



# **Progress Toward the Chesapeake Bay Watershed Agreement**

A Presentation at the Principals' Staff Committee Meeting | March 1, 2017

**Hello!**

**I'm Laura Free**  
Indicators Coordinator  
U.S. Environmental Protection  
Agency

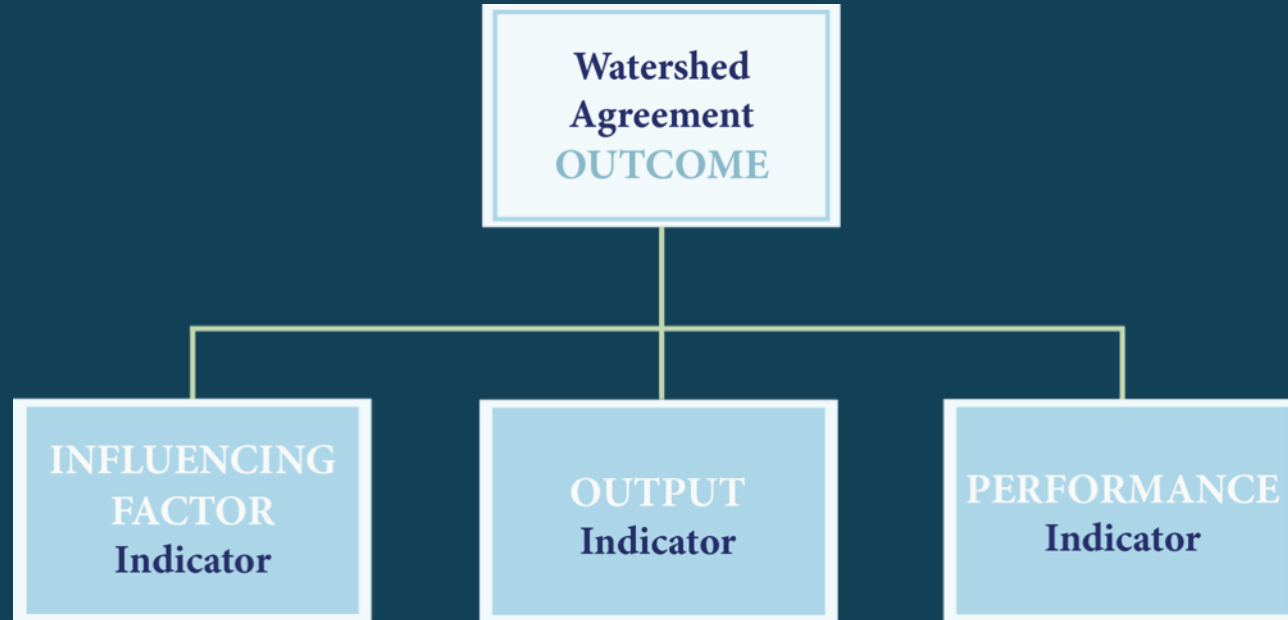


**... and Welcome!**

**I'm Catherine Krikstan**  
Web Content Strategist  
University of Maryland Center for  
Environmental Science



**How do we track progress toward the**  
***Chesapeake Bay Watershed***  
***Agreement?***



# Indicators Framework

**How do we track progress in the  
context of the Biennial Strategy  
Review System?**



## **Quarterly Review Themes**

**Healthy Watersheds**  
**Aquatic Life**  
**Water Quality**  
**A Culture of Stewardship**  
**Next-generation Stewards**  
**Climate Change and Resiliency**  
**Local Action**



