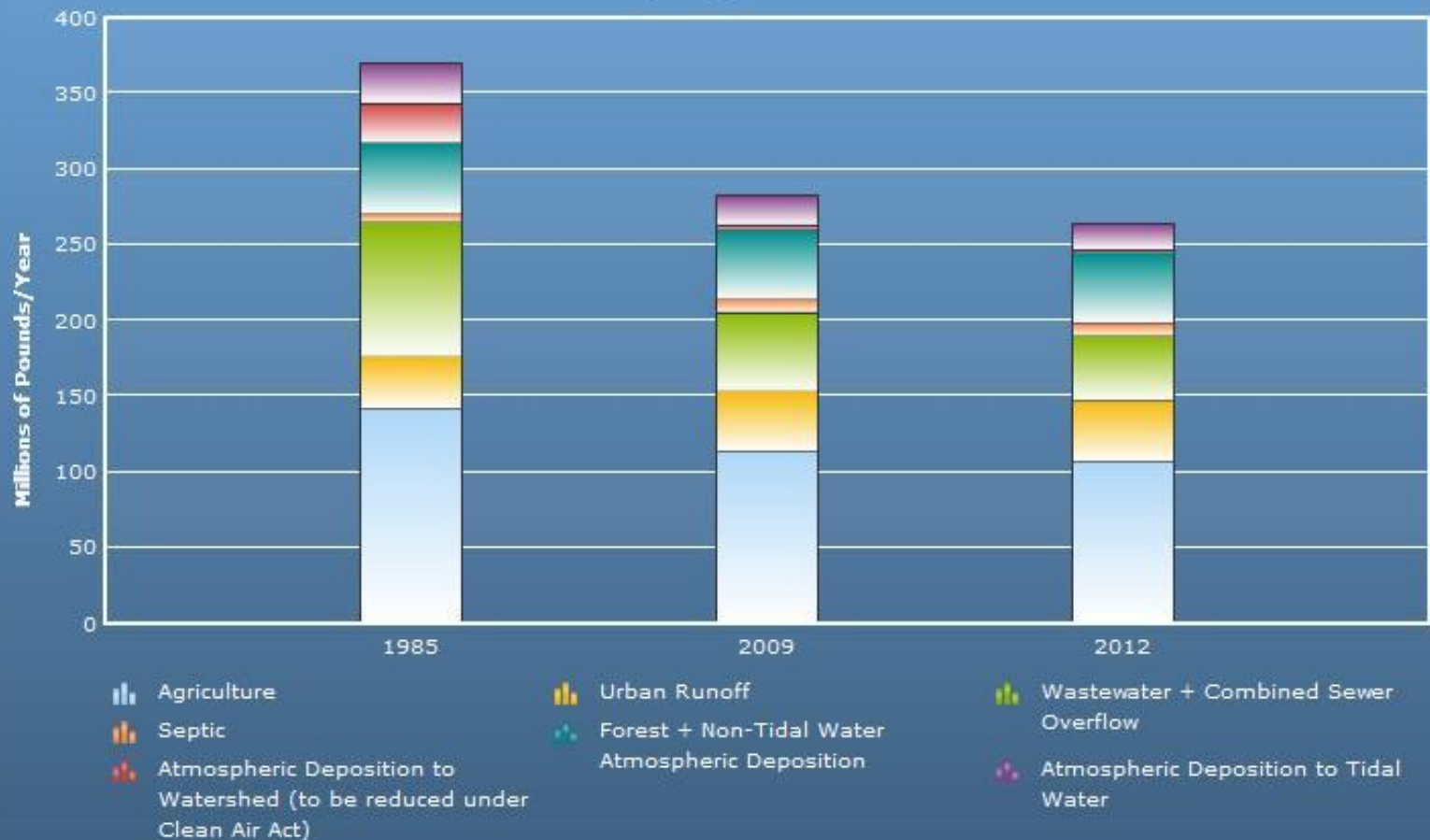
Total Nitrogen  
2009 Baseline by Sector:



# Chesapeake Bay Cleanup - Nitrogen

Nitrogen Loads to the Bay by Source\*

\*Loads simulated using 5.3.2 version of Watershed Model and wastewater discharge data reported by Bay jurisdictions.

