



Progress Toward the Chesapeake Bay Watershed Agreement

A Presentation at the Biennial Strategy Review System Meeting | February 8, 2017

Hello!

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

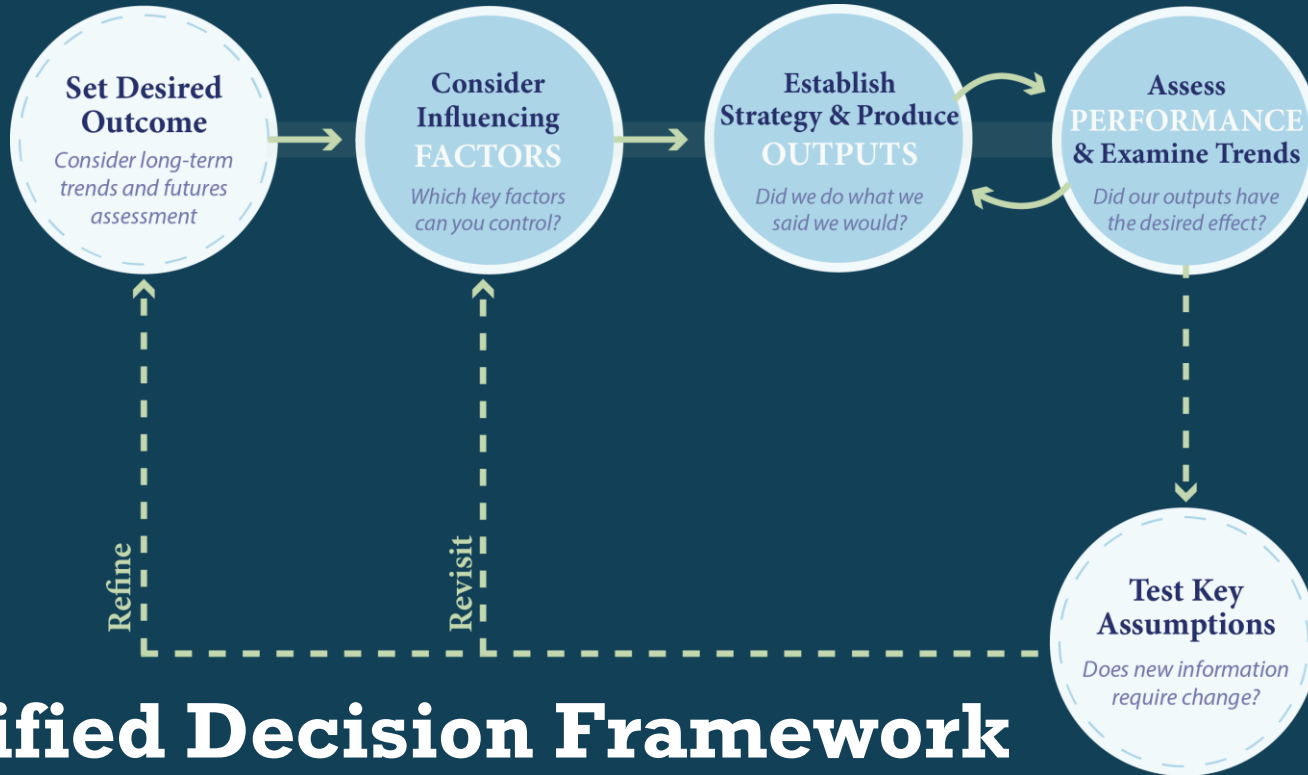


... and Welcome!

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



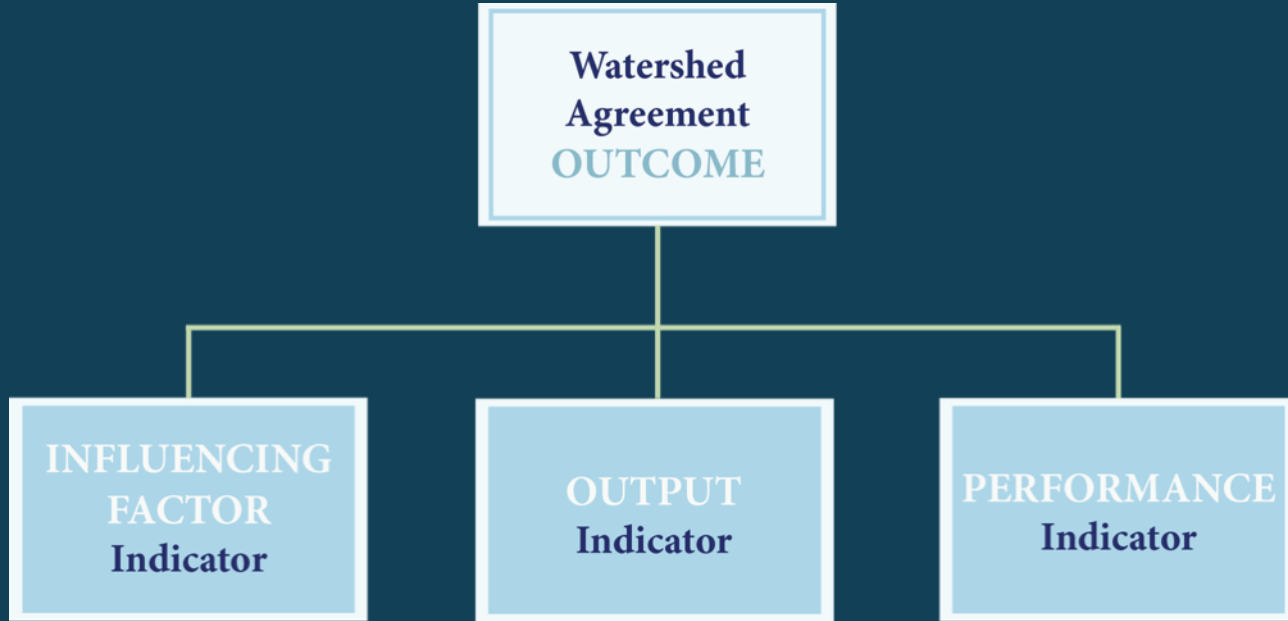
**How do we track progress toward the
*Chesapeake Bay Watershed
Agreement?***



Simplified Decision Framework

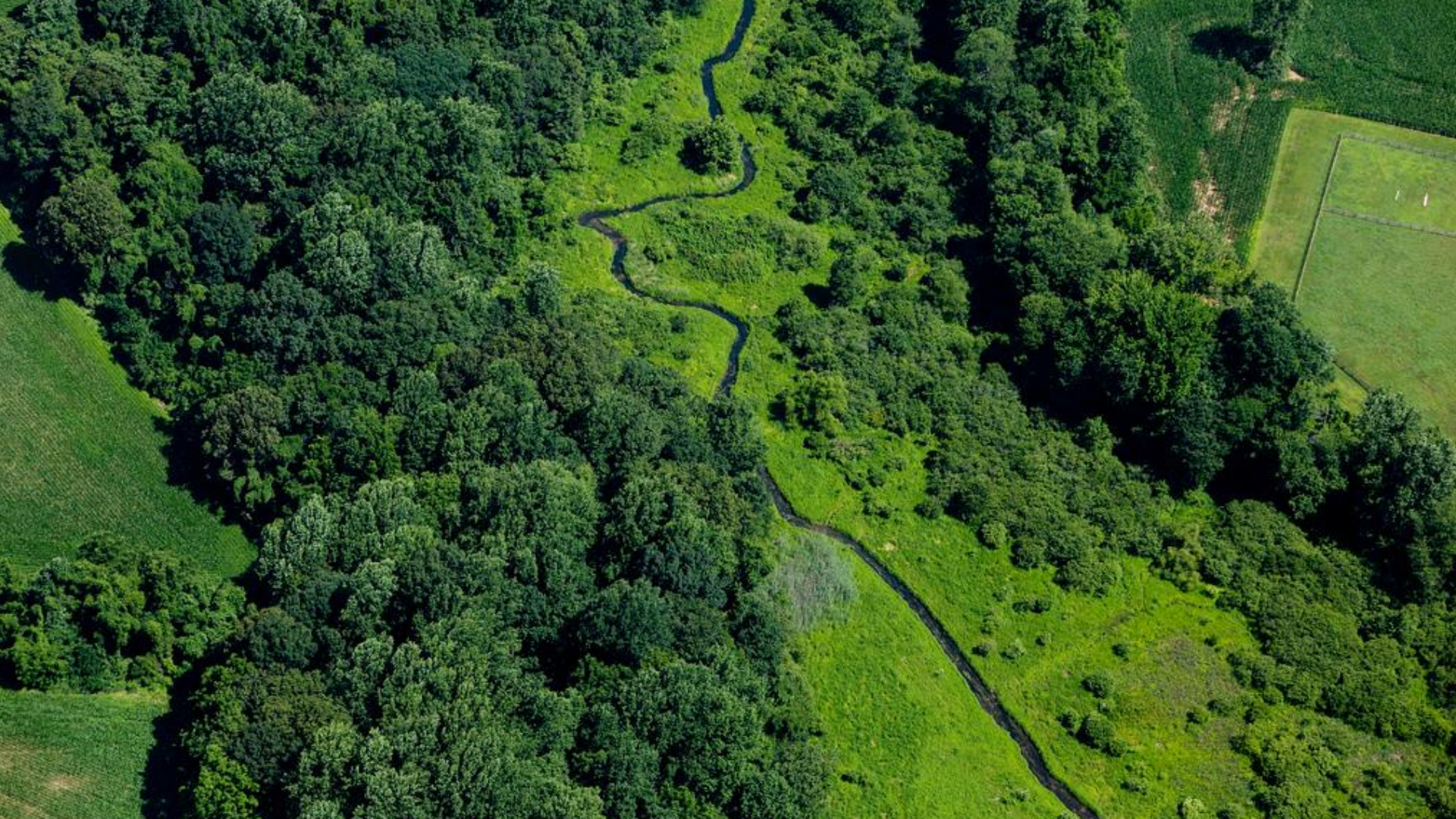


Welcome to
Masonville Cove !!
M. Hill
Feb Hill



Indicators Framework

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



An aerial photograph of a lush green landscape. A winding river flows through the center, surrounded by dense forests and green fields. The text is overlaid in white on the image.

In a general sense, where are we
succeeding?

Where are we falling short?

What common factors have contributed
to our being ahead or behind?

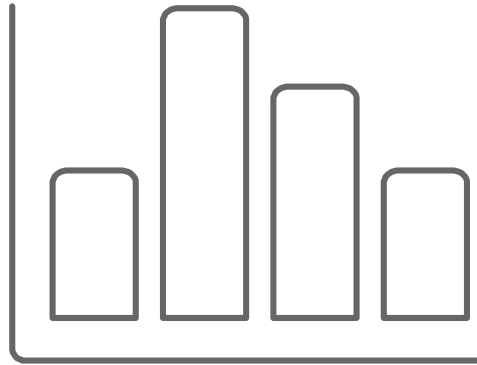


Quarterly Review Sessions

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

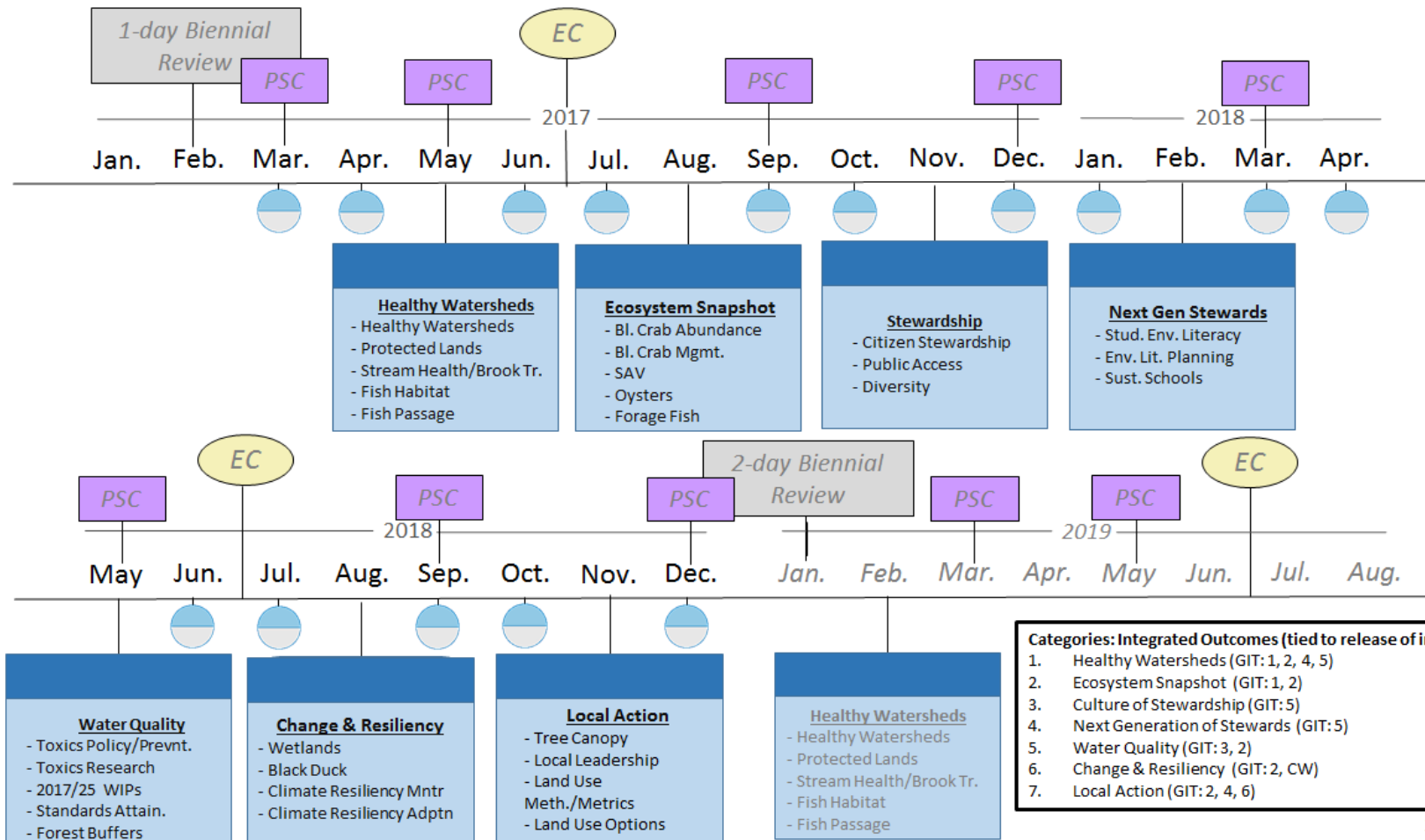


Quarterly Review Sessions



What are we seeing?