**Caution: Progress taking place!**



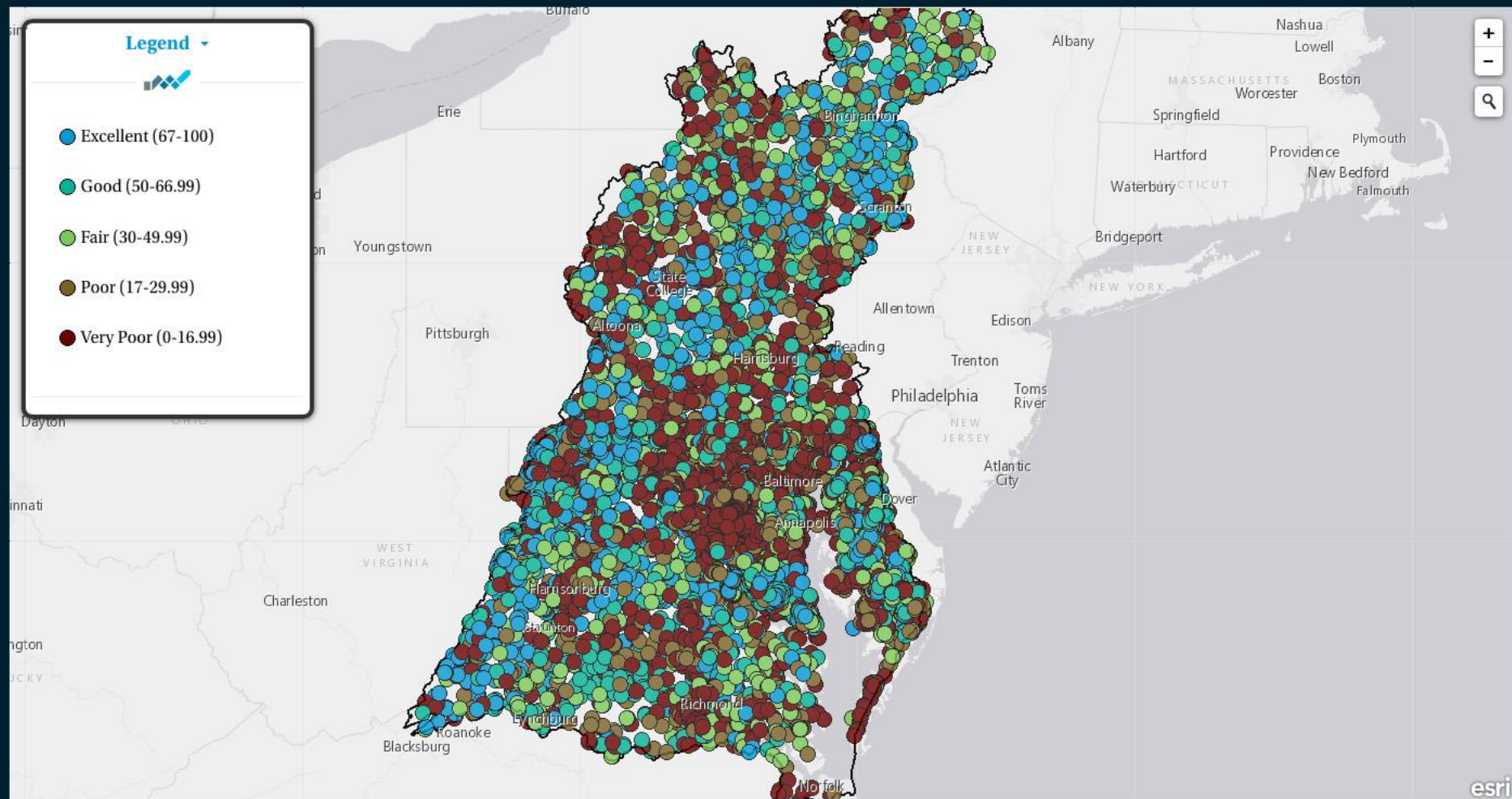


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# **Healthy Watersheds**

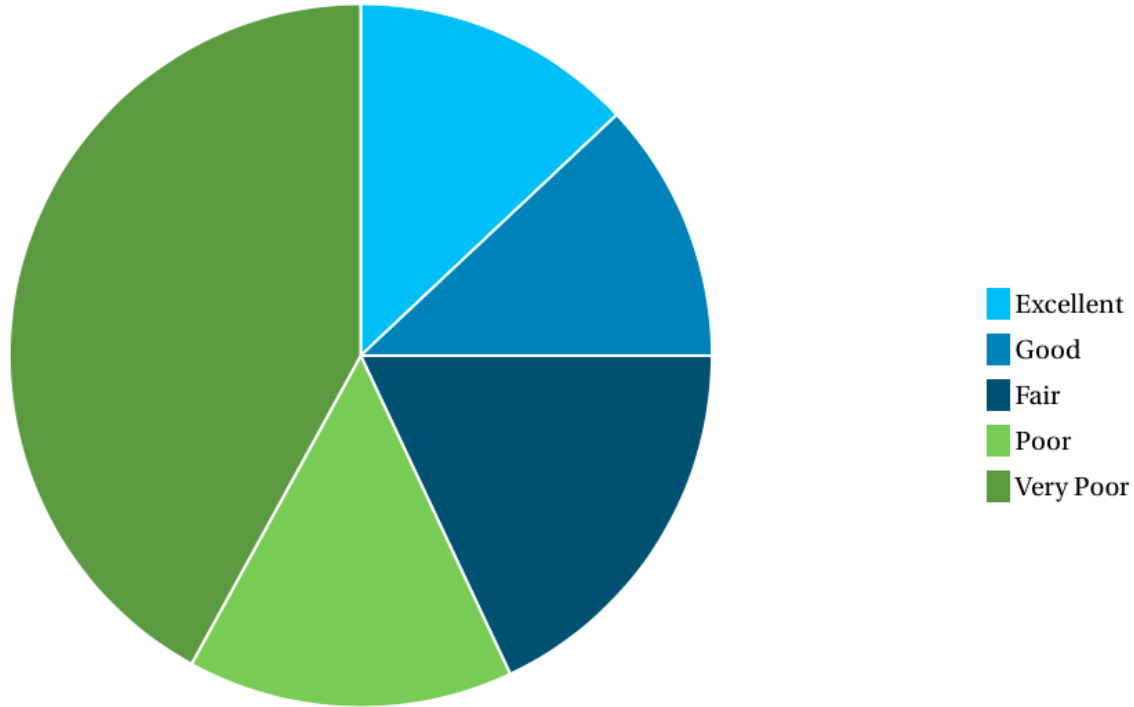


# Stream Health: Average Indicator of Biotic Integrity Ratings of 10,000+ Sampling Sites (2000-2010)



# Stream Health, 2000-2010

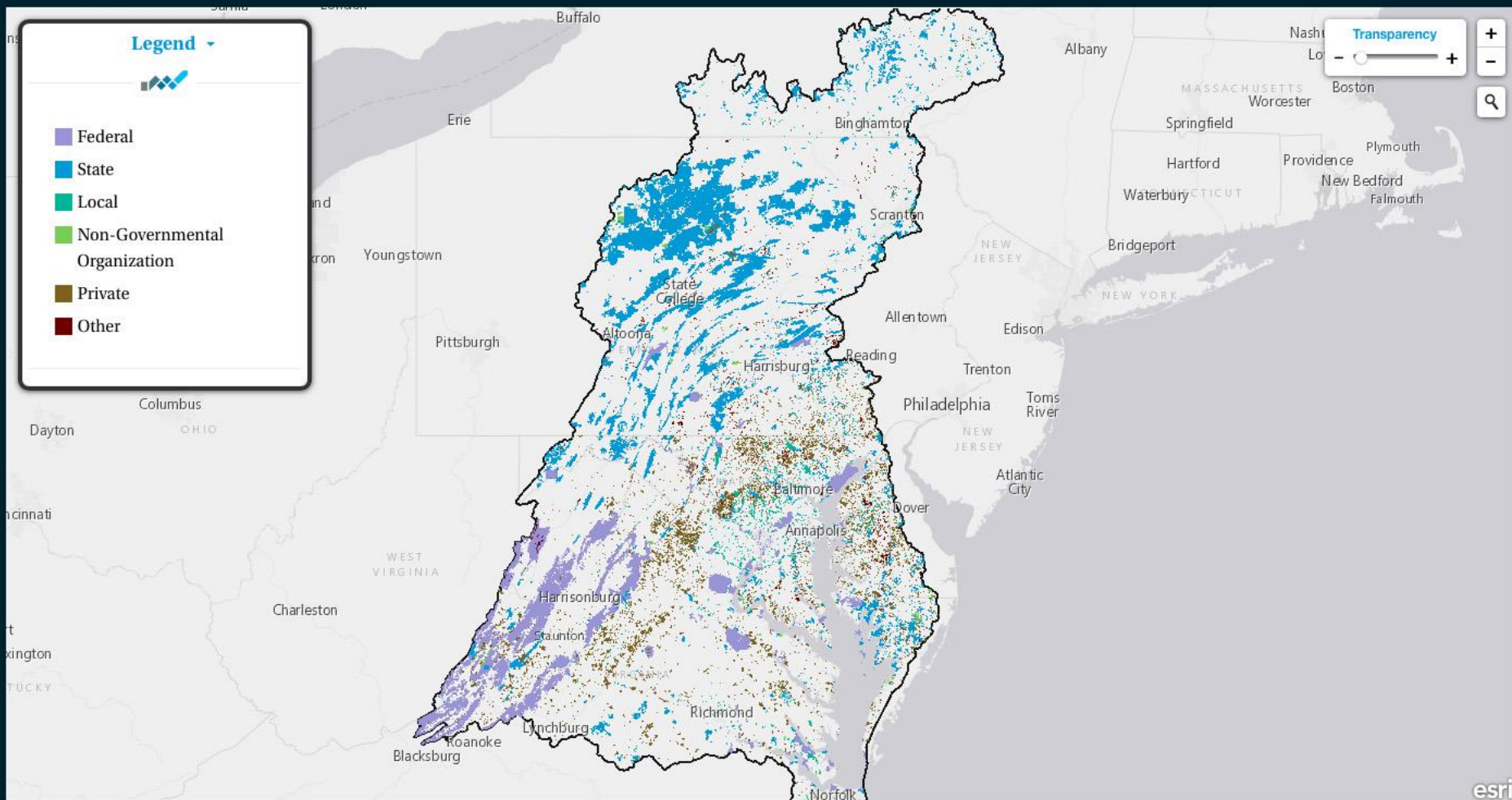
Average Indicator of Biotic Integrity Ratings of 10,000+ Sampling Sites



