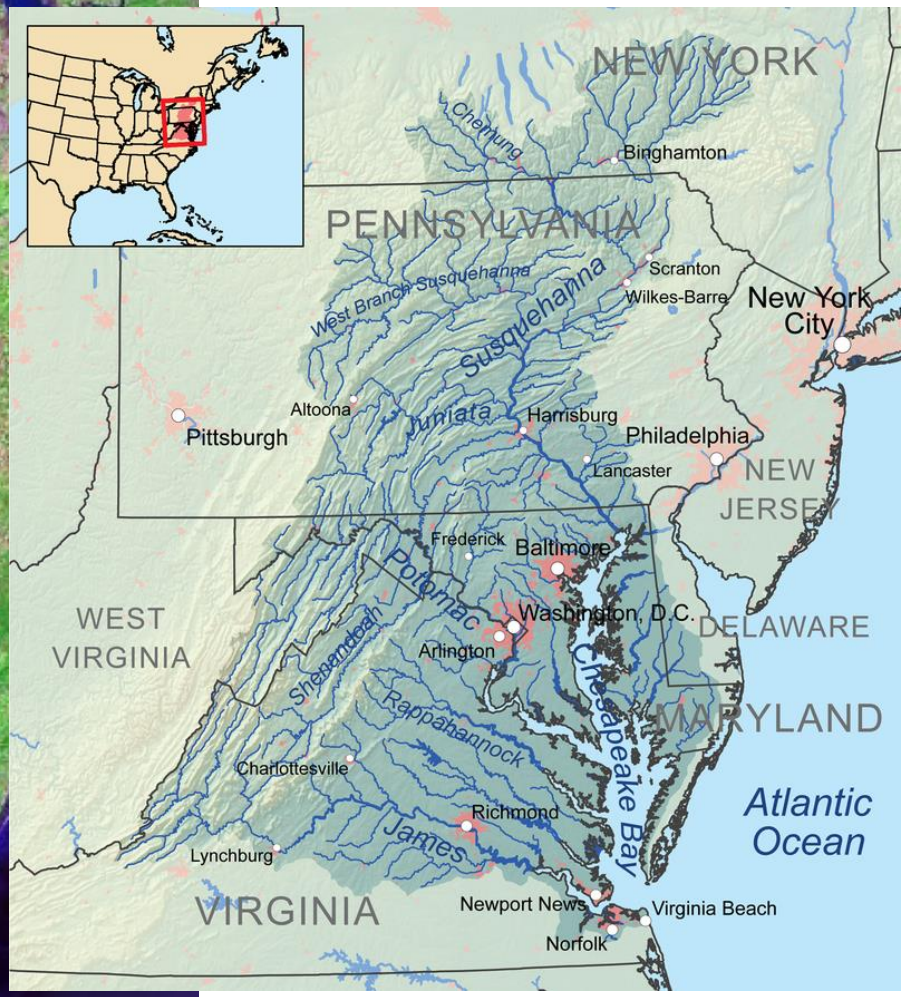
Comparing incentives for compliance in addressing transboundary water quality issues: The Chesapeake Bay