Biennial SRS Outcome Groupings



Categories: Integrated Outcomes (tied to release of indicators)

1. Healthy Watersheds (GIT: 1, 2, 4, 5)
2. Ecosystem Snapshot (GIT: 1, 2)
3. Culture of Stewardship (GIT: 5)
4. Next Generation of Stewards (GIT: 5)
5. Water Quality (GIT: 3, 2)
6. Change & Resiliency (GIT: 2, CW)
7. Local Action (GIT: 2, 4, 6)



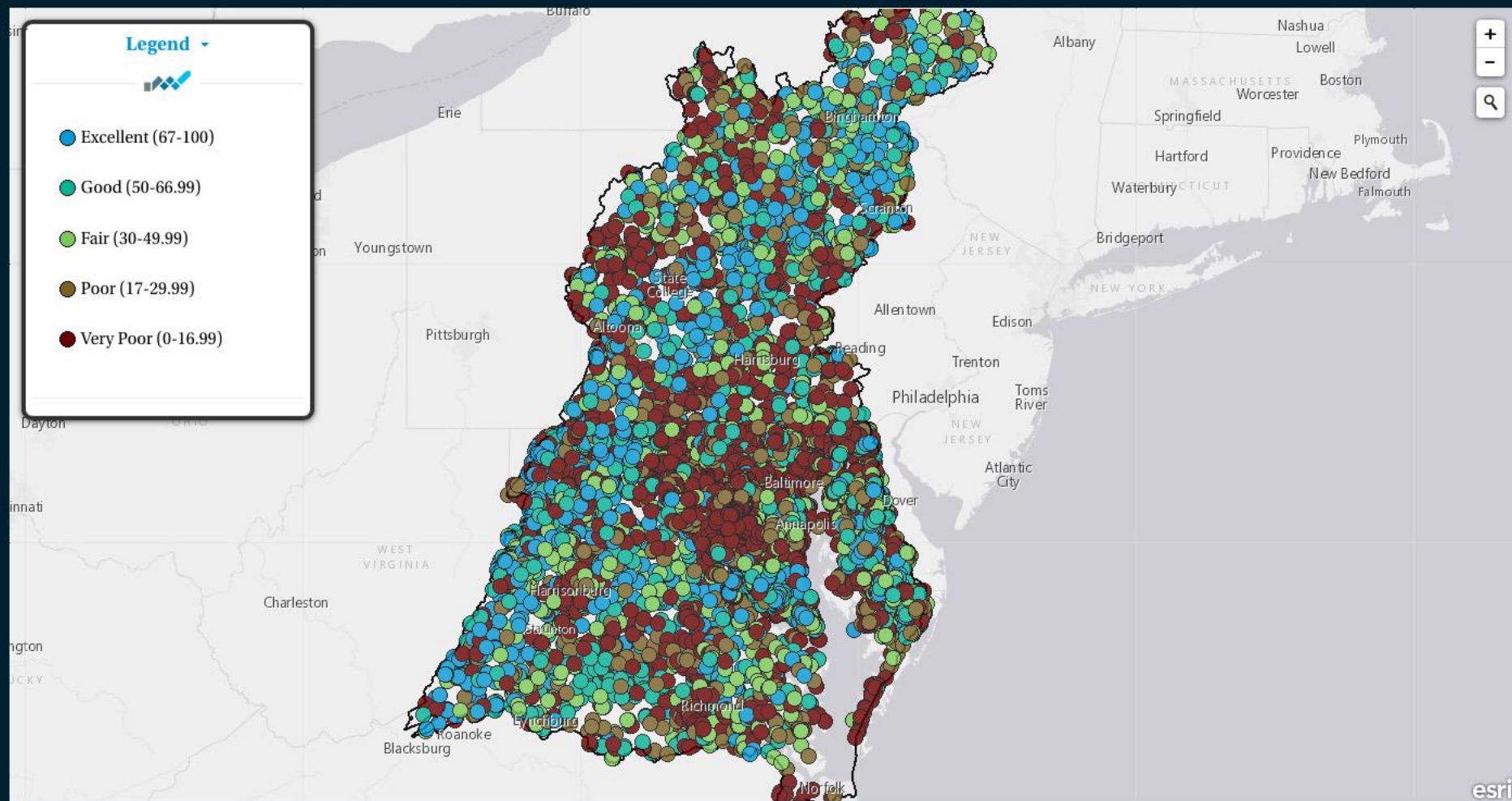
Progress taking place!

1

Healthy Watersheds

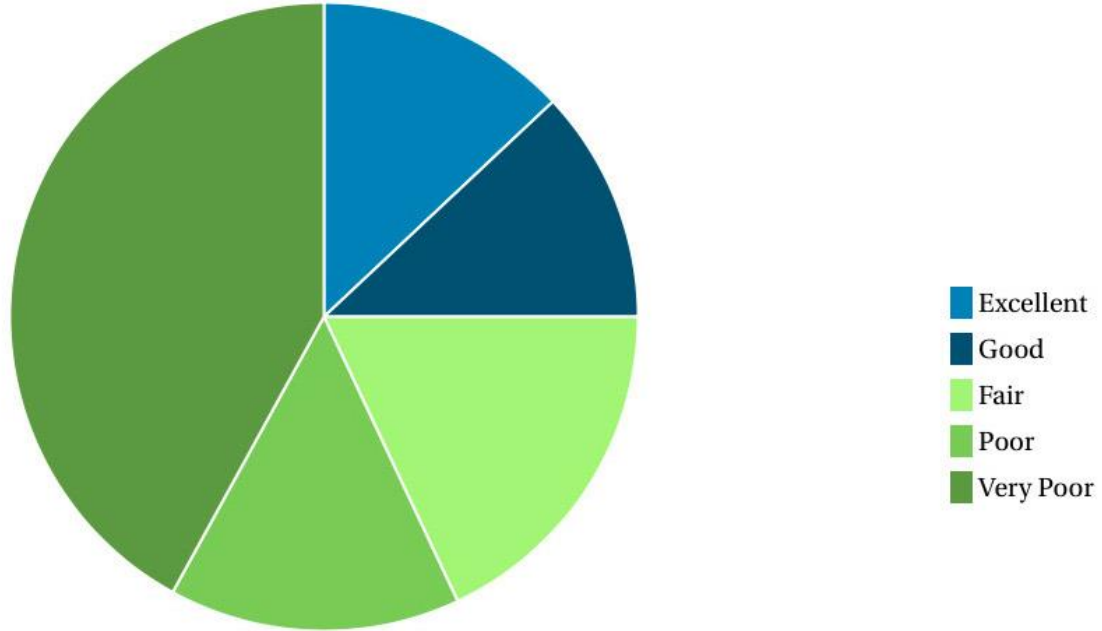


Stream Health: Average Indicator of Biotic Integrity Ratings of 10,000+ Sampling Sites (2000-2010)



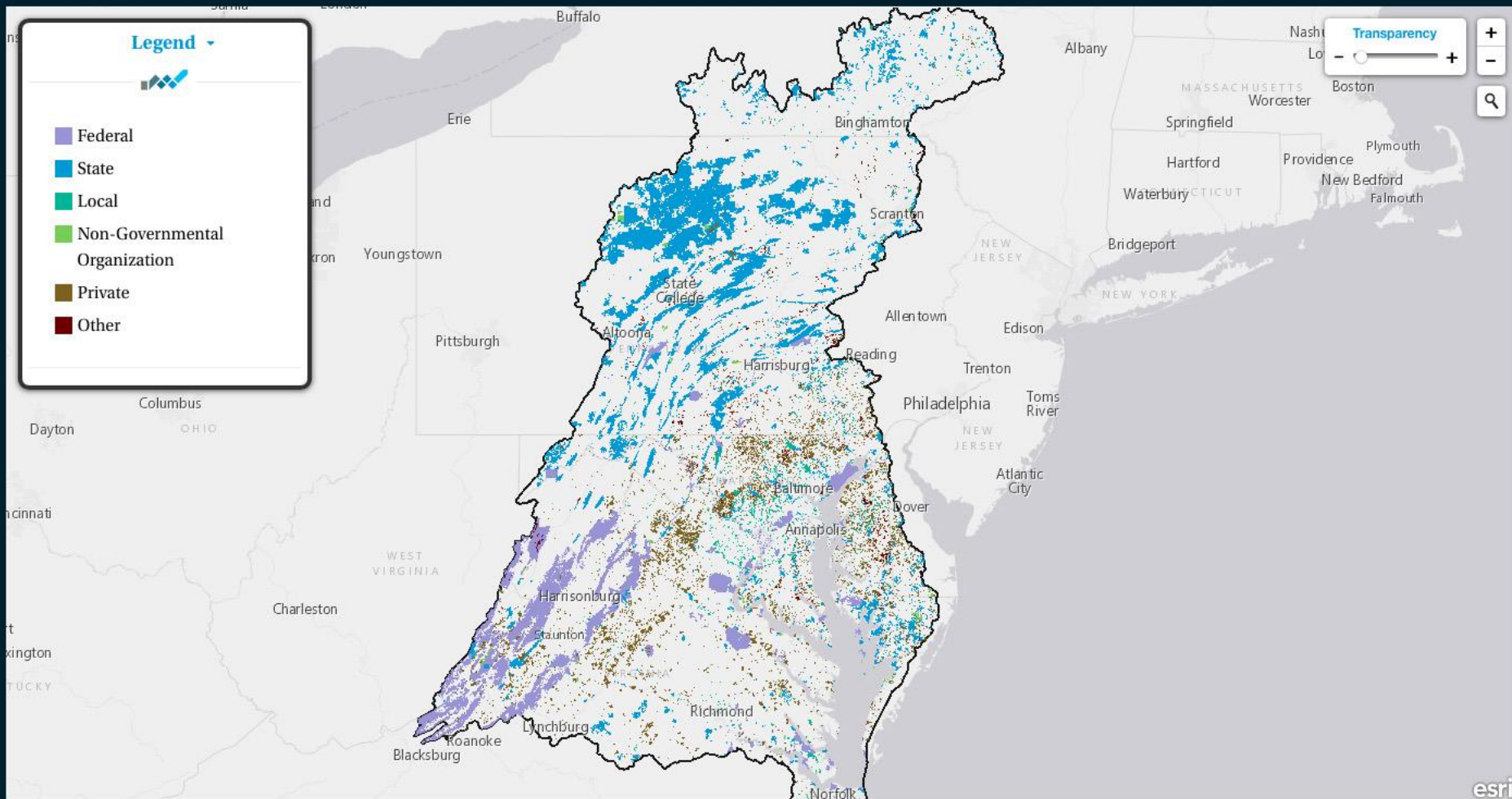
Stream Health, 2000-2010

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

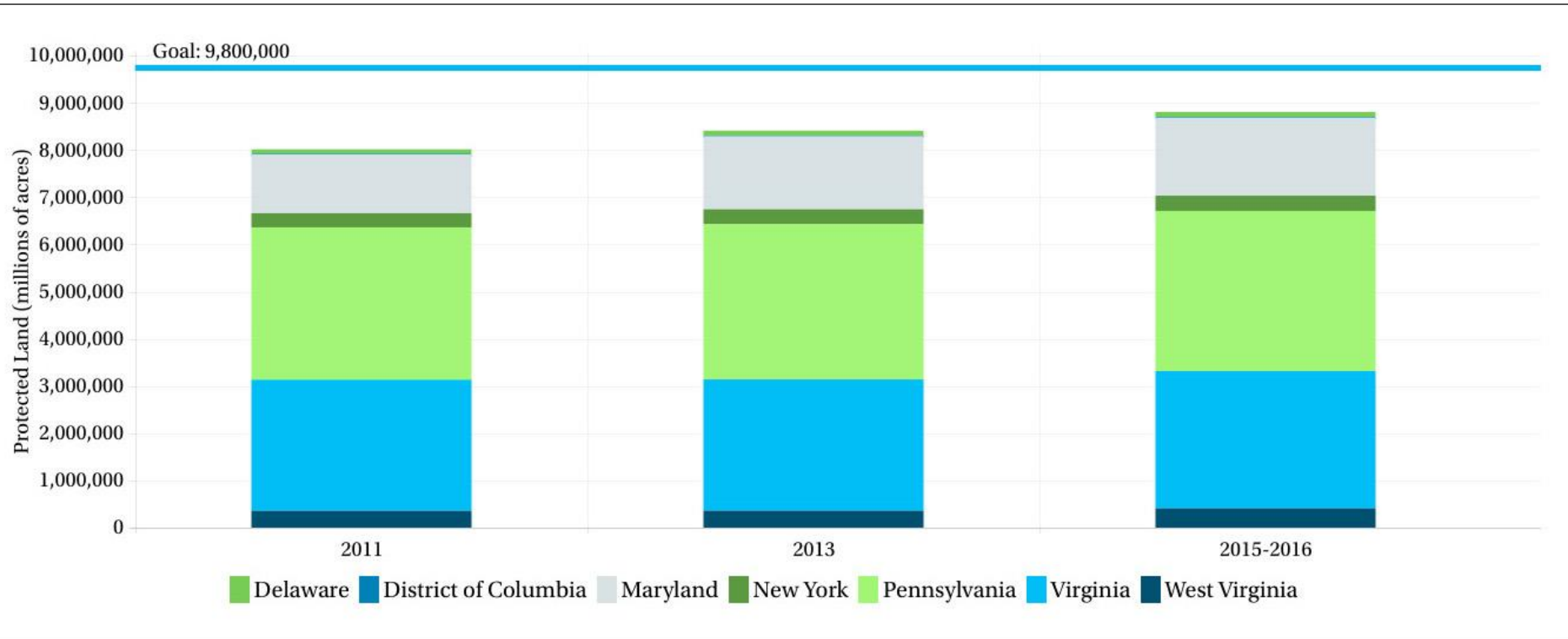




Protected Lands (2015-2016)