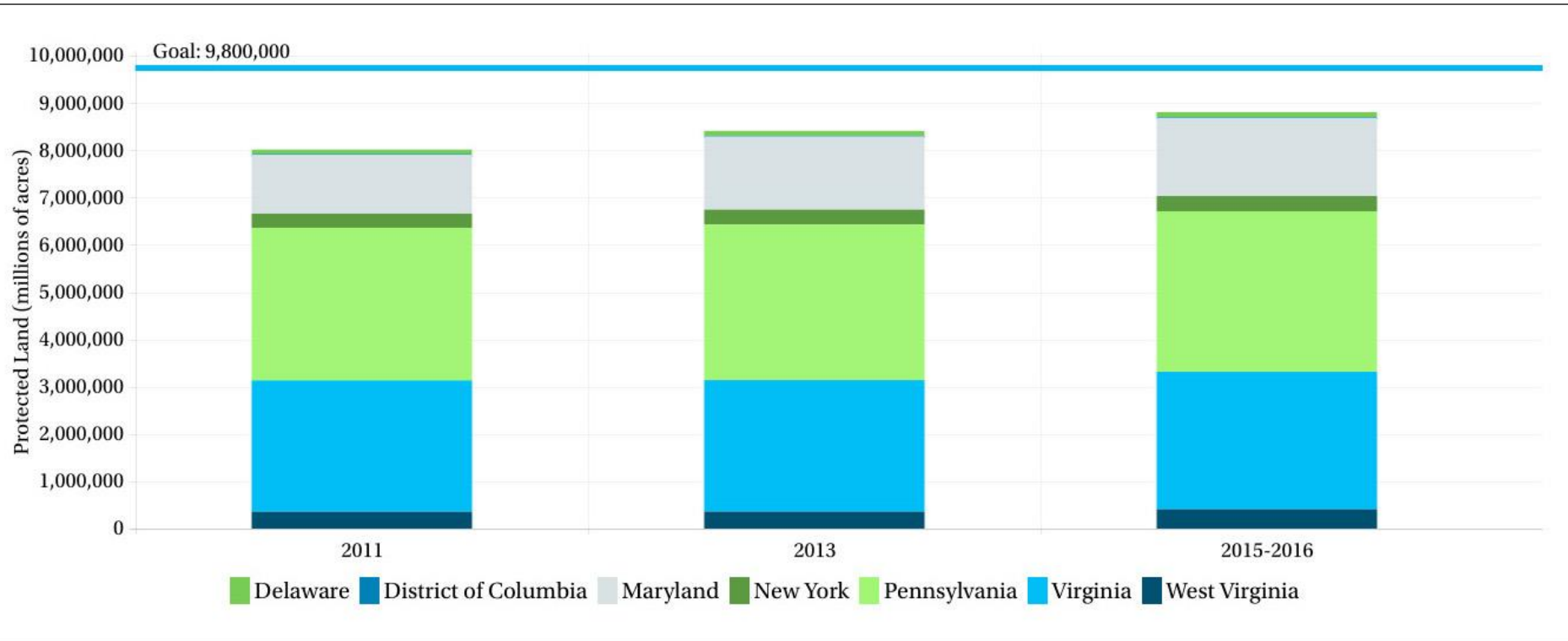




# Protected Lands (2015-2016)



# Protected Lands (By Jurisdiction), 2011-2015/2016

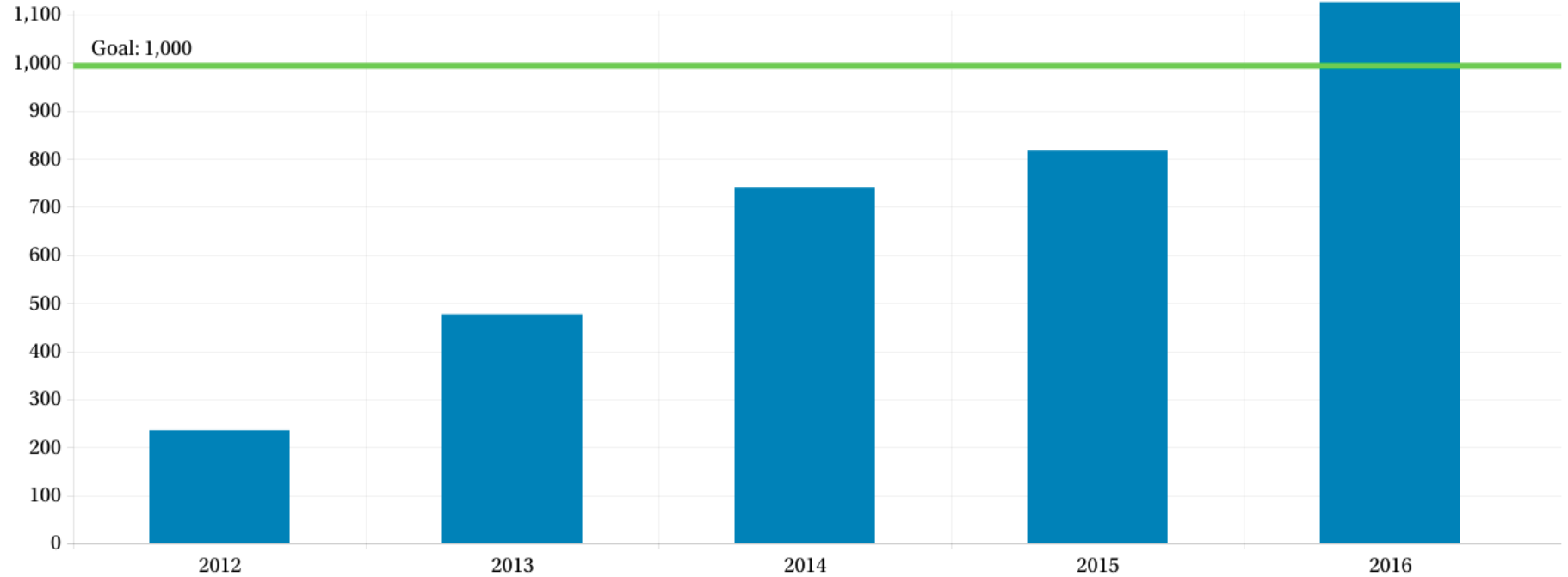








# Stream Miles Opened to Fish Passage (Cumulative), 2012-2016





## Key Factors

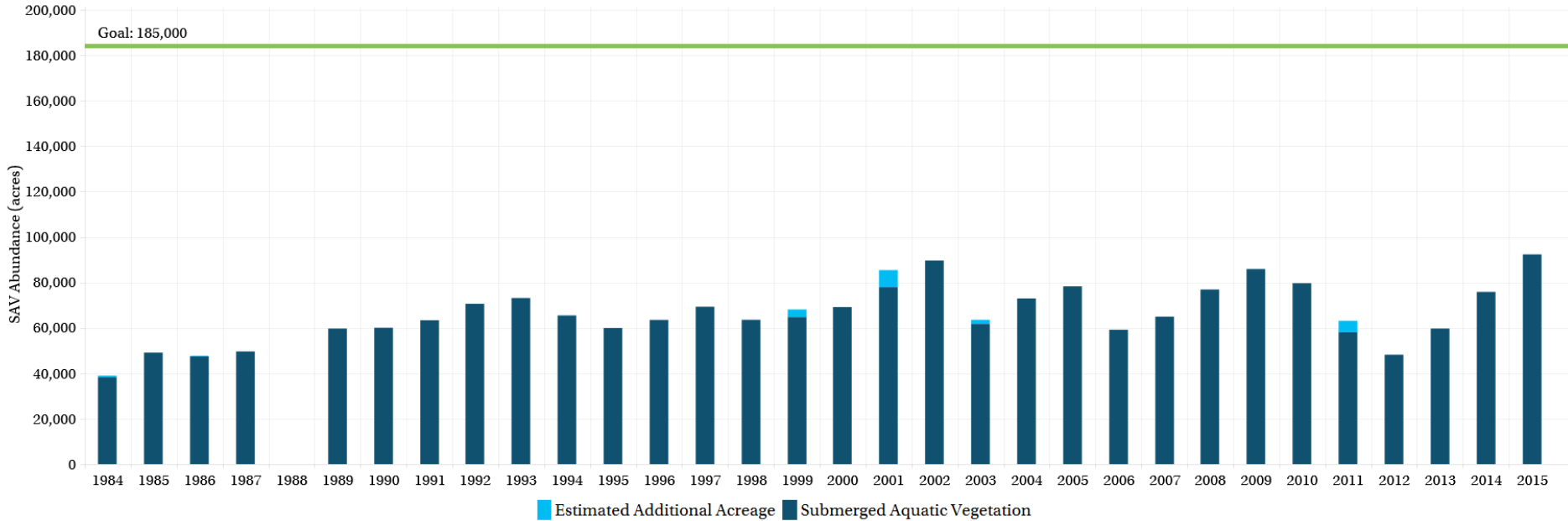
- Land use, ownership and management
- Political and public support, action and engagement
- Scientific knowledge