28 May 2020

Lara Fowler

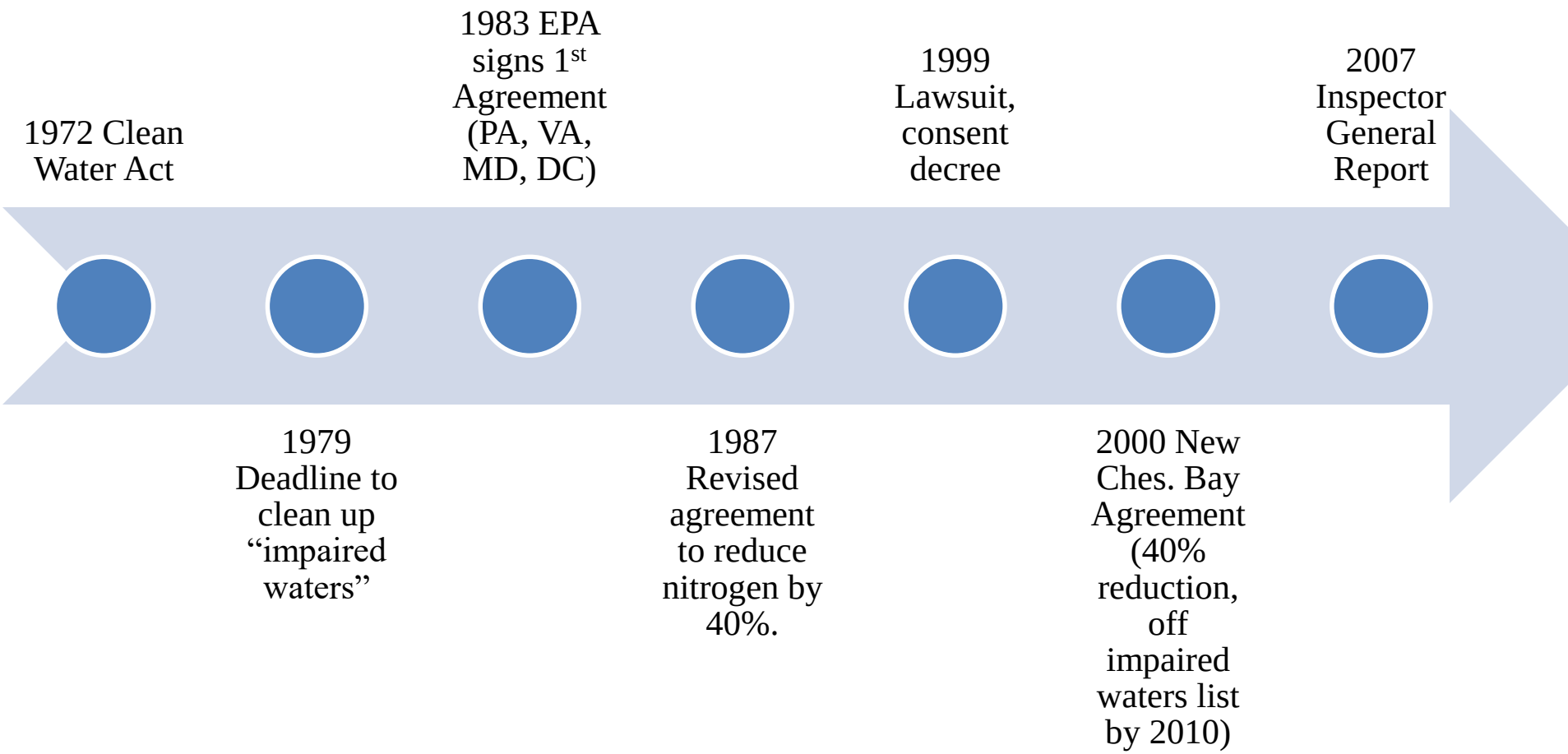
- Fulbright Scholar, Uppsala University Peace & Conflict Research Department, 2019-2020
- Senior Lecturer, Penn State Law
- Asst. Director for Outreach & Engagement, Penn States Institutes of Energy and the Environment

Efforts to restore the Chesapeake Bay have evolved over time in 6 states + Washington D.C.