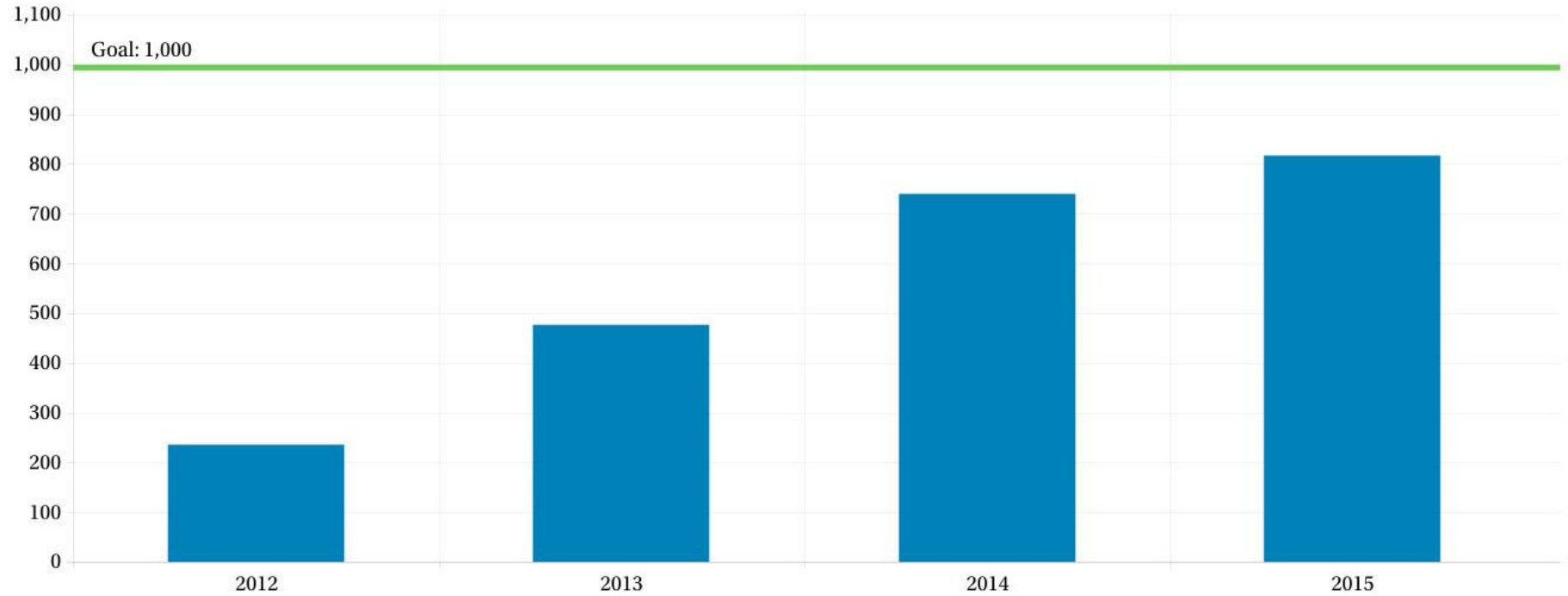


Protected Lands (By Jurisdiction), 2011-2015/2016





Stream Miles Opened to Fish Passage (Cumulative), 2012-2015





Key Factors

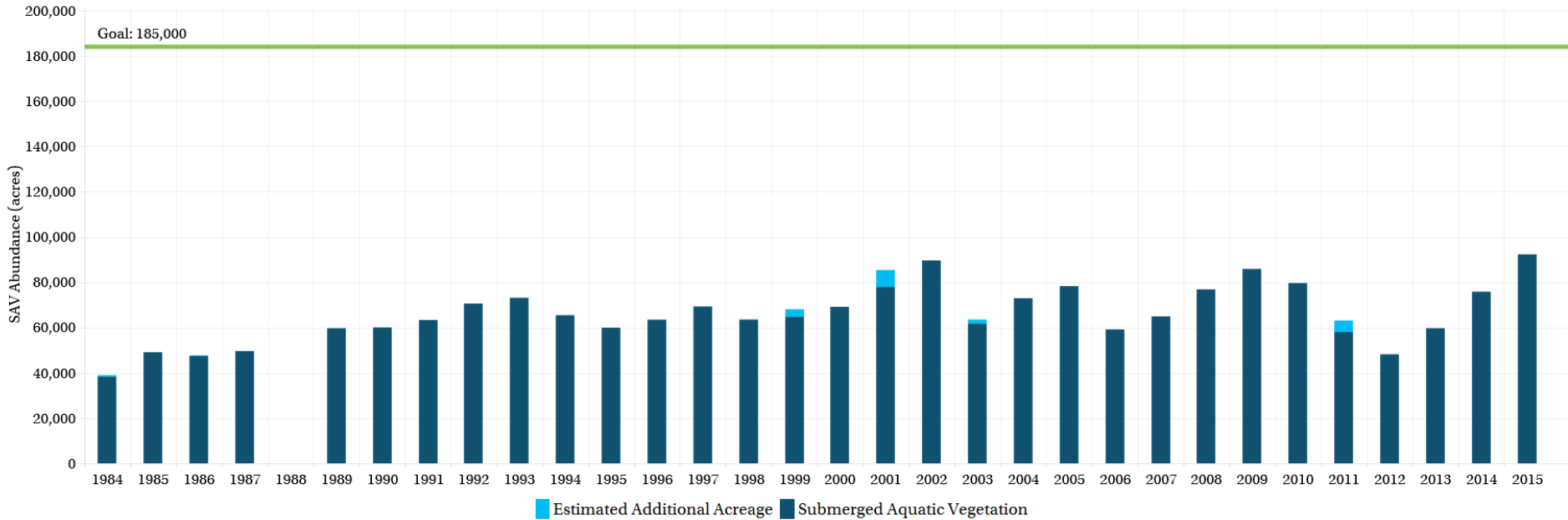
- Land use, ownership and management
- Political and public support, action and engagement
- Scientific knowledge

2

Aquatic Life



Submerged Aquatic Vegetation (SAV) Abundance, 1984-2015



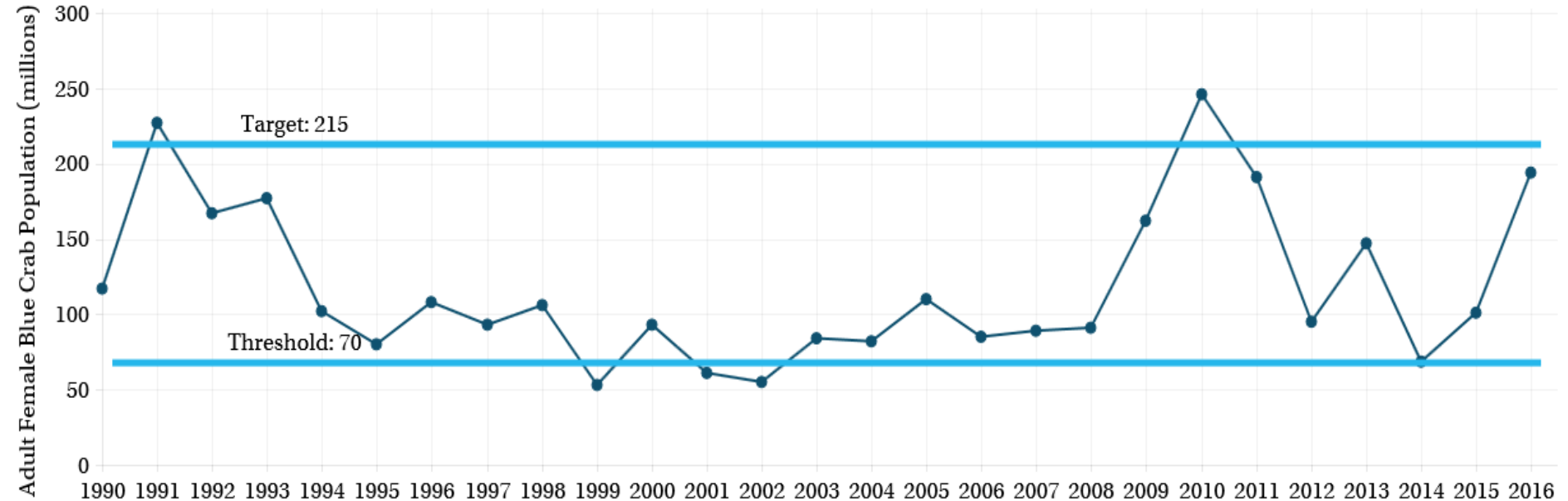
SAV Abundance

- Wild celery & other species (upper Bay)
- Widgeon grass (mid-Bay)
- Eelgrass (lower Bay)