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# **Aquatic Life**



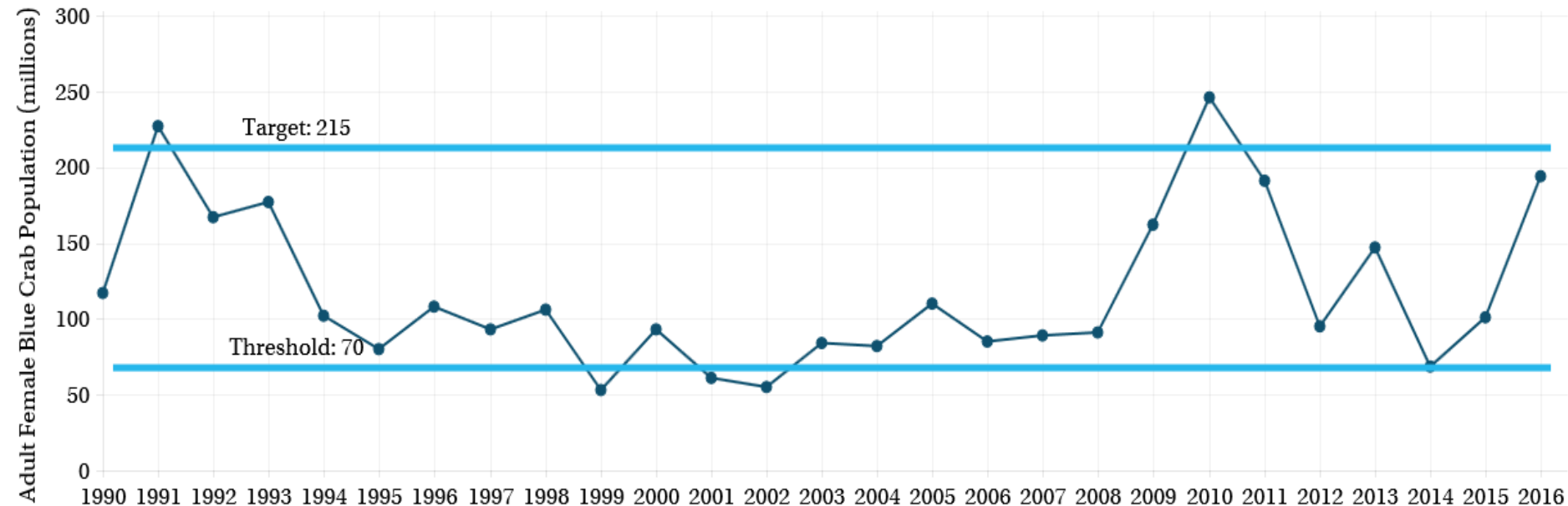
# Submerged Aquatic Vegetation (SAV) Abundance, 1984-2015







# Adult Female Blue Crab Abundance, 1990-2016





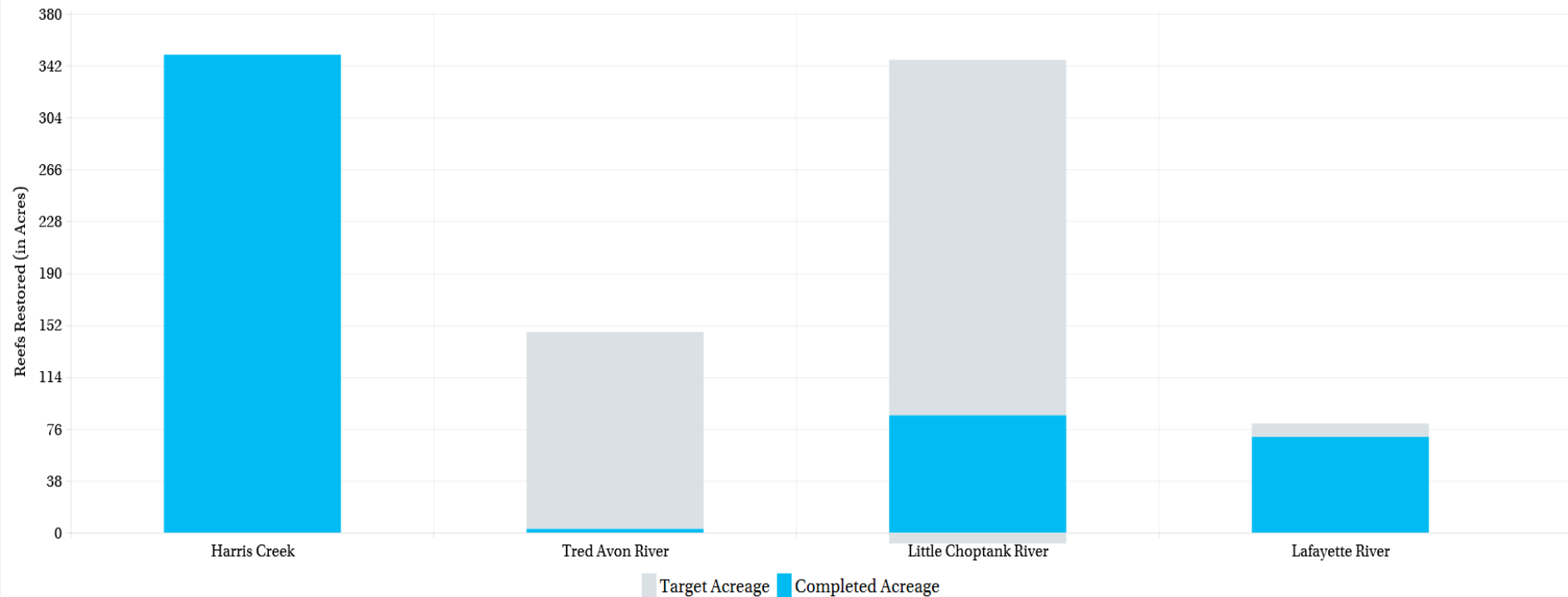


# Oyster Reef Restoration Progress Dashboard

Tributary	Tributary Restoration Plan	Reef Construction & Seeding	Monitoring & Evaluation	Completed/Target Acreage (2015)
Harris Creek (Md.)	Complete	Complete	In Progress	350/350
Tred Avon (Md.)	Complete	In Progress		2.6/147
Little Choptank (Md.)	Complete	In Progress		85.8/440
Piankatank (Va.)	In Progress	In Progress		211/TBD
Lynnhaven (Va.)	In Progress	In Progress		63/TBD
Lafayette (Va.)	In Progress	In Progress		70/80

# Oyster Restoration, 2015

Individual acreage targets are based on a tributary's historic oyster habitat and currently restorable area. The Lynnhaven and Piankatank rivers will be added to this chart once their target acreages are established.



## Key Factors

- Land use
- Harvest
- Water quality
- Weather patterns



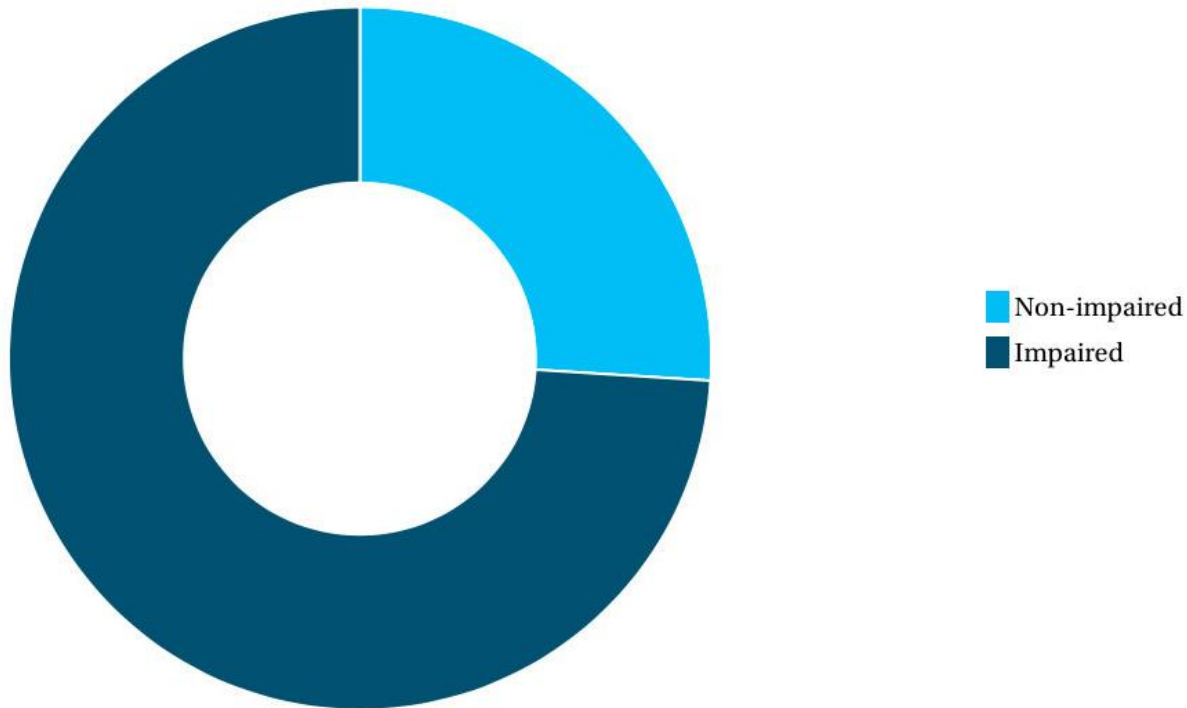
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# Water Quality