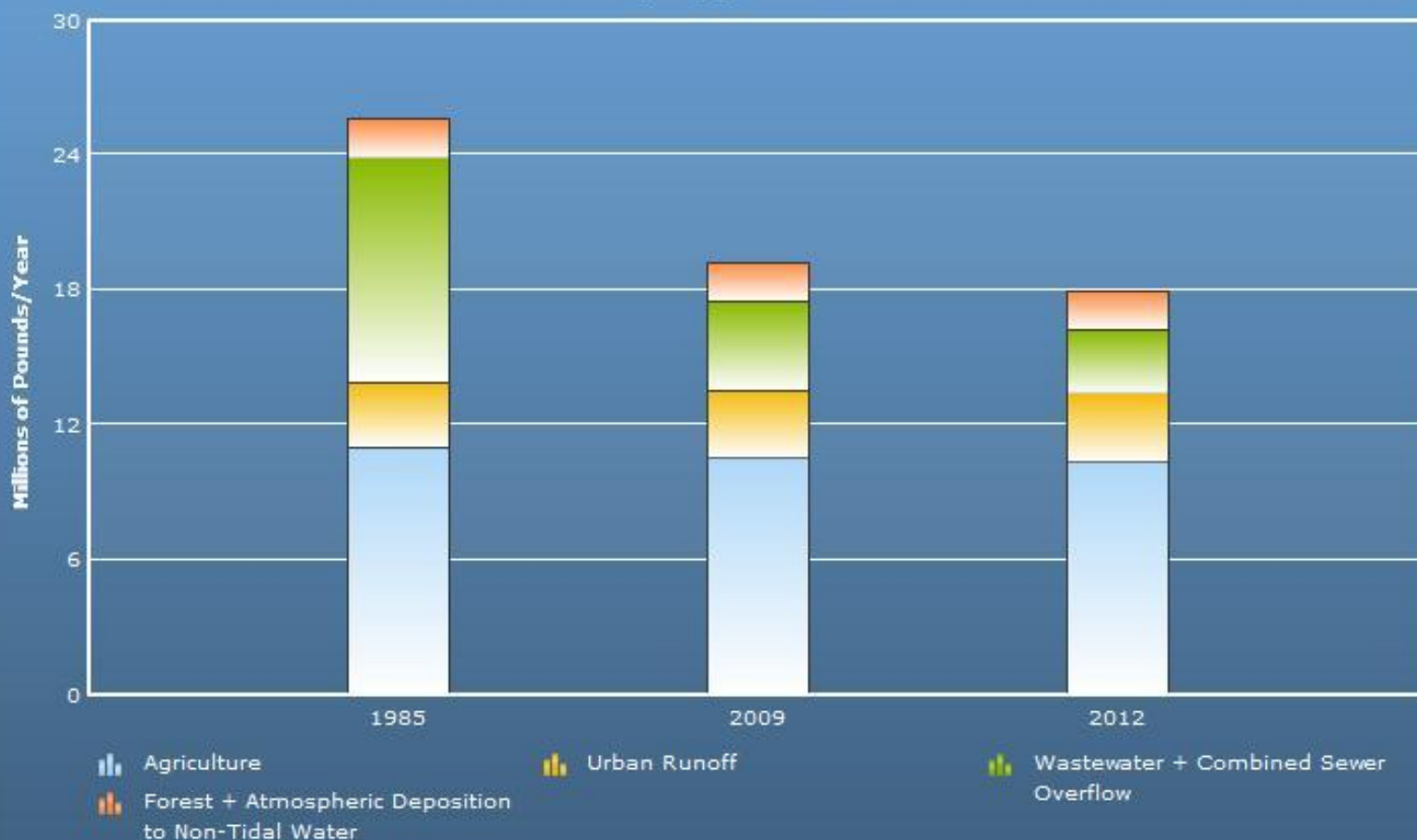




# Chesapeake Bay Cleanup - Phosphorous

Phosphorus Loads to the Bay by Source\*

\*Loads simulated using 5.3.2 version of Watershed Model and wastewater discharge data reported by Bay jurisdictions.



# Virginia Stormwater Management Recent History

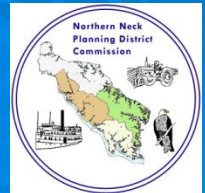
- On September 24, 2008, the Virginia Soil and Water Conservation Board (VSWCB) passed newly revised stormwater regulations
- On December 9, 2009, the new regulations were suspended because of public comments (over 3,700 received)
- On May 24, 2011, the final revised stormwater regulations were approved.

# Virginia Stormwater Management Recent History (continued)

- In 2012, the Virginia General Assembly passed House Bill 1065, called the Integration Bill, that moved stormwater regulation from DCR to the Department of Environmental Quality (DEQ) and required counties to adopt and administer a local Virginia Stormwater Management Program (VSMP), under DEQ authority.

# NNPDC Regional Stormwater Grant Assistance

- The four NNK counties chose to work regionally on implementing the new stormwater regulation
- The NNPDC applied for and received a grant from DCR to assist the four counties in implementing the new stormwater rules
- Through this grant each locality received funding to draft the local VSMP ordinance, buy needed equipment and pay for VSMP training and certification for county staff persons





# VSMP Authority Option

- In the 2014 Virginia General Assembly session, HB1173 passed that gives counties the choice of opting out of administering the VSMP Program. If counties opt out, then DEQ would administer the VSMP program for that county (as they currently do now).
- None of the Northern Neck Counties have decided on whether they are going to administer the VSMP or not at this time. Stay tuned.

# Questions?

Stuart McKenzie

Environmental Planner

Northern Neck Planning District Commission

Phone: 804-333-1900 x 25

Email: [smckenzie@nnpdc17.state.va.us](mailto:smckenzie@nnpdc17.state.va.us)