Adult Female Blue Crab Abundance, 1990-2016



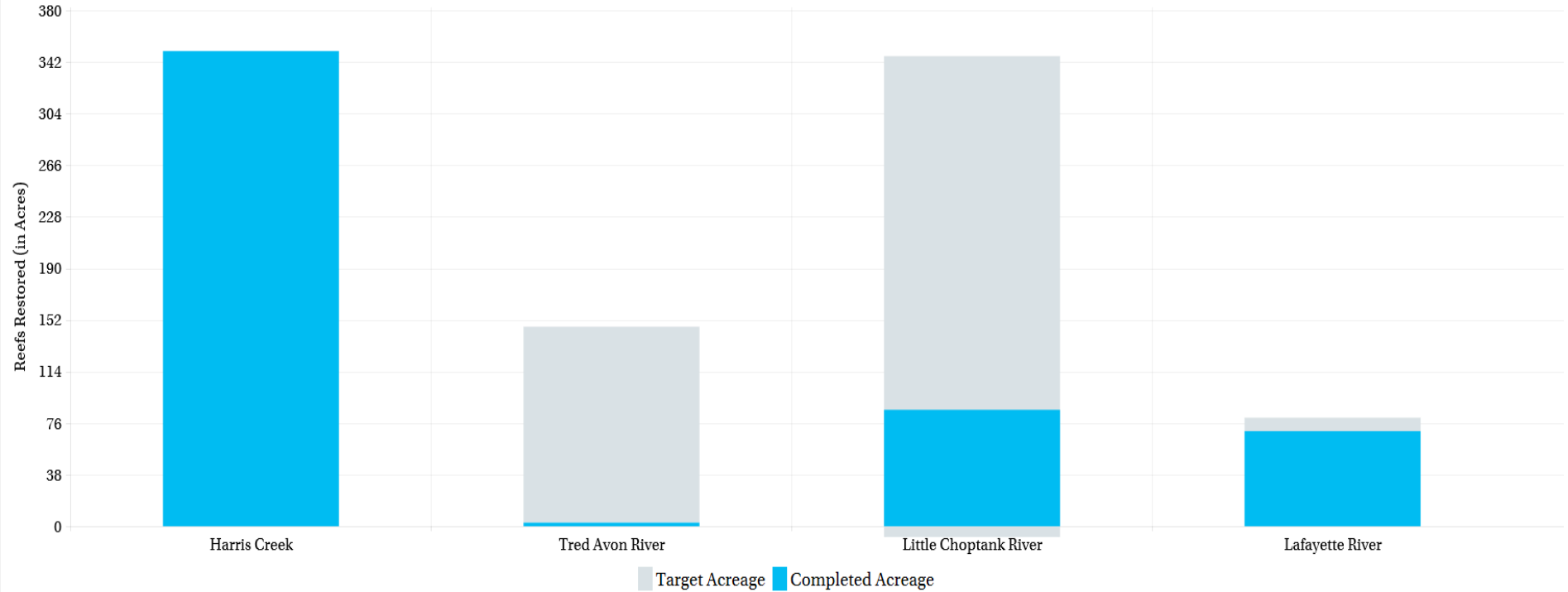


Oyster Reef Restoration Progress Dashboard

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



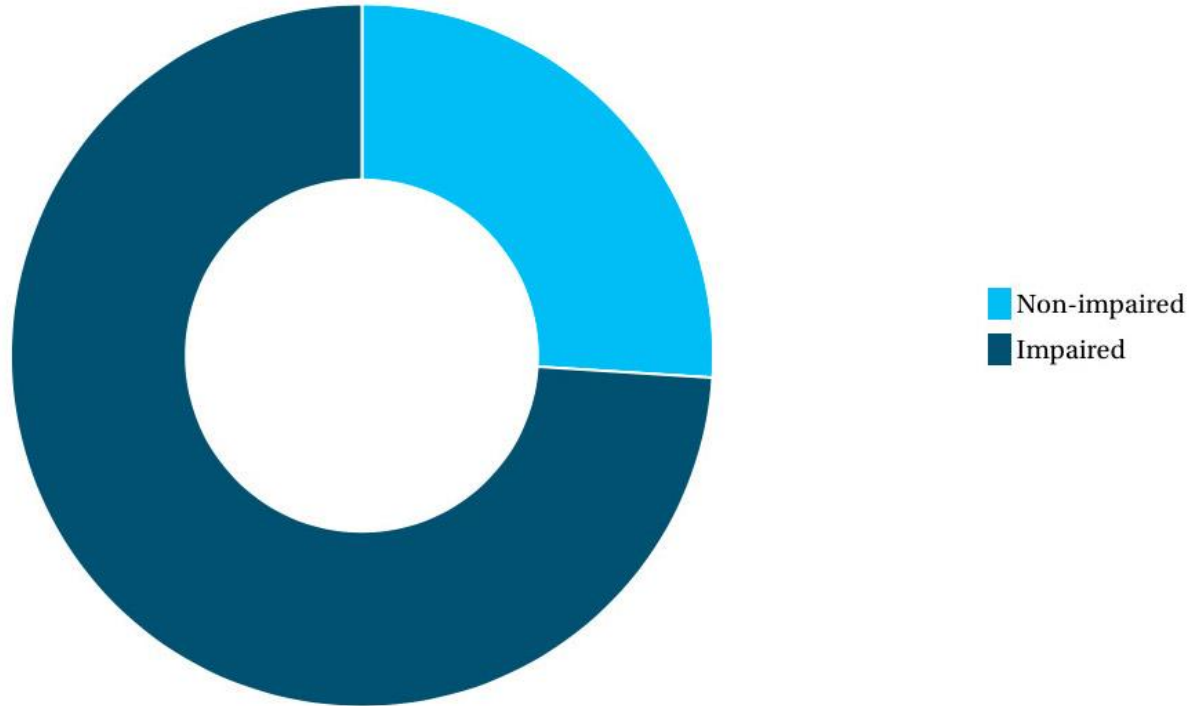
3

Water Quality



Tidal Waters Impaired by Toxic Contaminants, 2012

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





AMERICAN

WETRI-PAK
WETRI-PAK

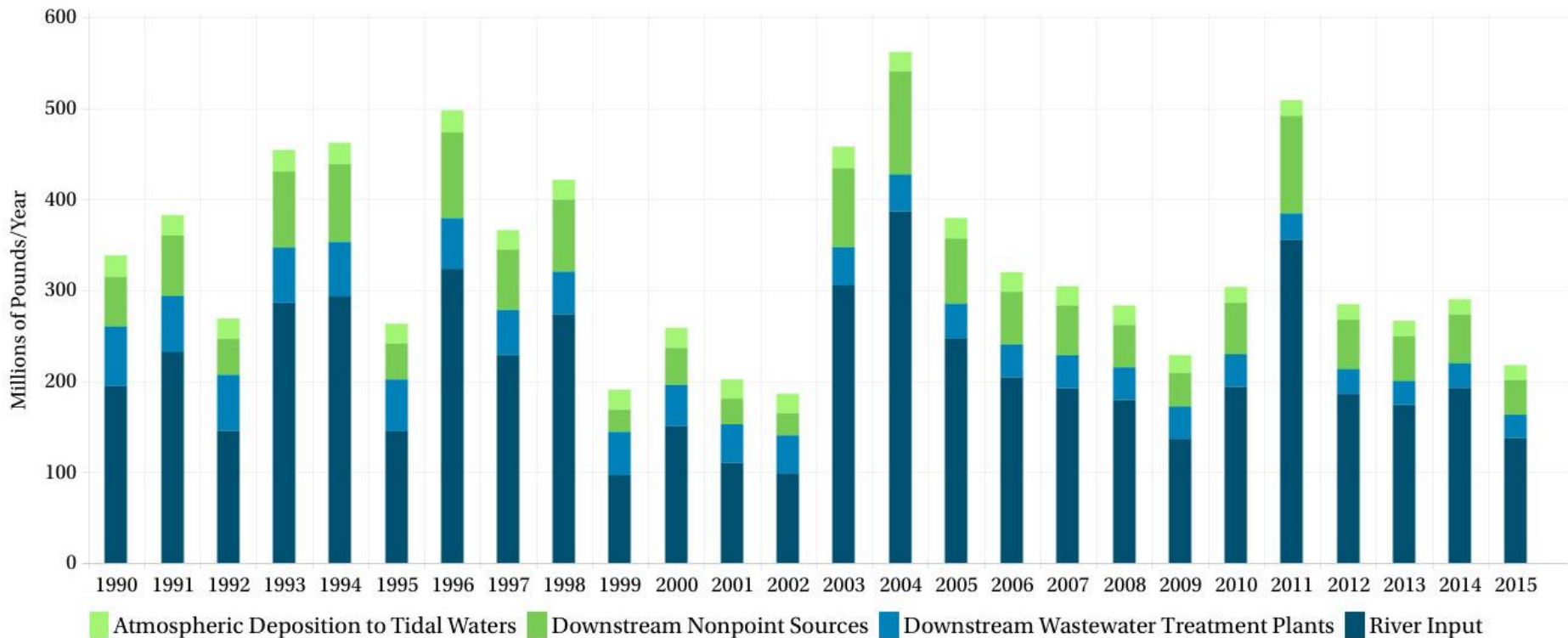
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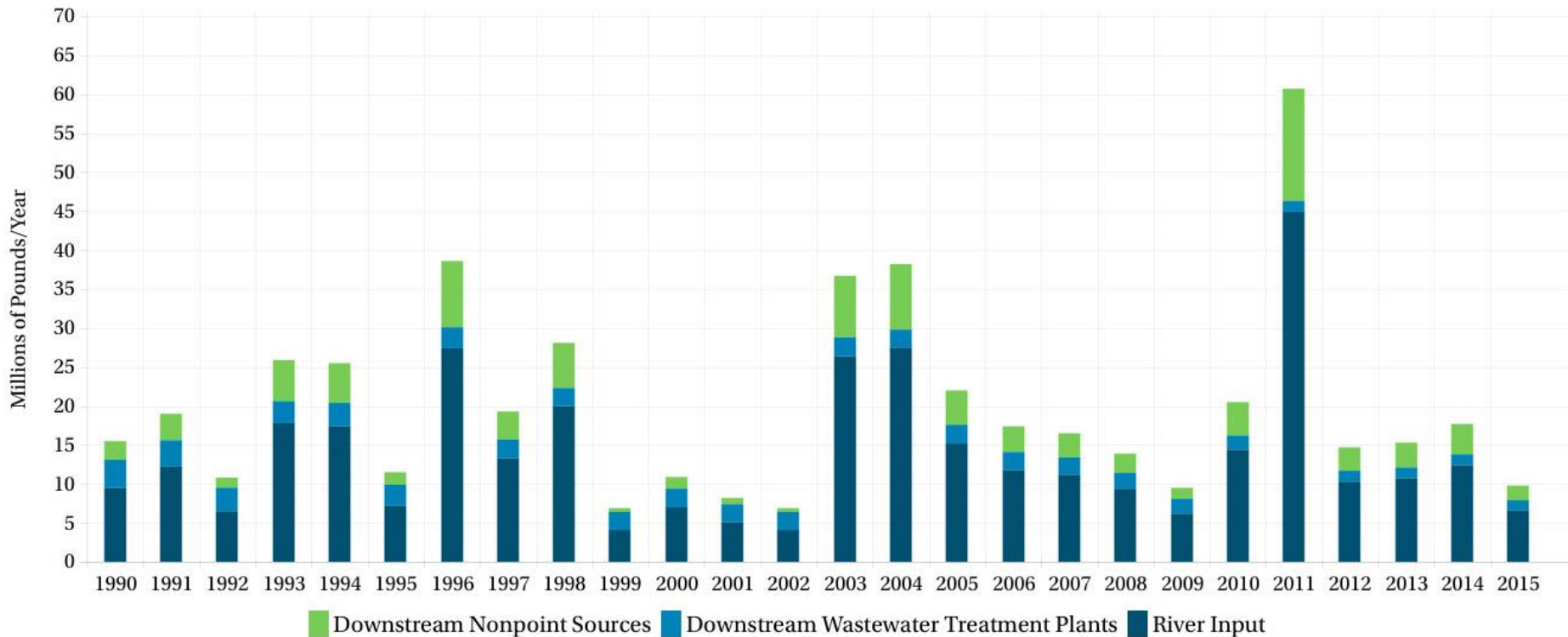
Nitrogen Loads to the Chesapeake Bay, 1990-2015

River and Watershed Input of Nitrogen (Millions of Pounds/Year)



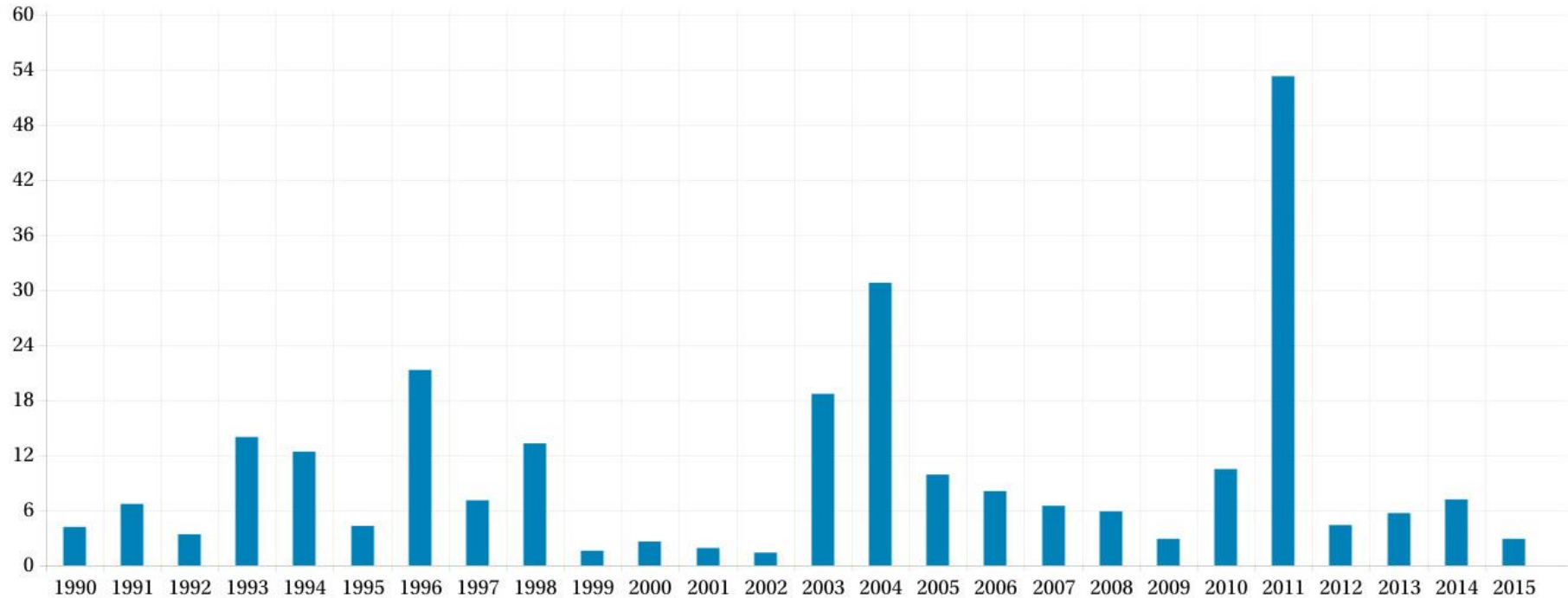
Phosphorus Loads to the Chesapeake Bay, 1990-2015

River and Watershed Input of Phosphorus (Millions of Pounds/Year)