# Tidal Waters Impaired by Toxic Contaminants, 2012

Percentage of Tidal Tributaries with Partial or Full Impairments Due to Chemical Contaminants











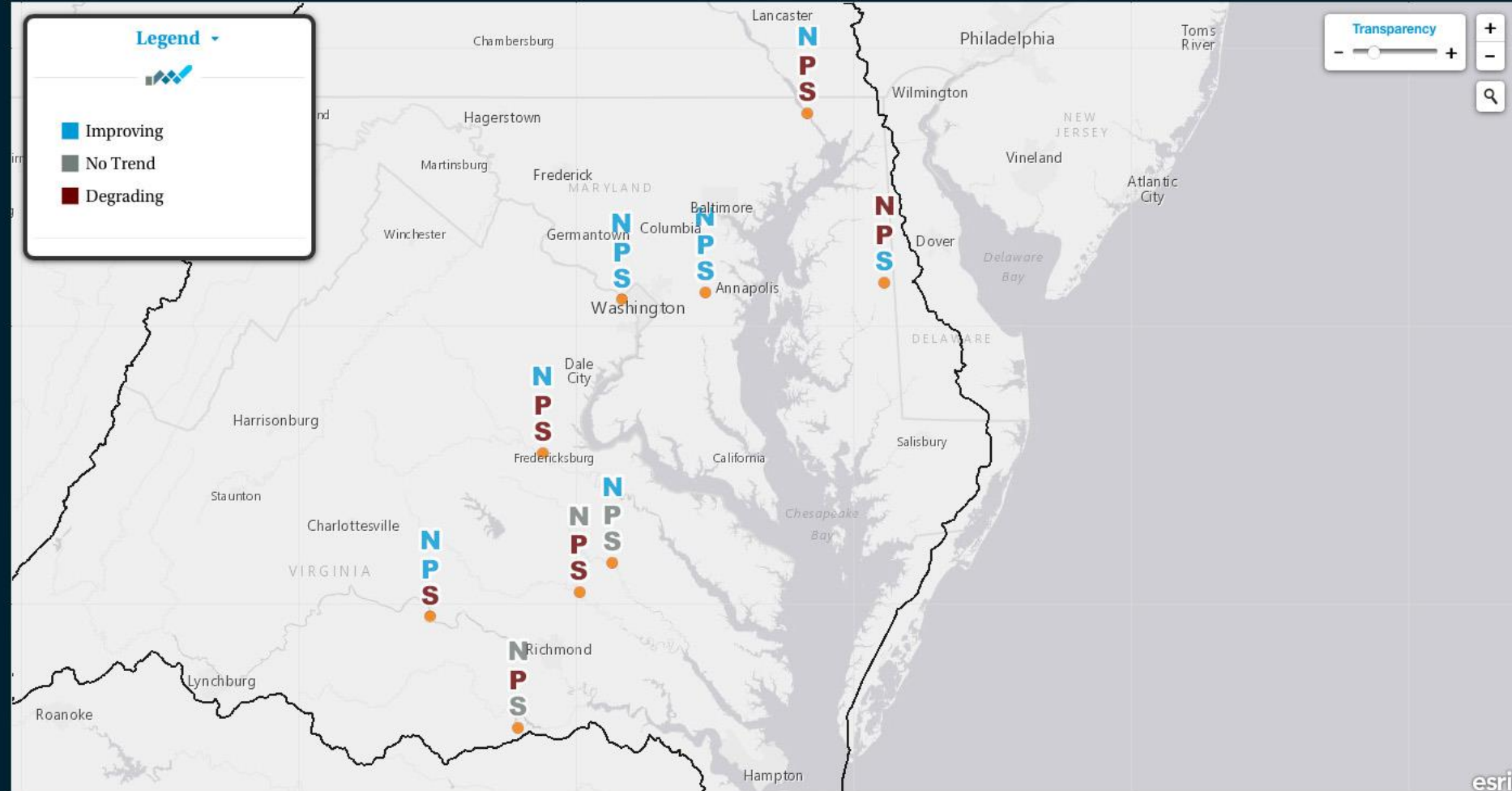
# Monitoring data show:

↓ 25%  
**Nitrogen**

↓ 44%  
**Phosphorus**

↓ 59%  
**Sediment**

# Long-Term Trends in Nitrogen, Phosphorus and Sediment Loads (2015)







# Watershed Model data show:

↓ 8%  
**Nitrogen**

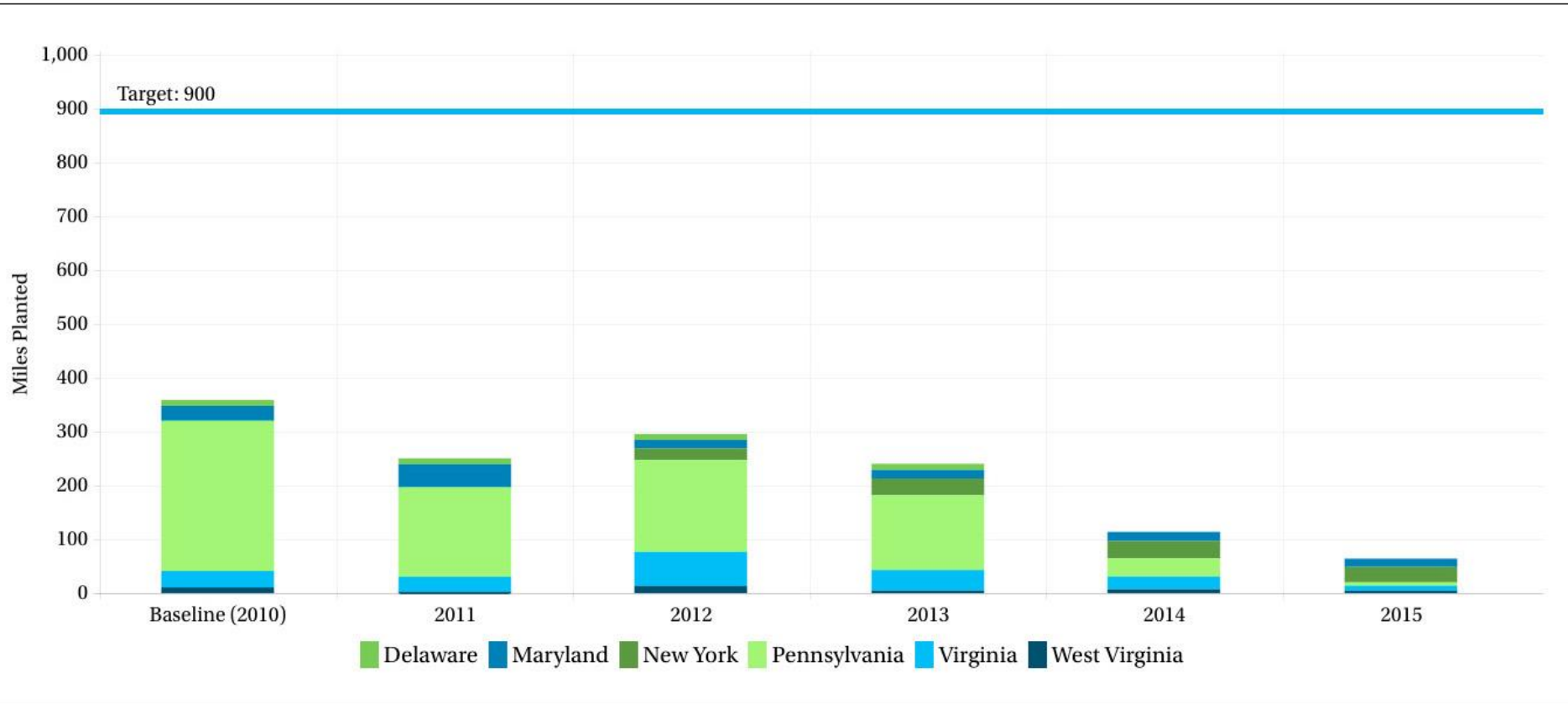
↓ 20%  
**Phosphorus**

↓ 7%  
**Sediment**





# Forest Buffers Planted (Annually), 2010-2015

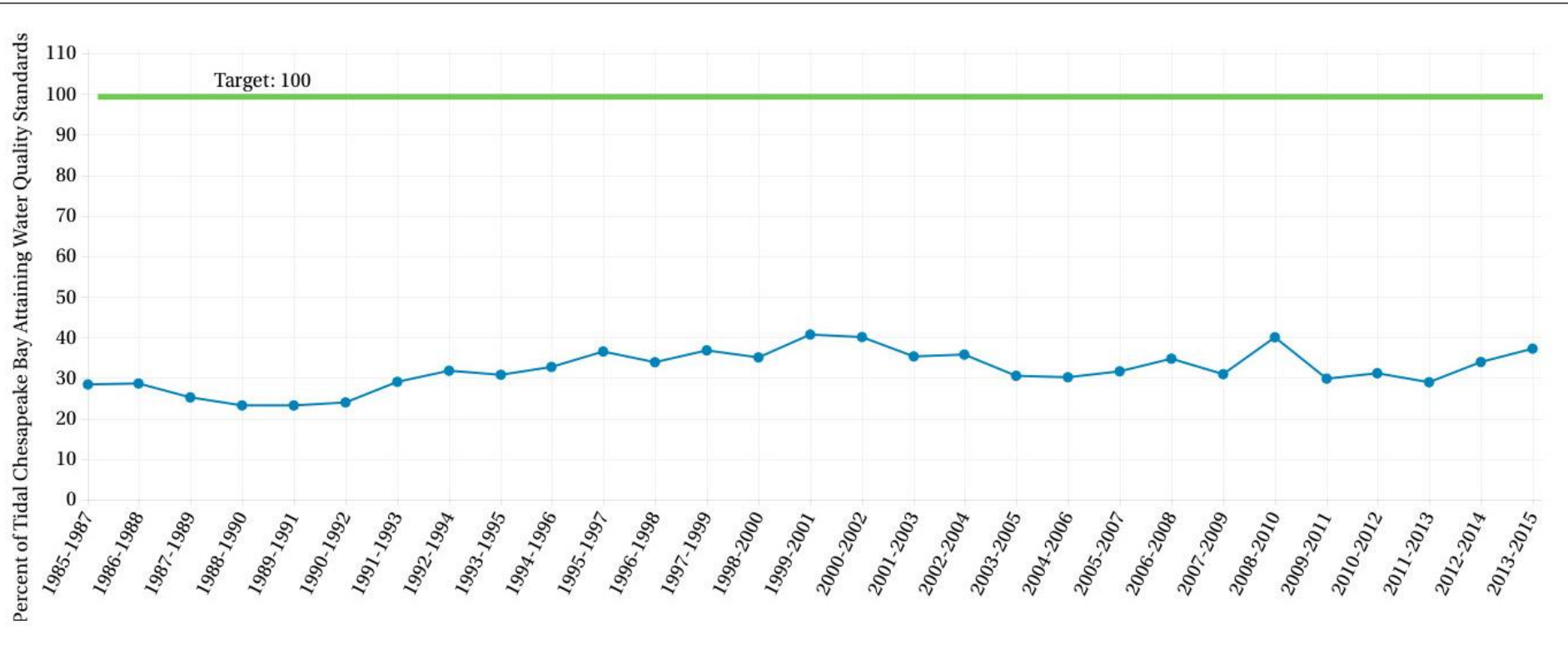








# Water Quality Standards Attainment, 1985-2015



## Key Factors

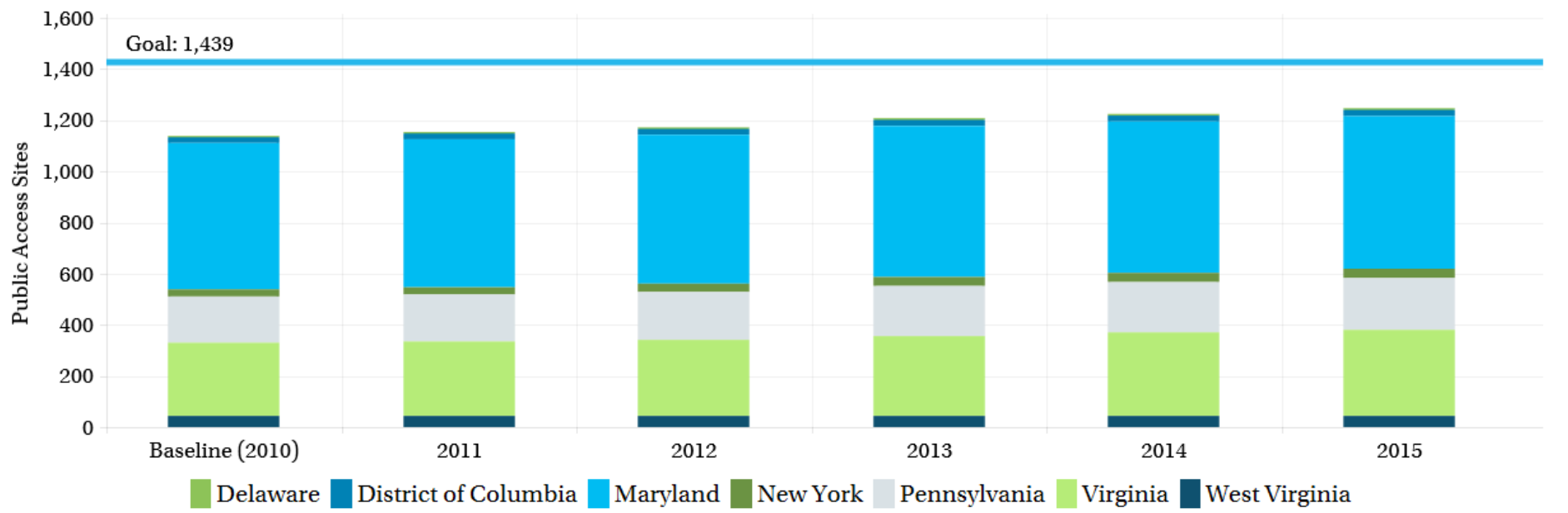
- Land use
- Development
- Federal, state and local capacity
- Data and information
- Understanding of ecosystem response

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## **A Culture of Stewardship**