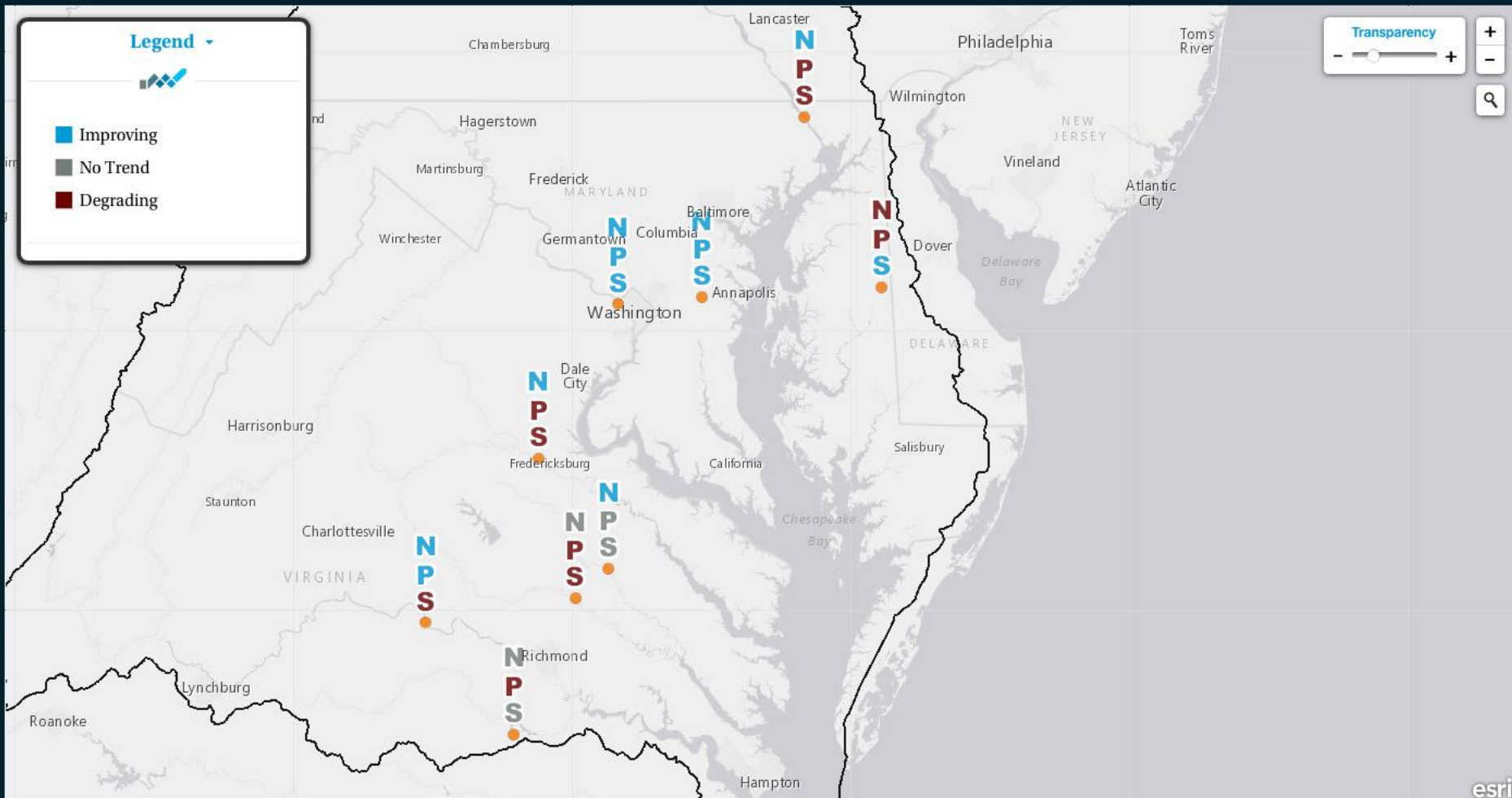


Sediment Loads to the Chesapeake Bay, 1990-2015

River Input of Suspended Sediment (Billions of Pounds/Year)



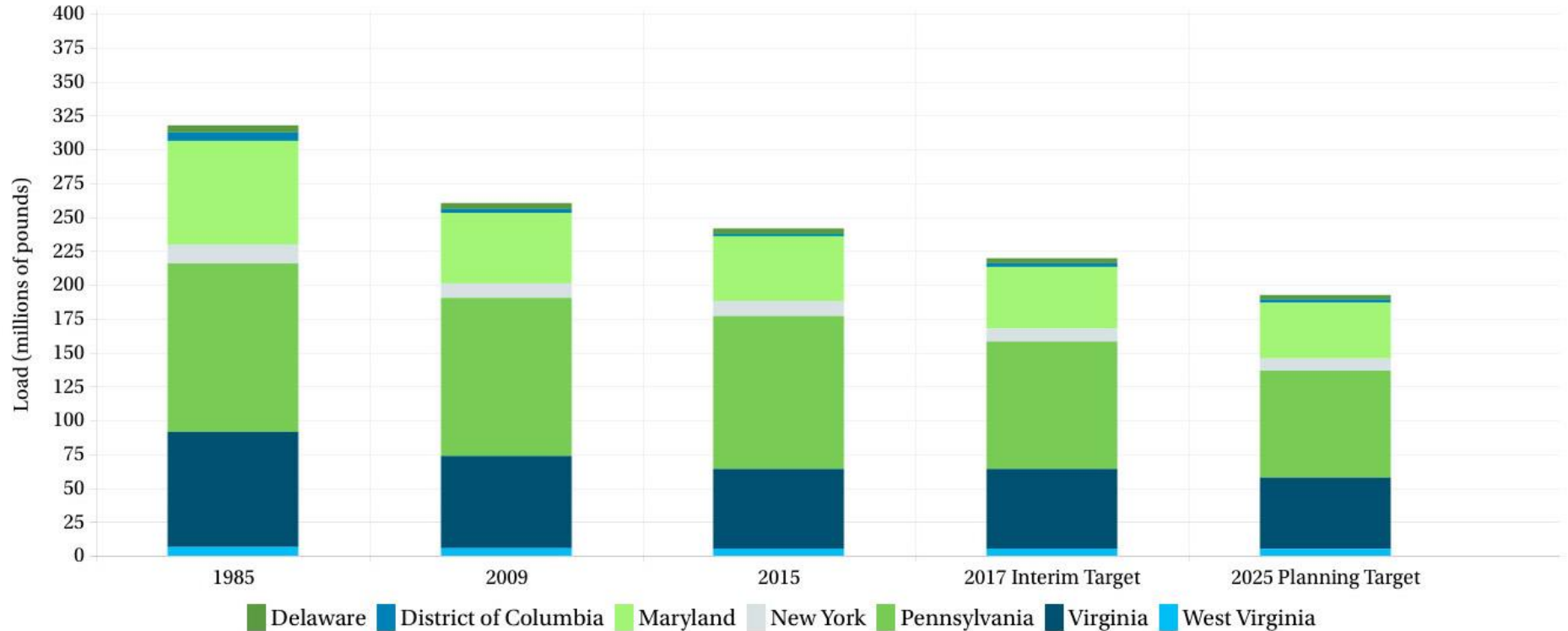
Long-Term Trends in Nitrogen, Phosphorus and Sediment Loads (2015)





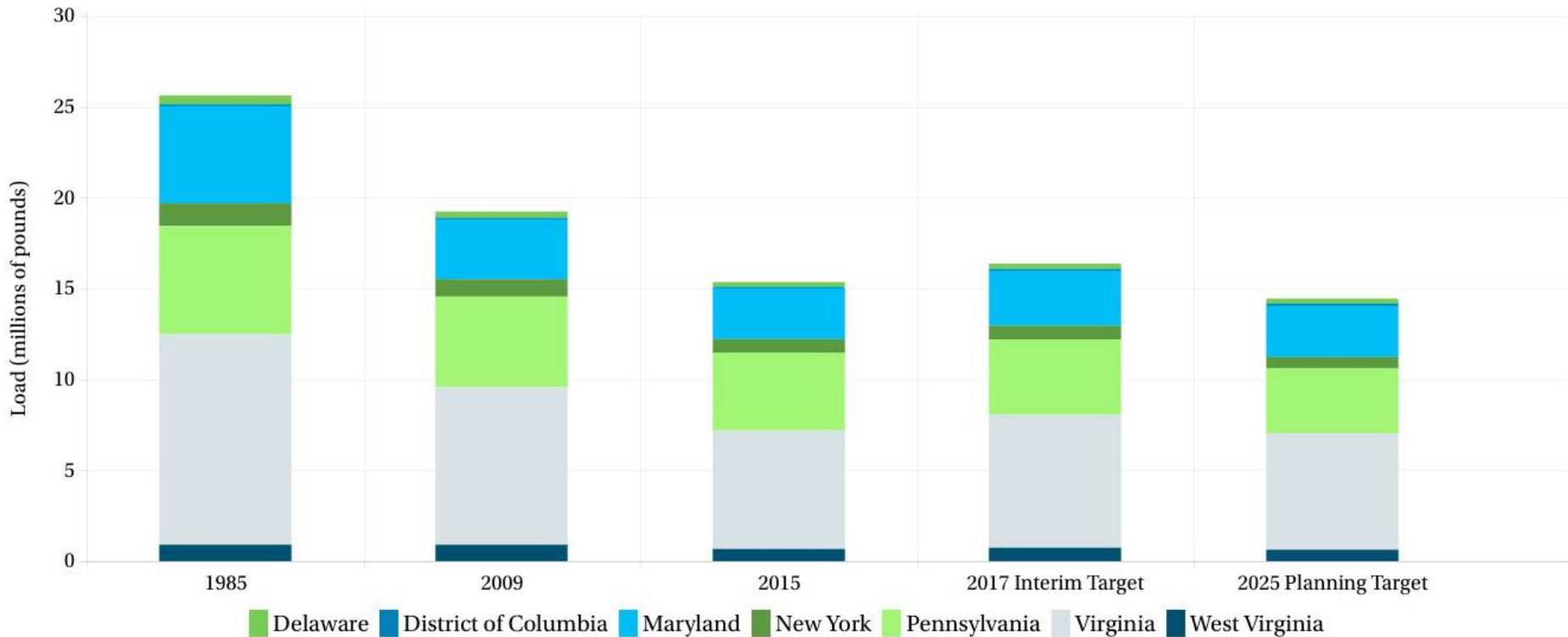
Nitrogen Loads to the Chesapeake Bay by Jurisdiction

Loads simulated using Watershed Model (Phase 5.3.2) and jurisdiction-reported data on wastewater discharges.



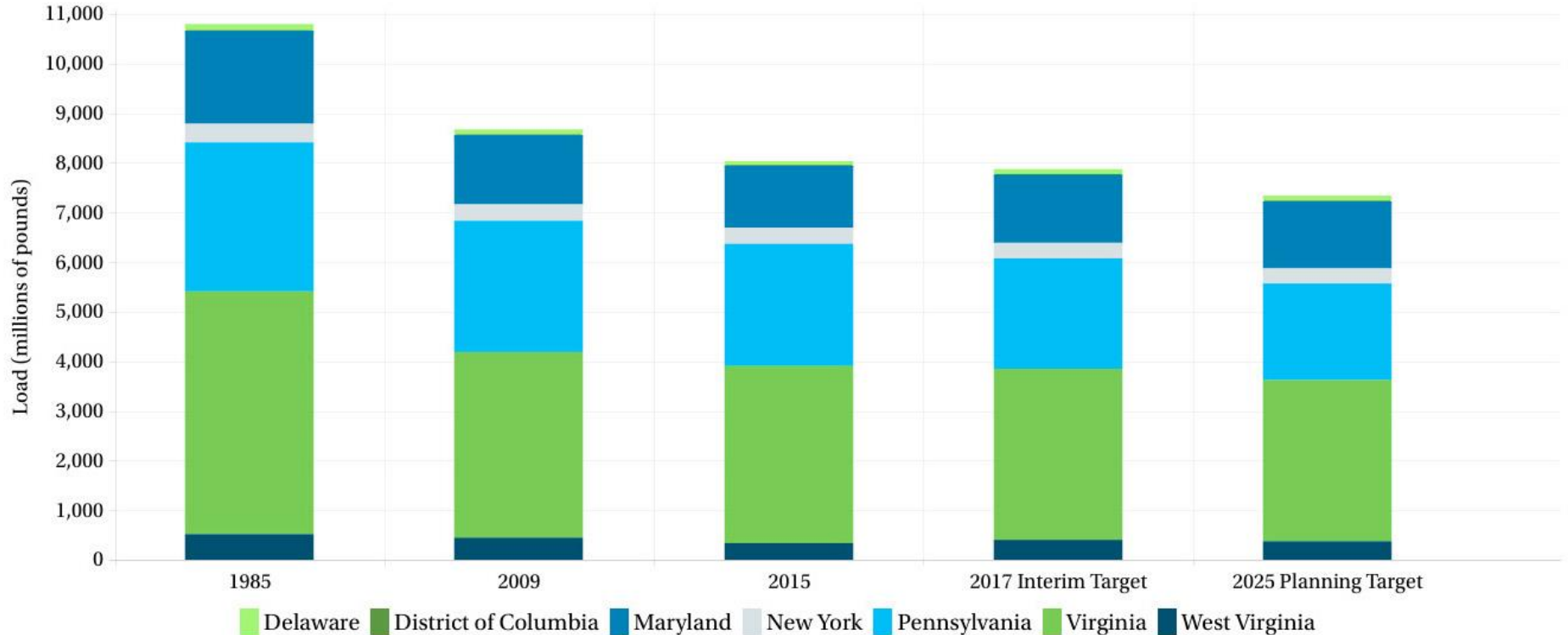
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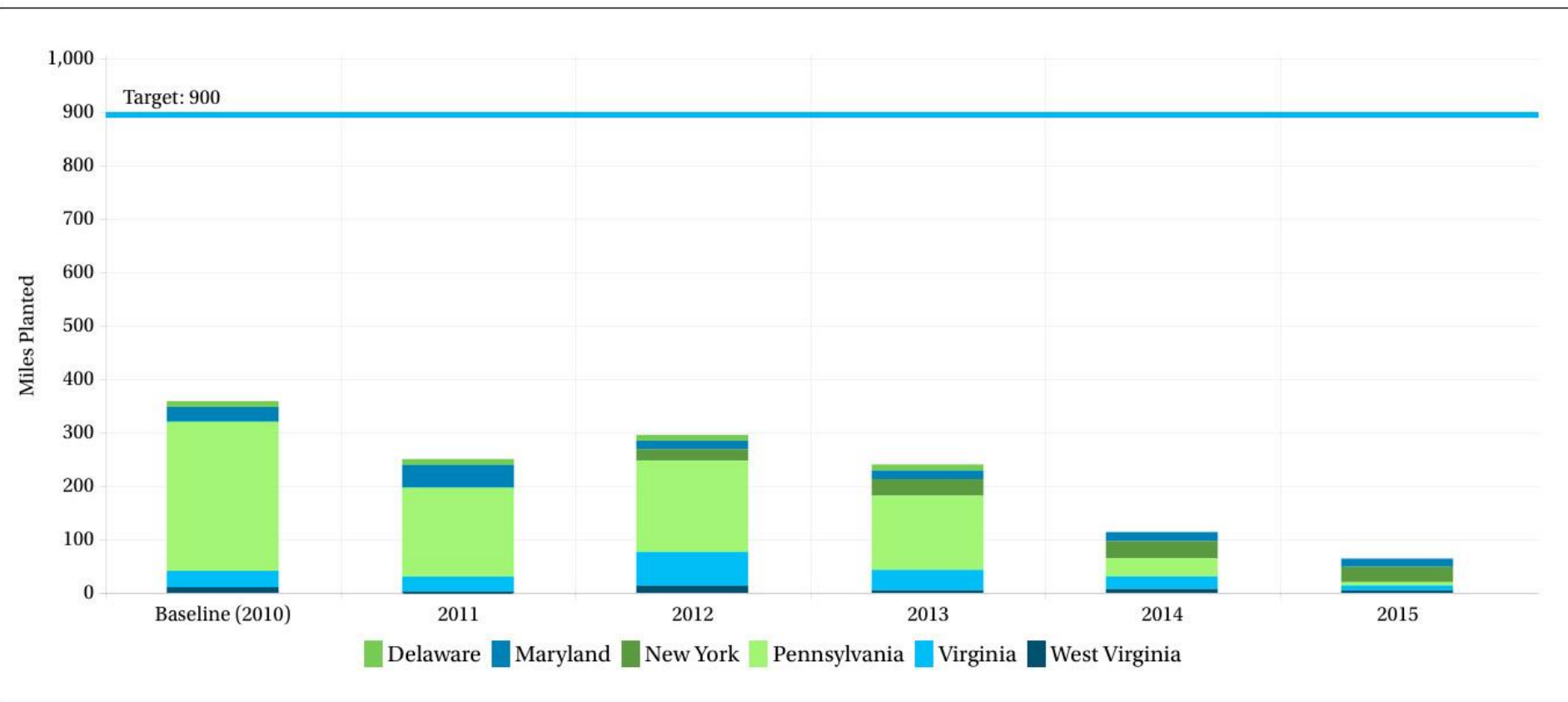
Sediment Loads to the Chesapeake Bay by Jurisdiction

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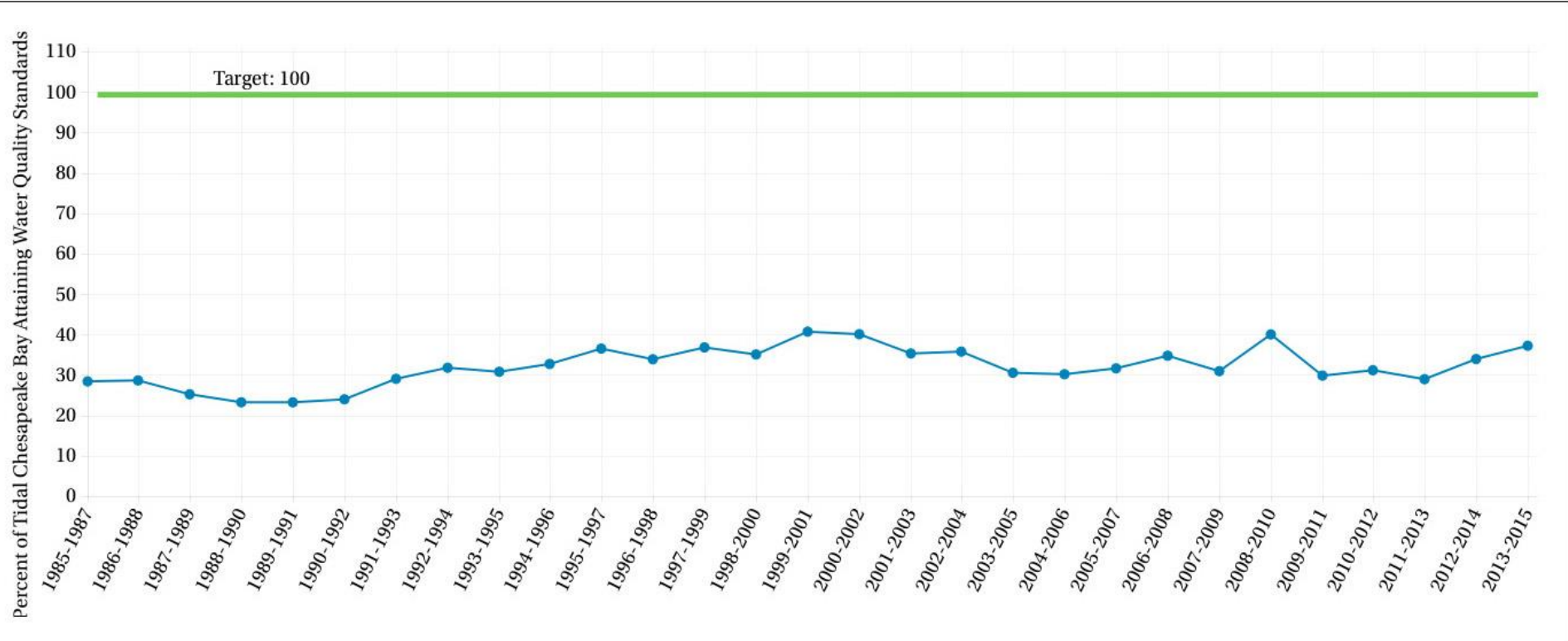


Forest Buffers Planted (Annually), 2010-2015





Water Quality Standards Attainment, 1985-2015



Key Factors

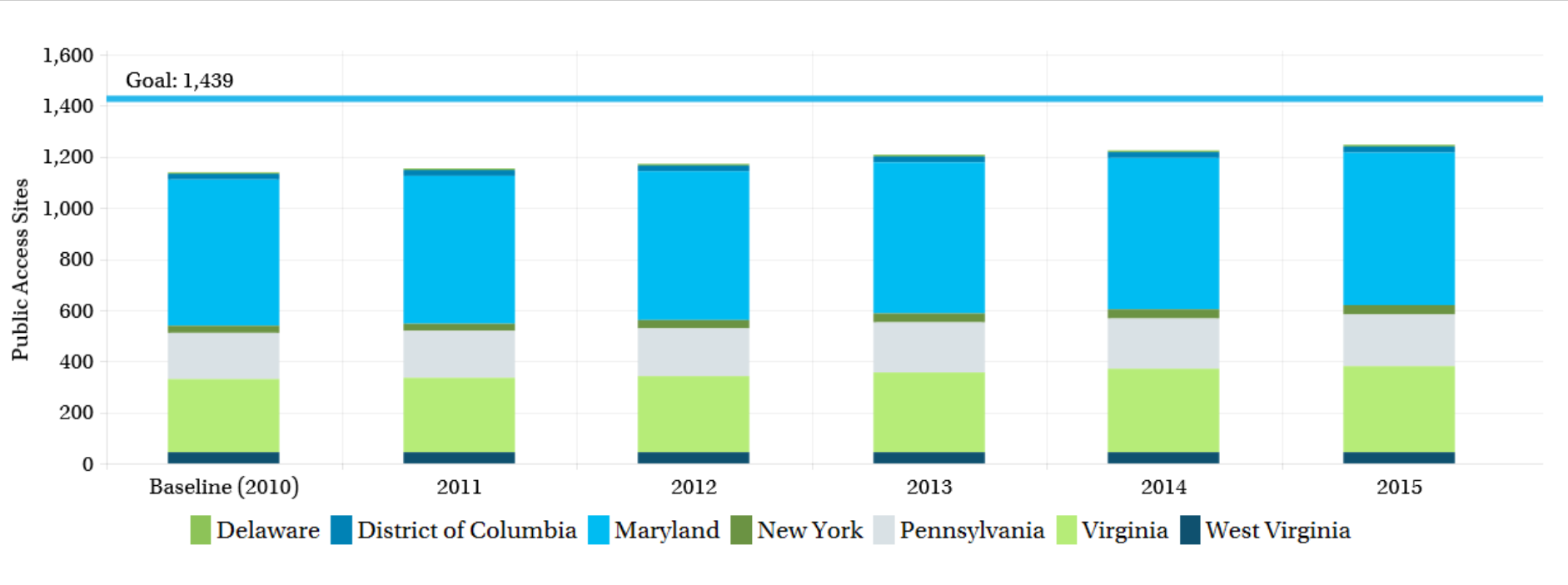
- Land use
- Development
- Federal, state and local capacity
- Data and information
- Understanding of ecosystem response