# Public Access Sites in the Chesapeake Bay Watershed, 2010-2015



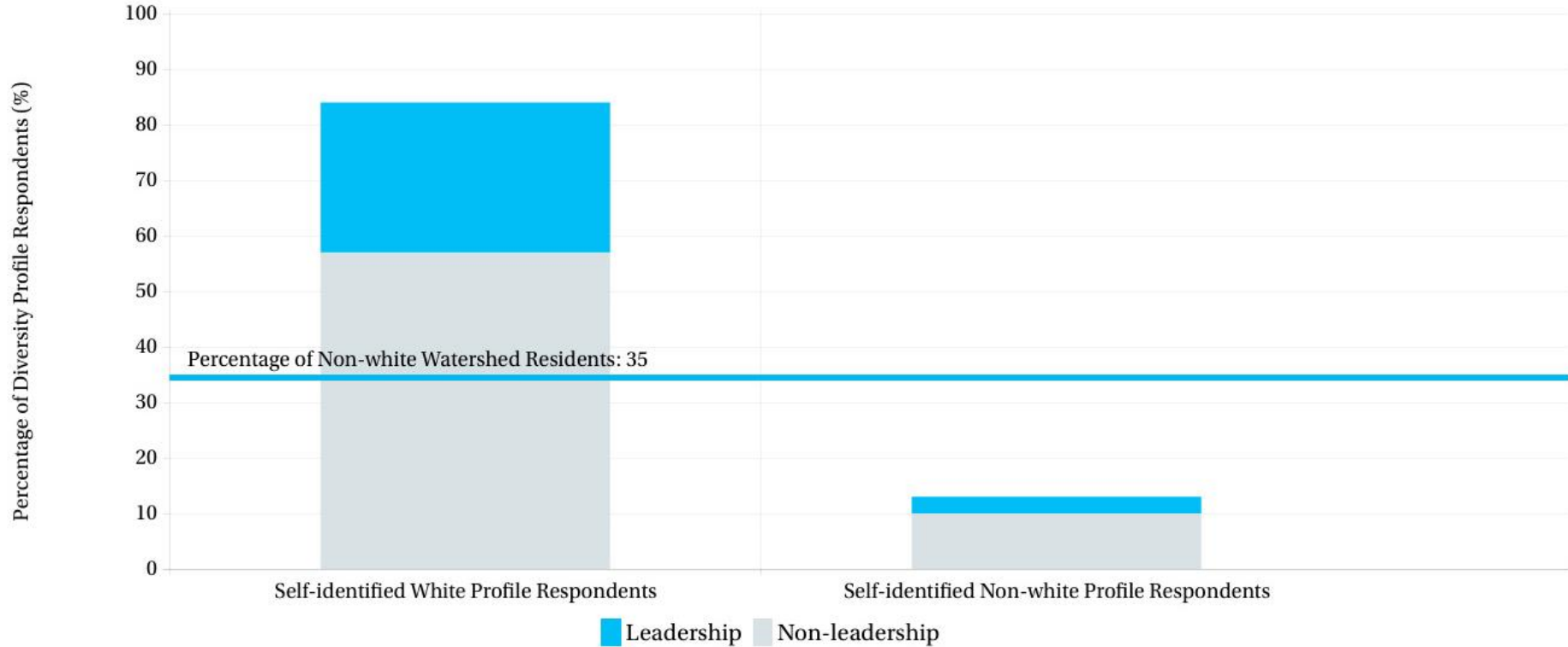








# Chesapeake Bay Program Diversity Profile, 2016



## **Key Factors**

- Public outreach
- Local government capacity
- Public opinion and attitudes





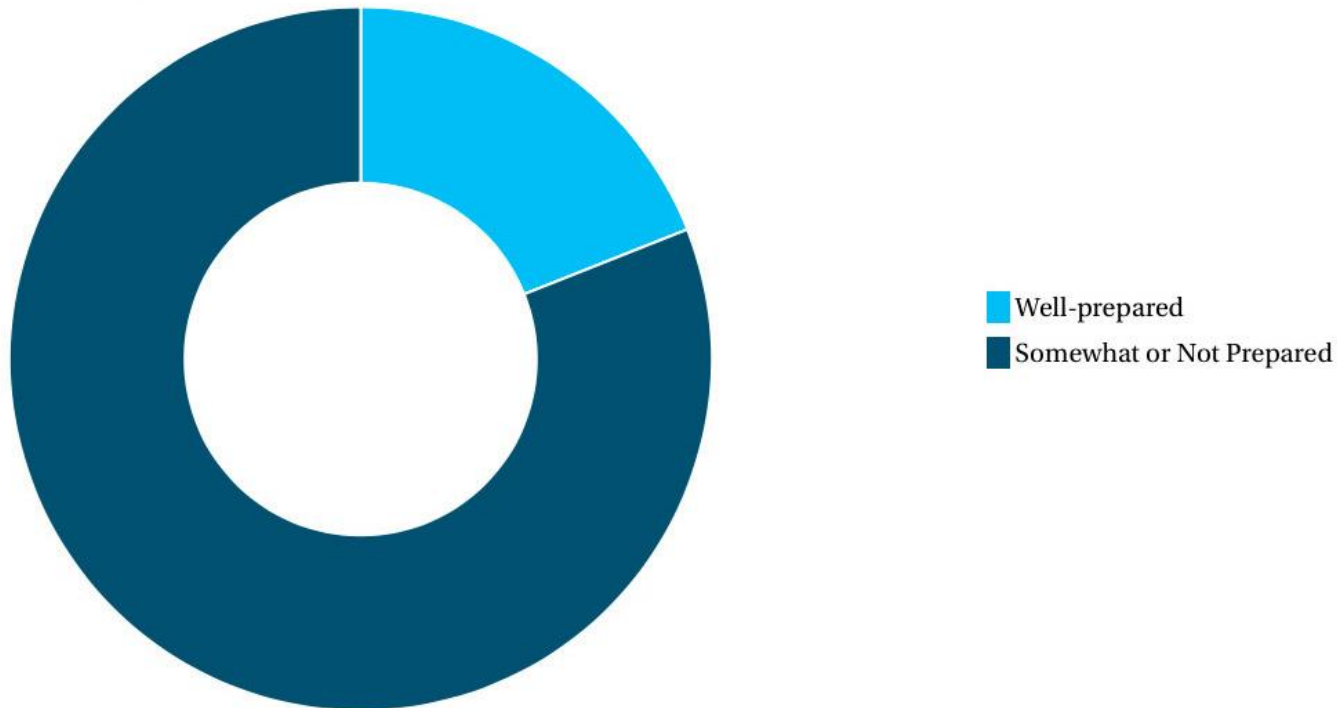
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# **Next-generation Stewards**



# Environmental Literacy Preparedness in the Chesapeake Bay Watershed, 2015

Reporting Local Education Agencies' Preparedness to Implement Environmental Education Programs (Percentage)