4

A Culture of Stewardship

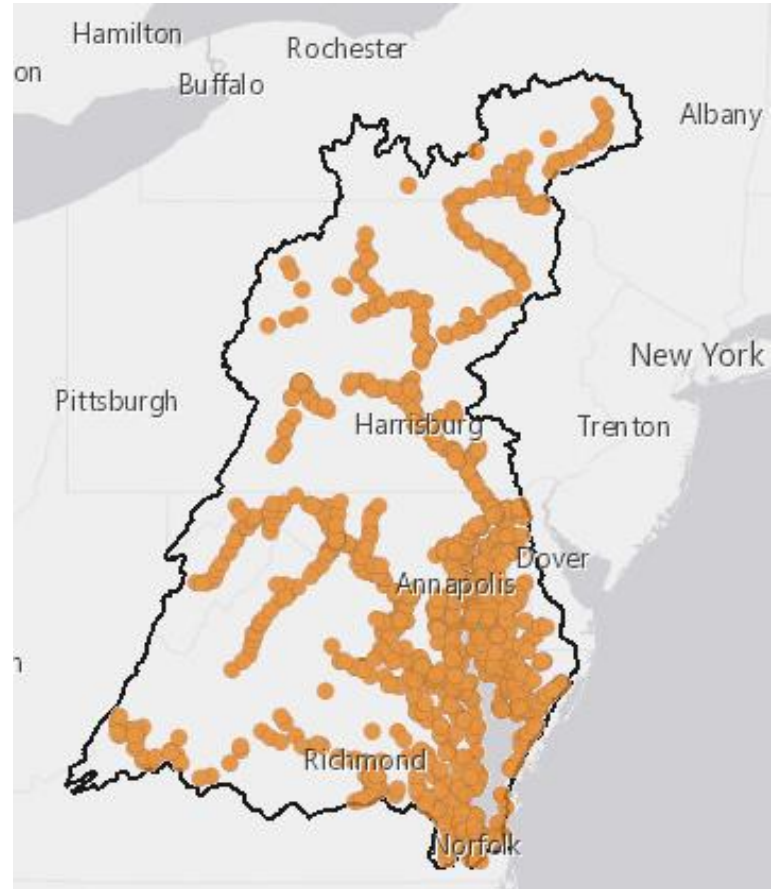


Public Access Sites in the Chesapeake Bay Watershed, 2010-2015



Public Access Sites

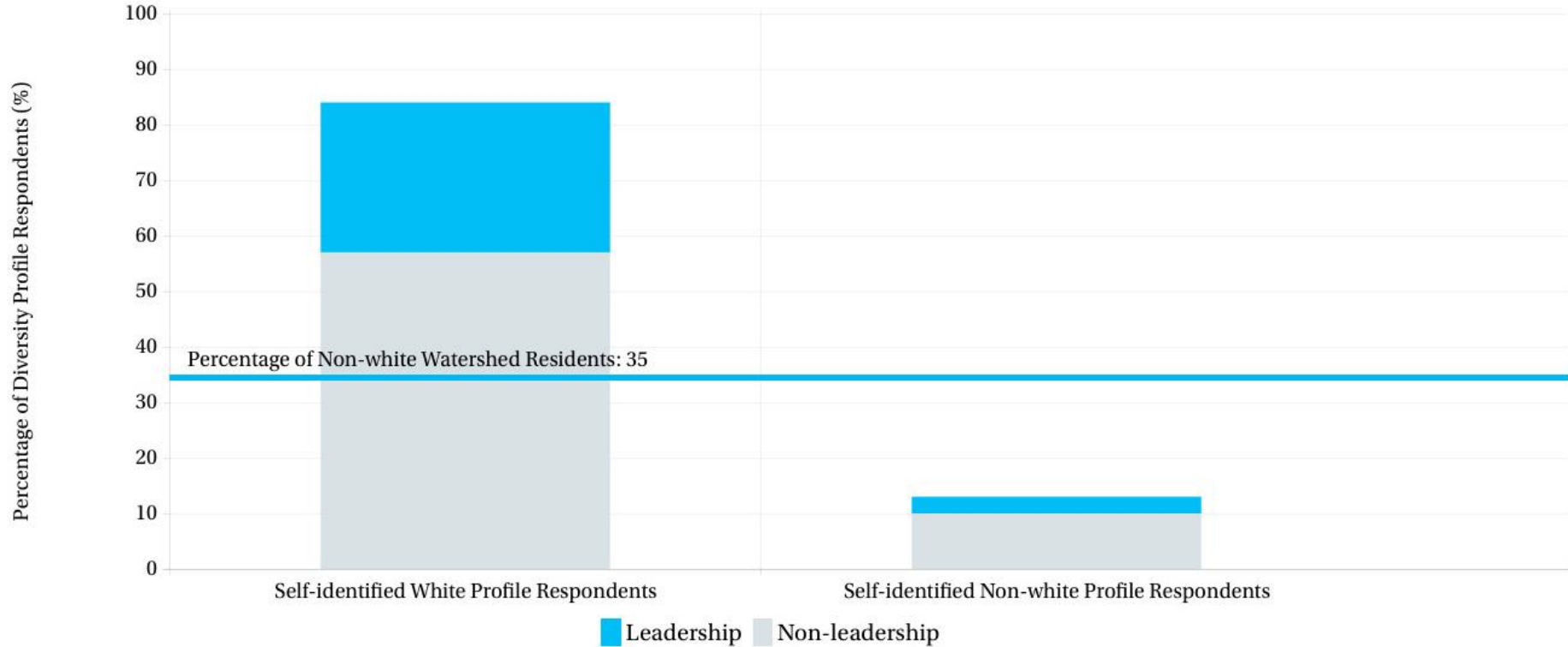
About 1,290 sites
watershed-wide







Chesapeake Bay Program Diversity Profile, 2016



Key Factors

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

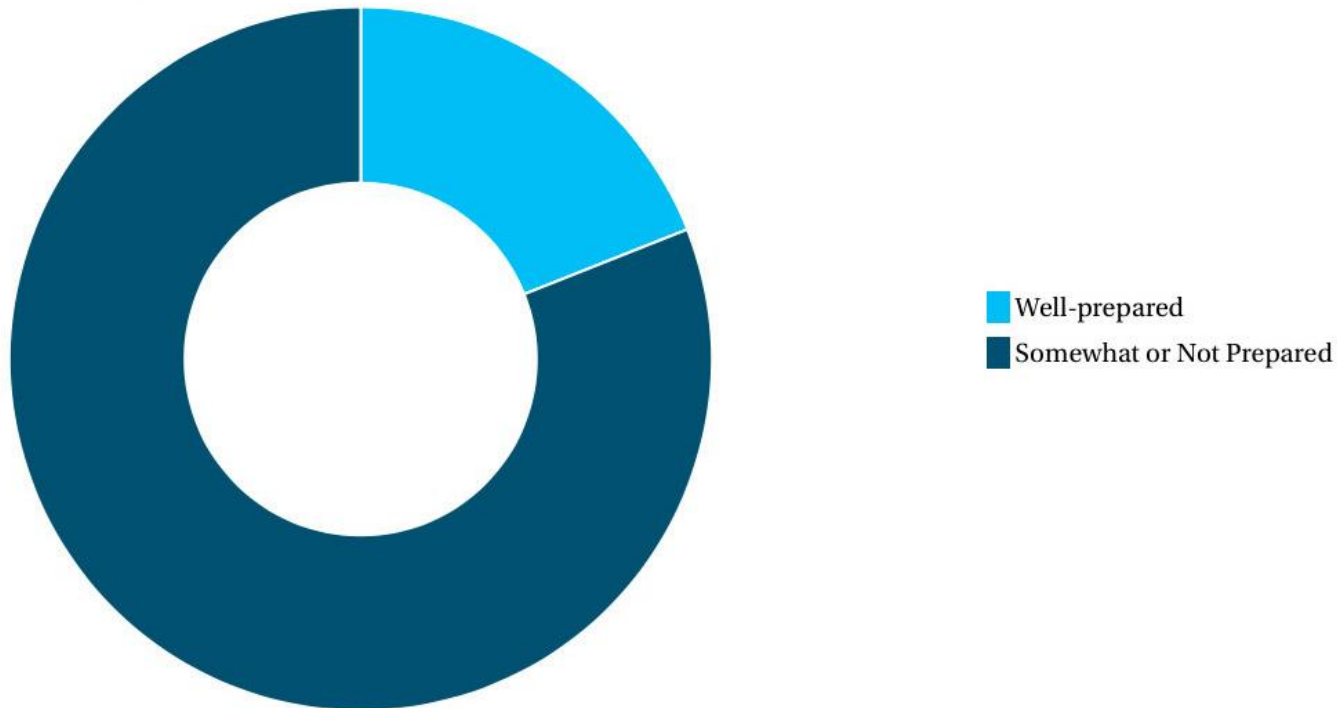
5

Next-generation Stewards



Environmental Literacy Preparedness in the Chesapeake Bay Watershed, 2015

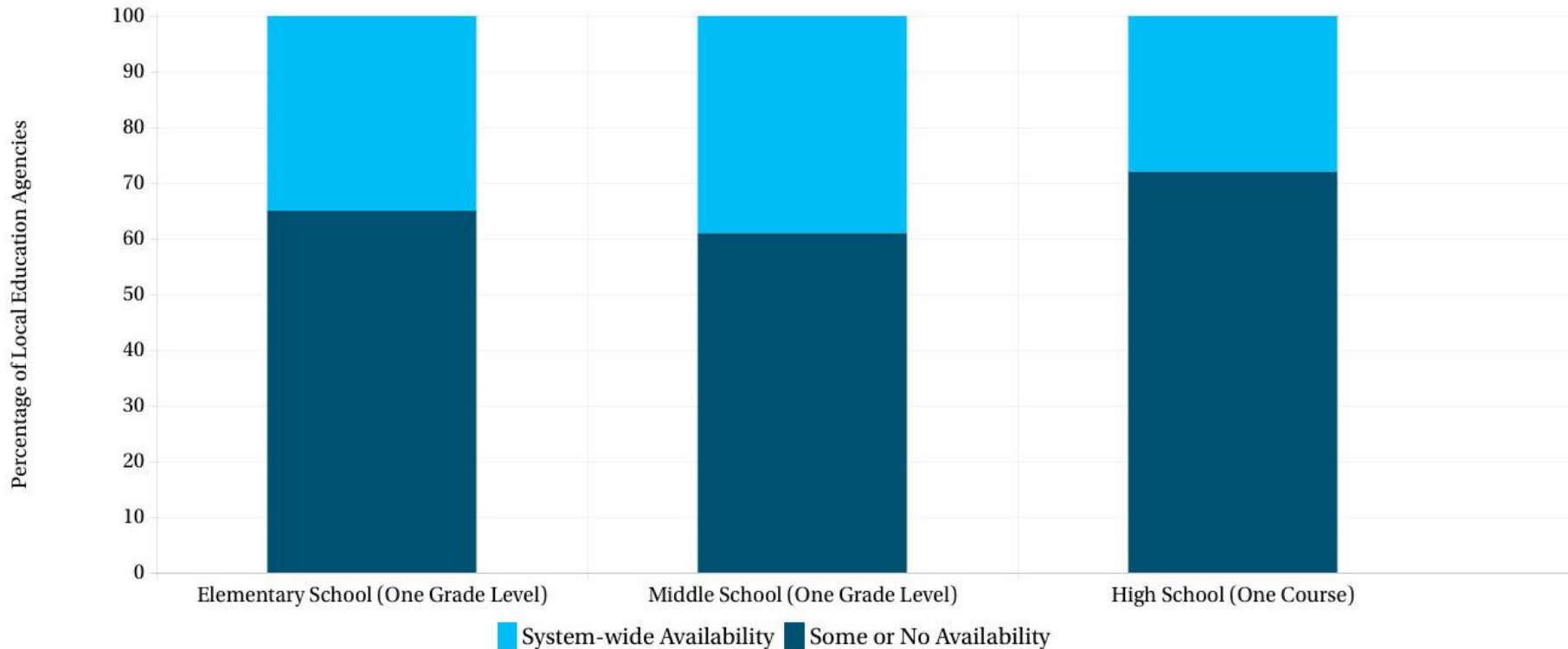
Reporting Local Education Agencies' Preparedness to Implement Environmental Education Programs (Percentage)





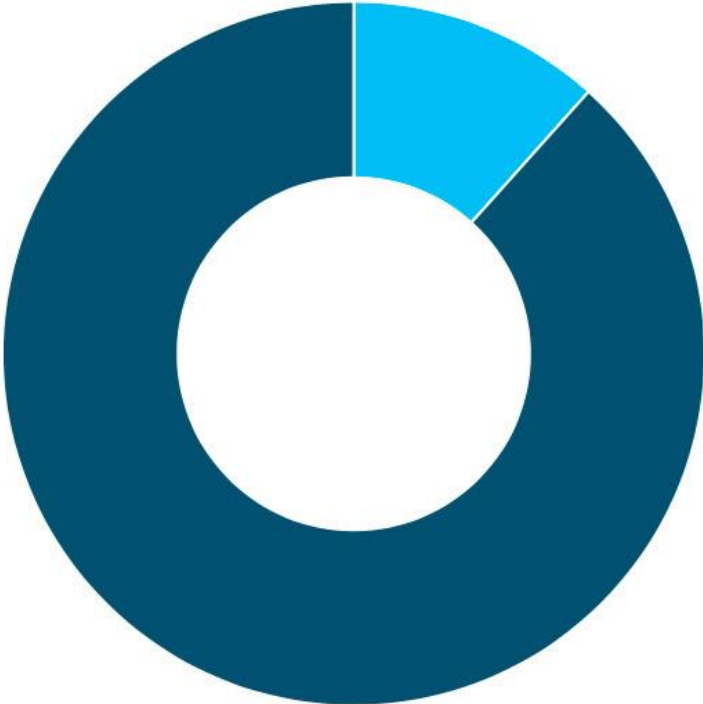
Meaningful Watershed Educational Experience Availability in the Chesapeake Bay Watershed, 2015

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



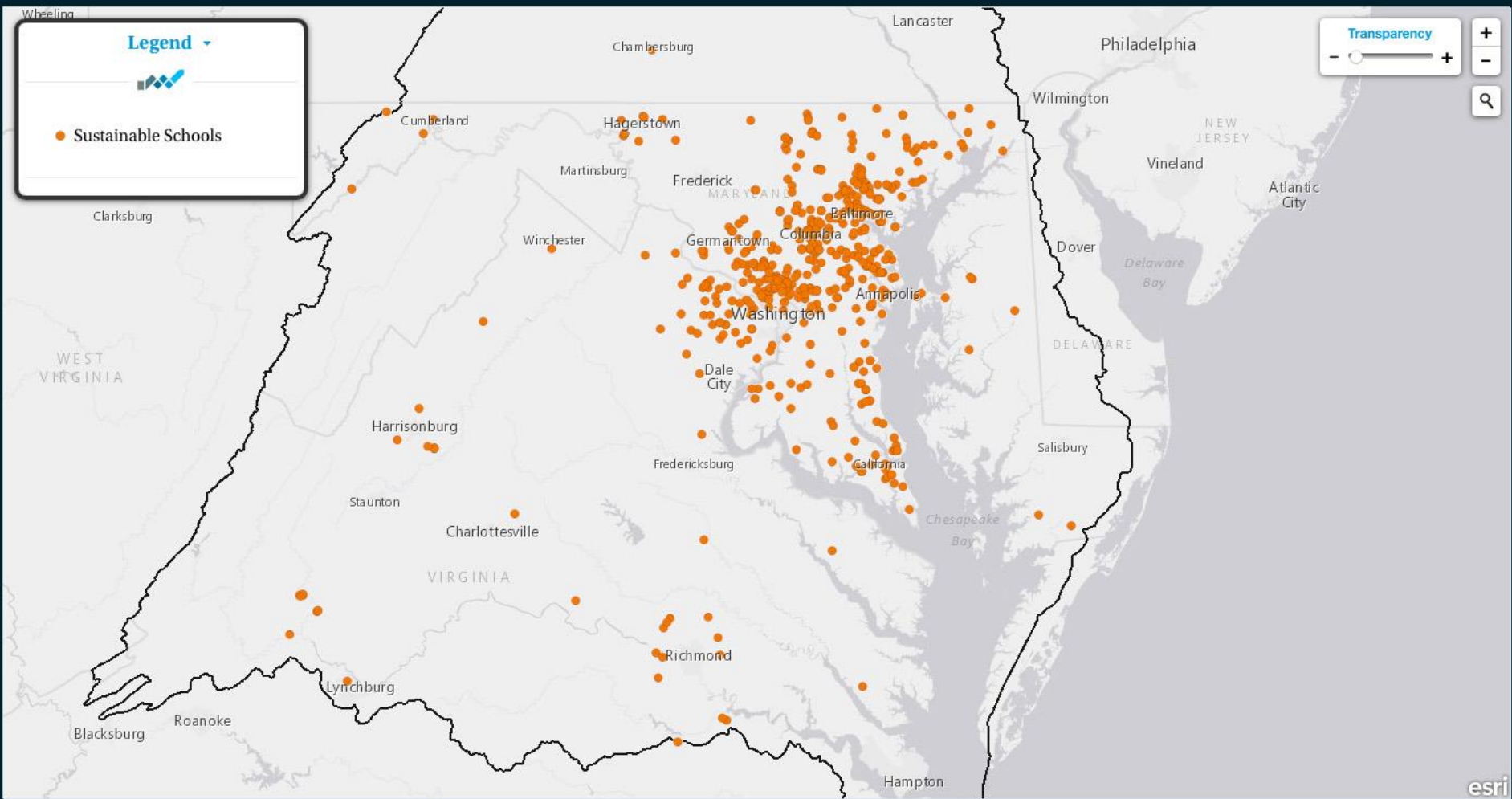


Certified Sustainable Schools in the Chesapeake Bay Watershed, 2015



■ Sustainable Public and Charter Schools
■ Other Public and Charter Schools

Certified Sustainable Schools in the Chesapeake Bay Watershed (2015)