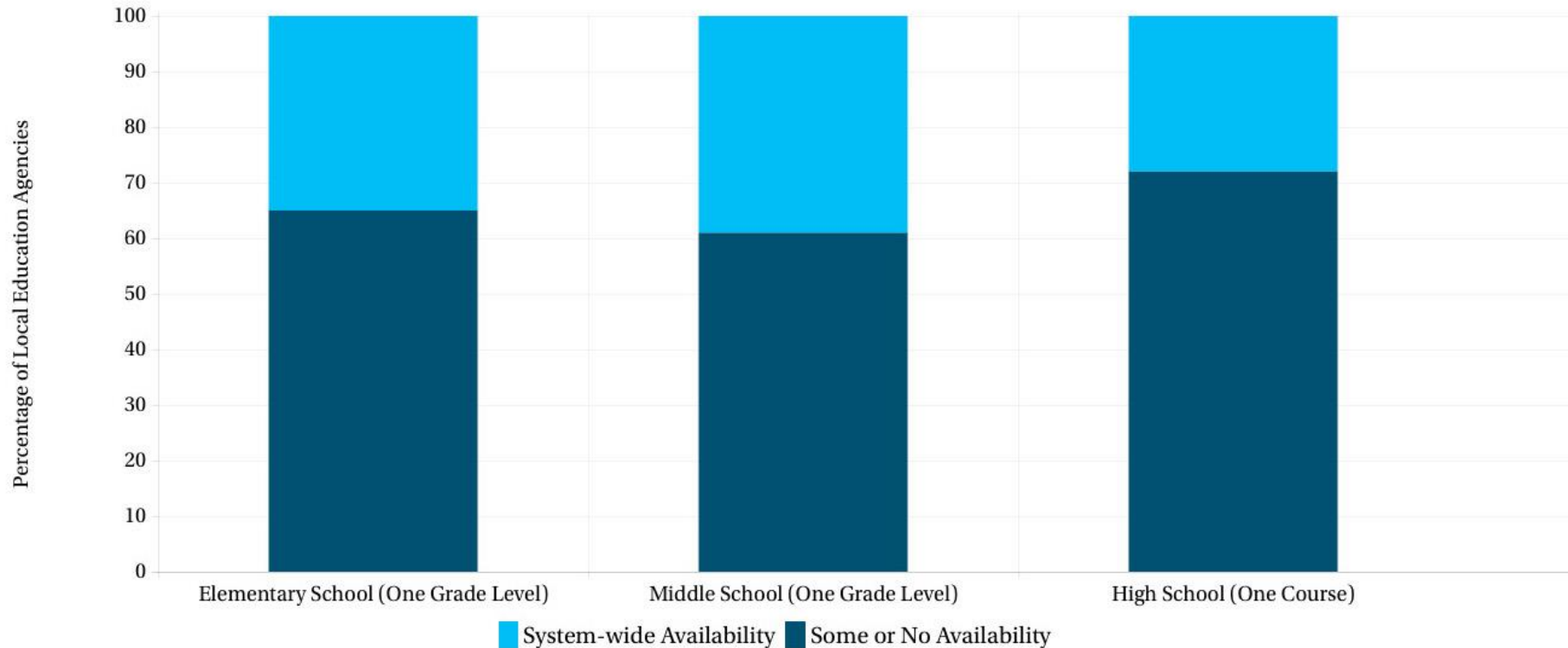






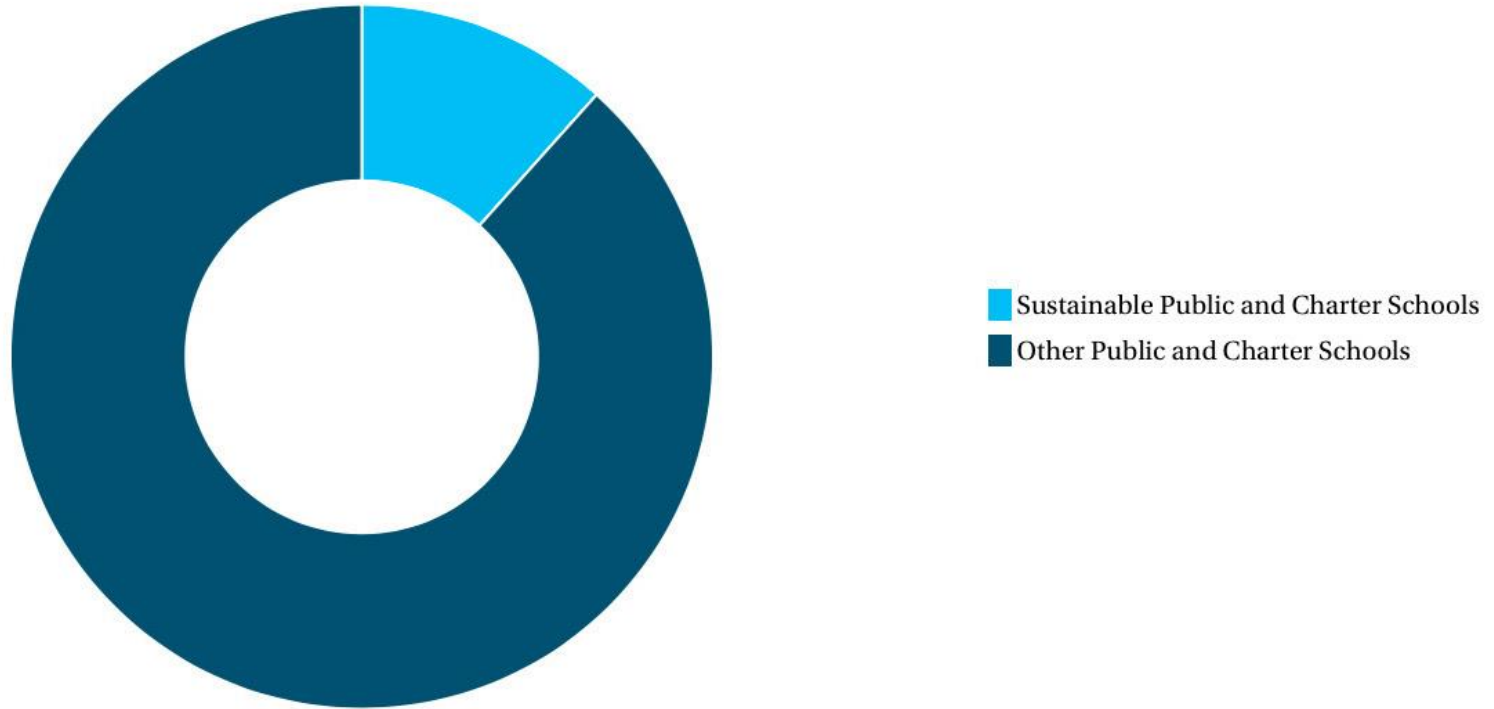
# Meaningful Watershed Educational Experience Availability in the Chesapeake Bay Watershed, 2015

Reporting Local Education Agencies' Rate of Meaningful Watershed Environmental Experience (MWEE) Availability (Percentage)

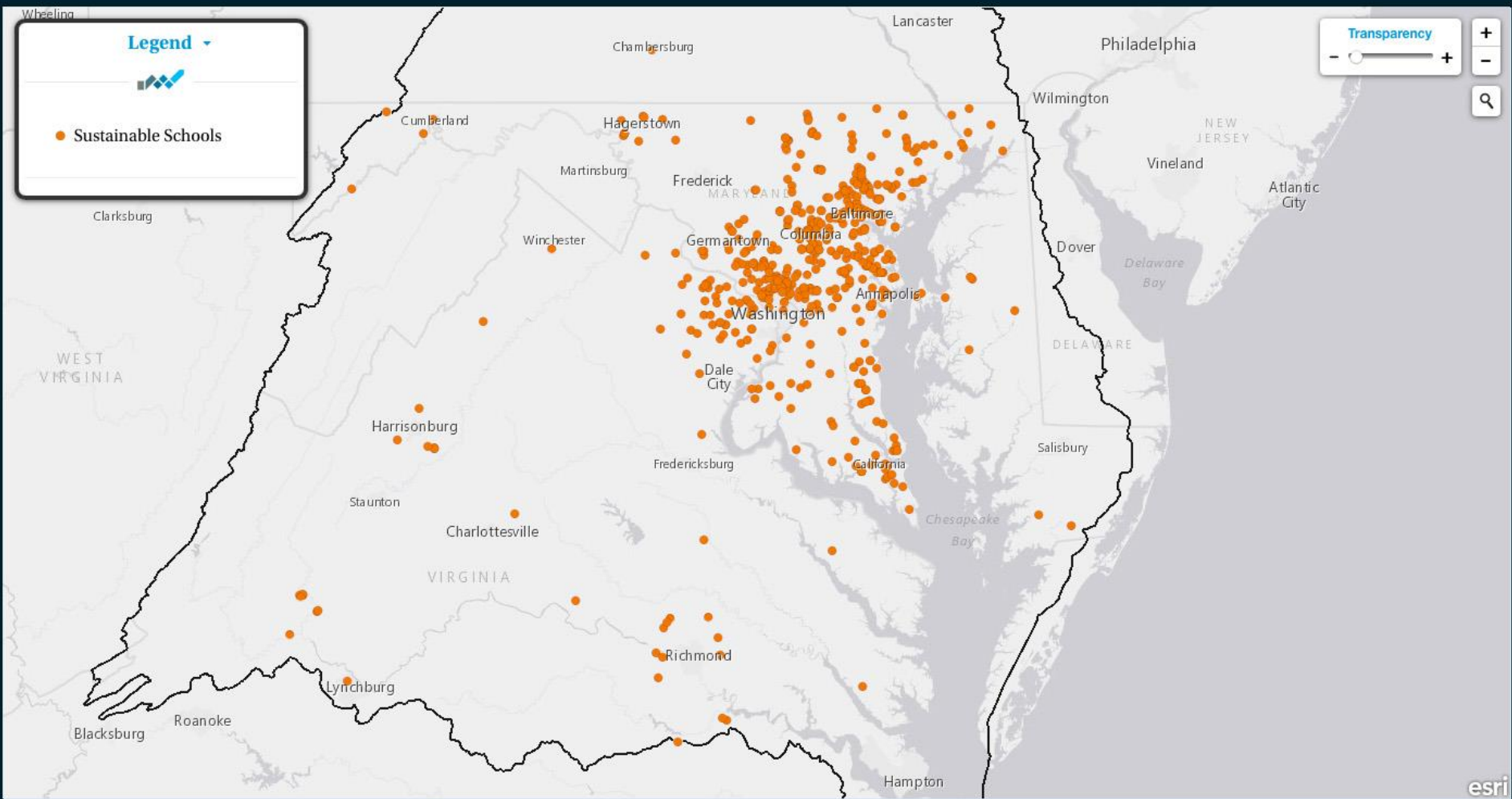




# Certified Sustainable Schools in the Chesapeake Bay Watershed, 2015



# Certified Sustainable Schools in the Chesapeake Bay Watershed (2015)





## Key Factors

- National education reform
- State and local support
- Stakeholder representation
- Cultural connections with nature

**What's next?**

## Quarterly Review Sessions

- Review progress
- Identify what's working (and what's not)
- Discuss scientific, fiscal and policy developments
- Recognize the need to adapt

# Thanks!

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