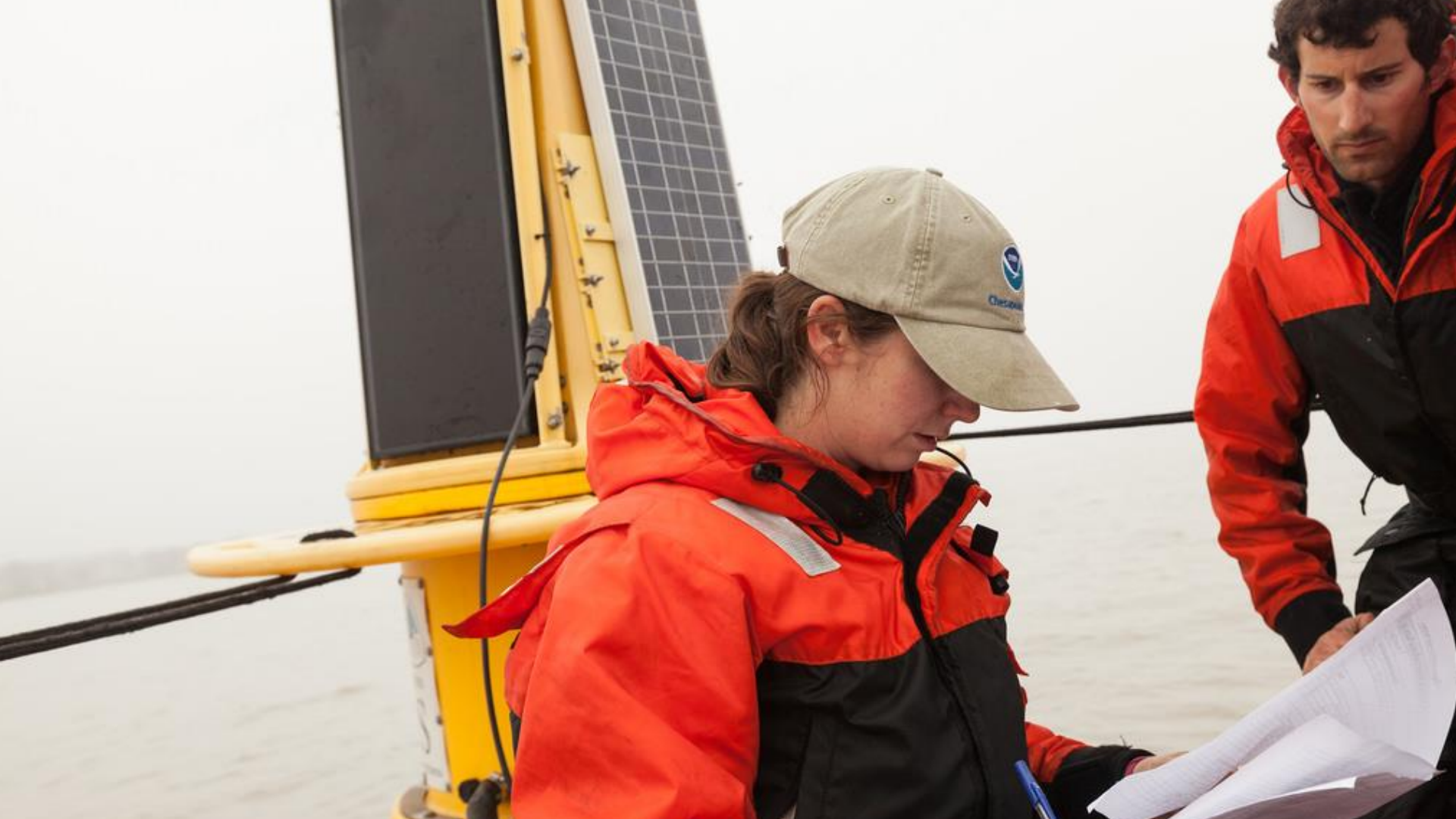


Key Factors

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

6

Climate Change and Resiliency



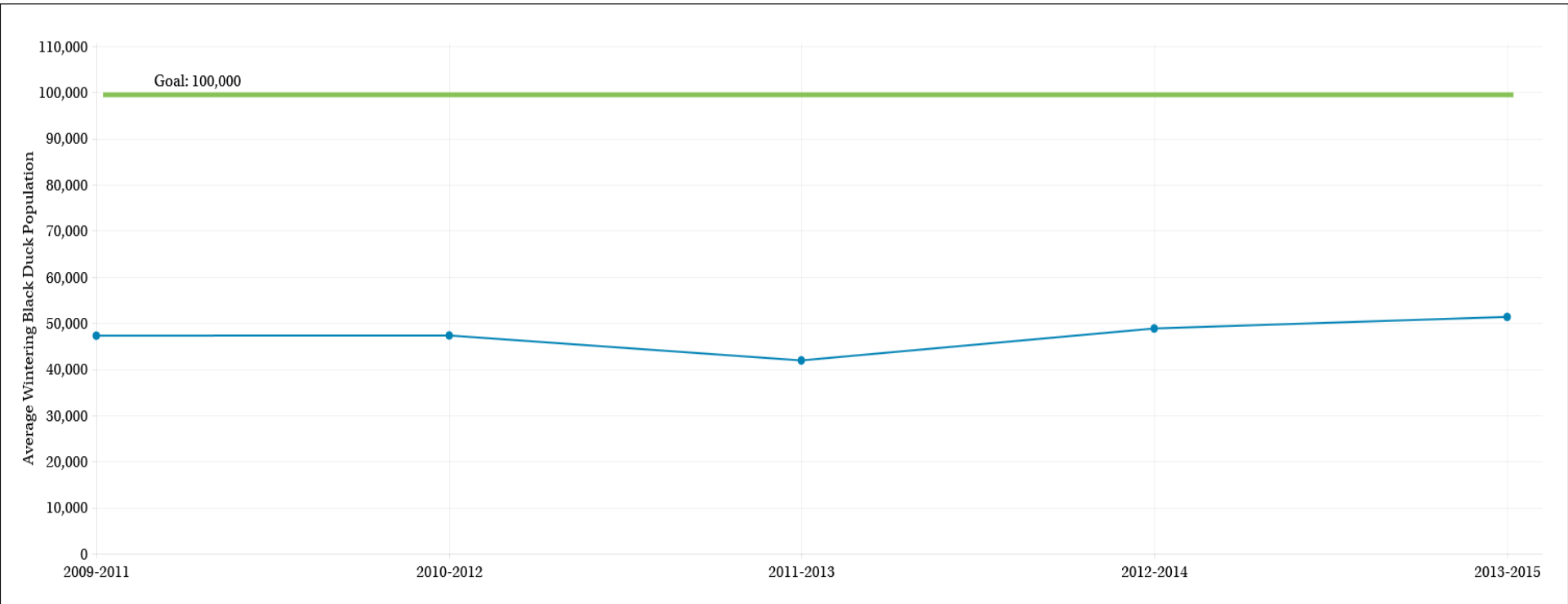


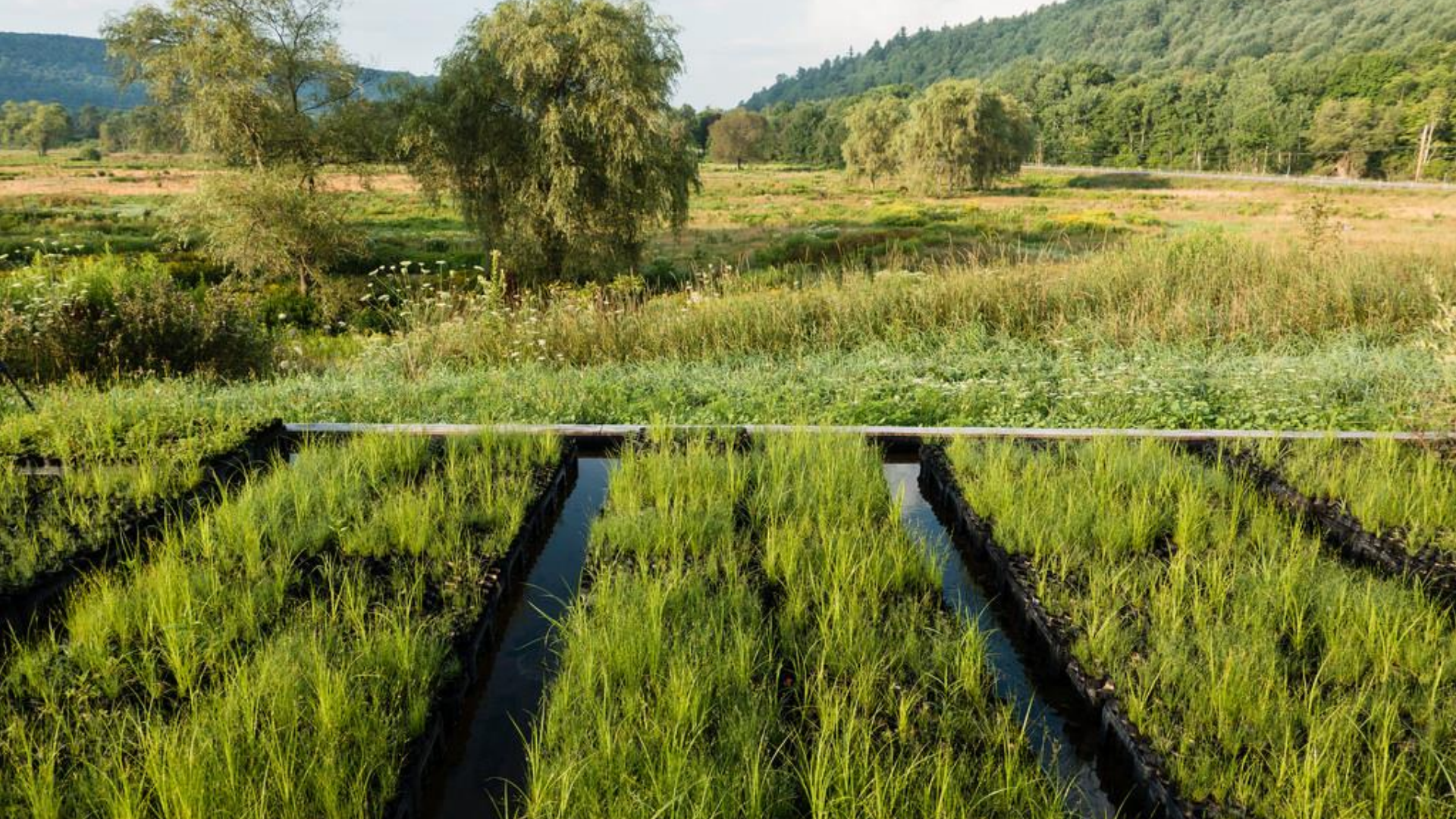
282,291

Acres of tidal wetlands in the Chesapeake Bay
watershed in 2010

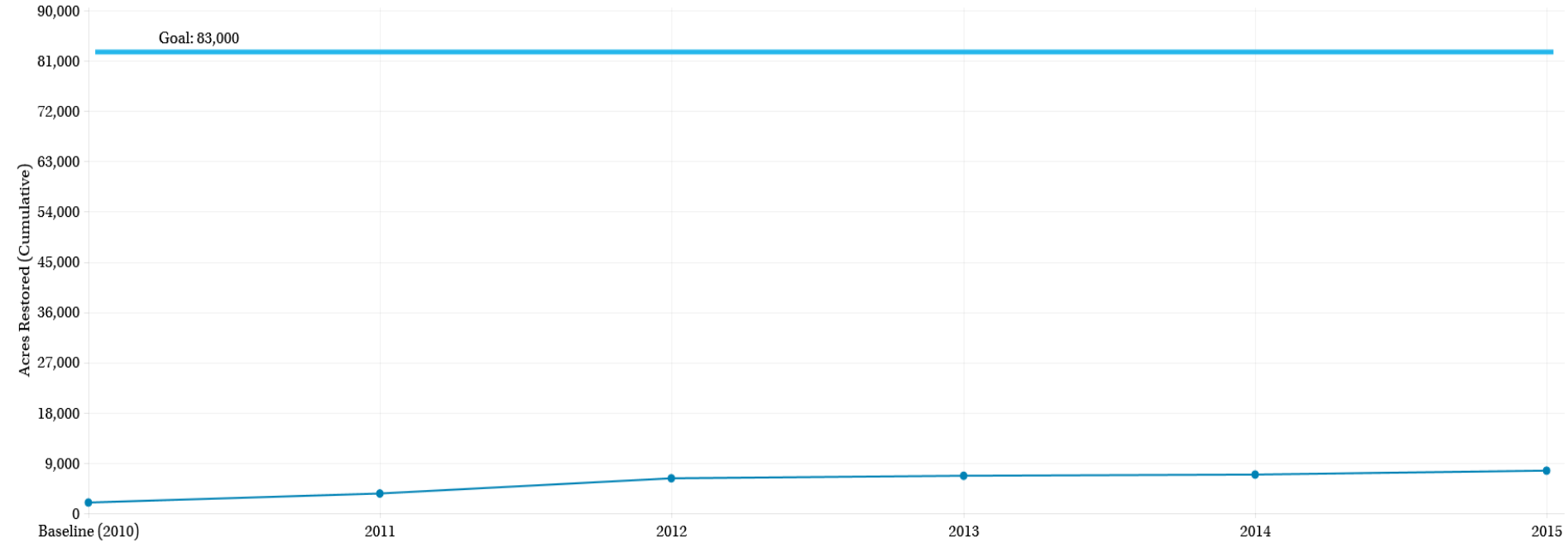


Wintering Black Ducks in the Chesapeake Bay Watershed, 2009-2015





Wetlands Restored on Agricultural Lands (Cumulative), 2010-2015



Key Factors

- Stakeholder engagement and support
- Adaptation capacity
- Understanding climate impacts

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Local Action









Key Factors

- Data and monitoring costs, metrics development and impact methodologies
- Local government capacity
- Stakeholder interest and engagement

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



**The representatives of three
Watershed Agreement outcomes will
join us on stage.**

Thanks!

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Presentation template by SlidesCarnival. Photos by Chesapeake Bay Program.