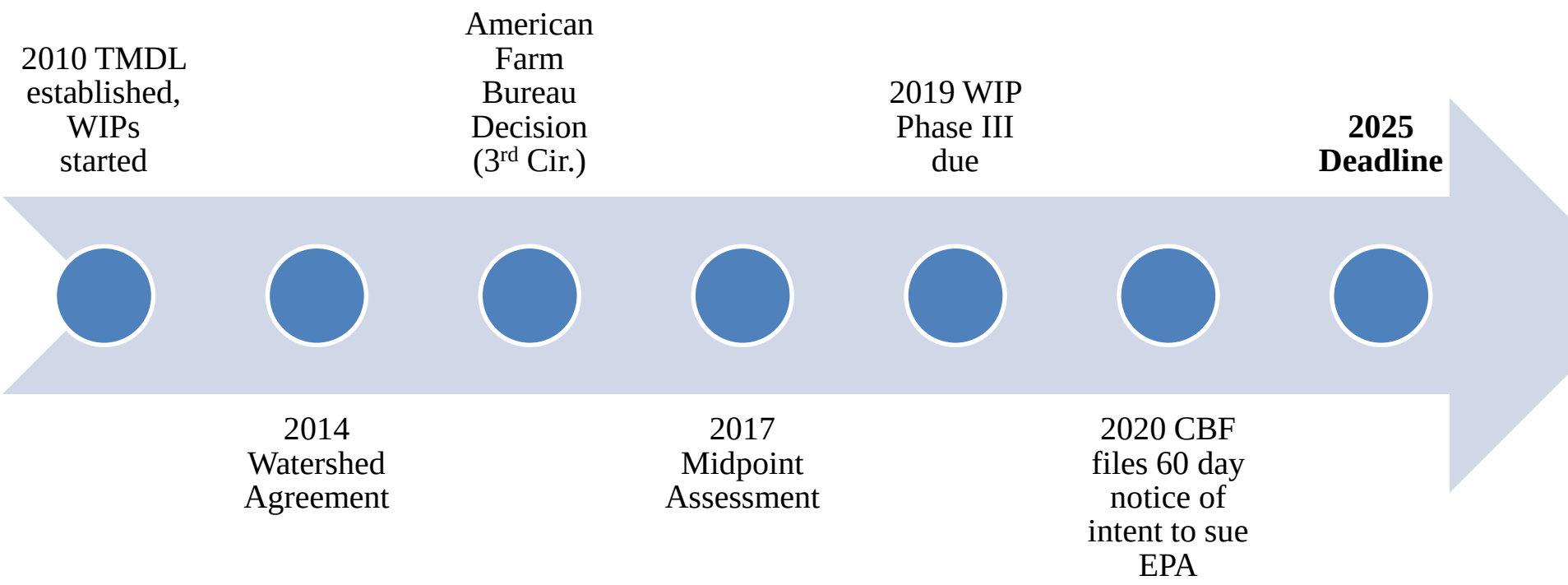


"Chesapeake watershed map" by Kmusser - Own work, Elevation data from SRTM, hydrologic data from the National Hydrography Dataset, urban areas from Vector Map, all other features from the National Atlas.. Licensed under CC BY-SA 3.0 via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Chesapeakewatershedmap.png#/media/File:Chesapeakewatershedmap.png

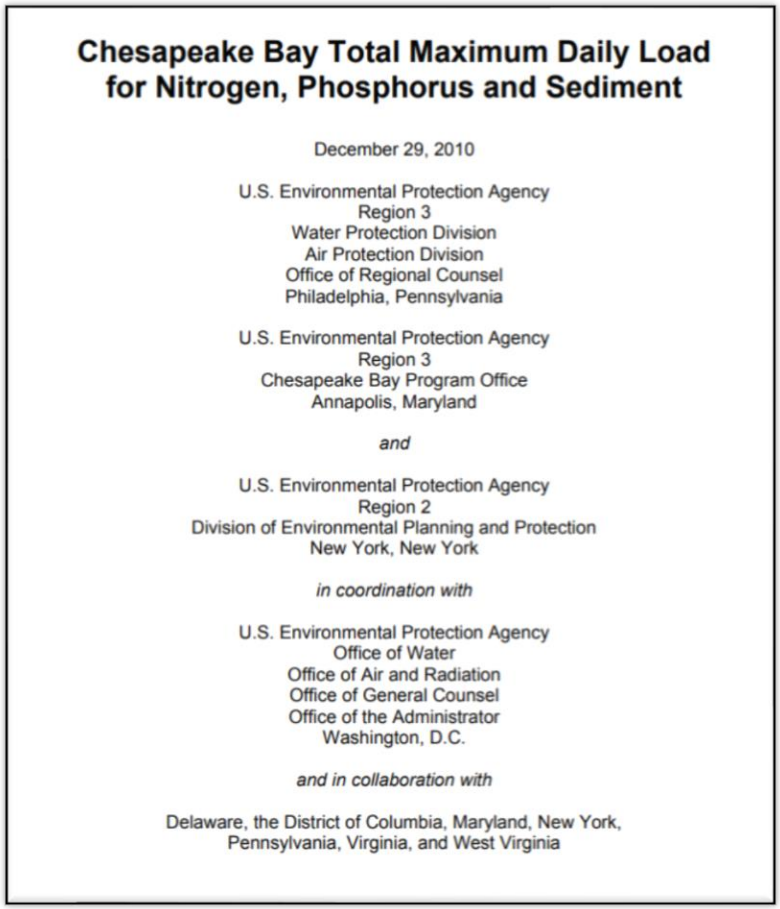
The law & policy on how to address the Chesapeake Bay has evolved over 40+ years



The legal framework has tightened over time



In 2010,the "Total Maximum Daily Load" created the first-in-the-nation regulatory requirements for an entire watershed



Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment

December 29, 2010

U.S. Environmental Protection Agency
Region 3
Water Protection Division
Air Protection Division
Office of Regional Counsel
Philadelphia, Pennsylvania

U.S. Environmental Protection Agency
Region 3
Chesapeake Bay Program Office
Annapolis, Maryland

and

U.S. Environmental Protection Agency
Region 2
Division of Environmental Planning and Protection
New York, New York

in coordination with

U.S. Environmental Protection Agency
Office of Water
Office of Air and Radiation
Office of General Counsel
Office of the Administrator
Washington, D.C.

and in collaboration with

Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia

→ Legal requirement to reduce nutrients, achieve standards for dissolved oxygen, water clarity, and Chlorophyll A, and meet living resources goals

→ The TMDL set Bay watershed limits of 185.9 million pounds of nitrogen, 12.5 million pounds of phosphorus and 6.45 billion pounds of sediment per year.

→ This equates to a 25% reduction in nitrogen, 24% reduction in phosphorus and 20% reduction in sediment.

Implementation is the responsibility of states + Washington DC through "Watershed Implementation Plans" (WIPs)

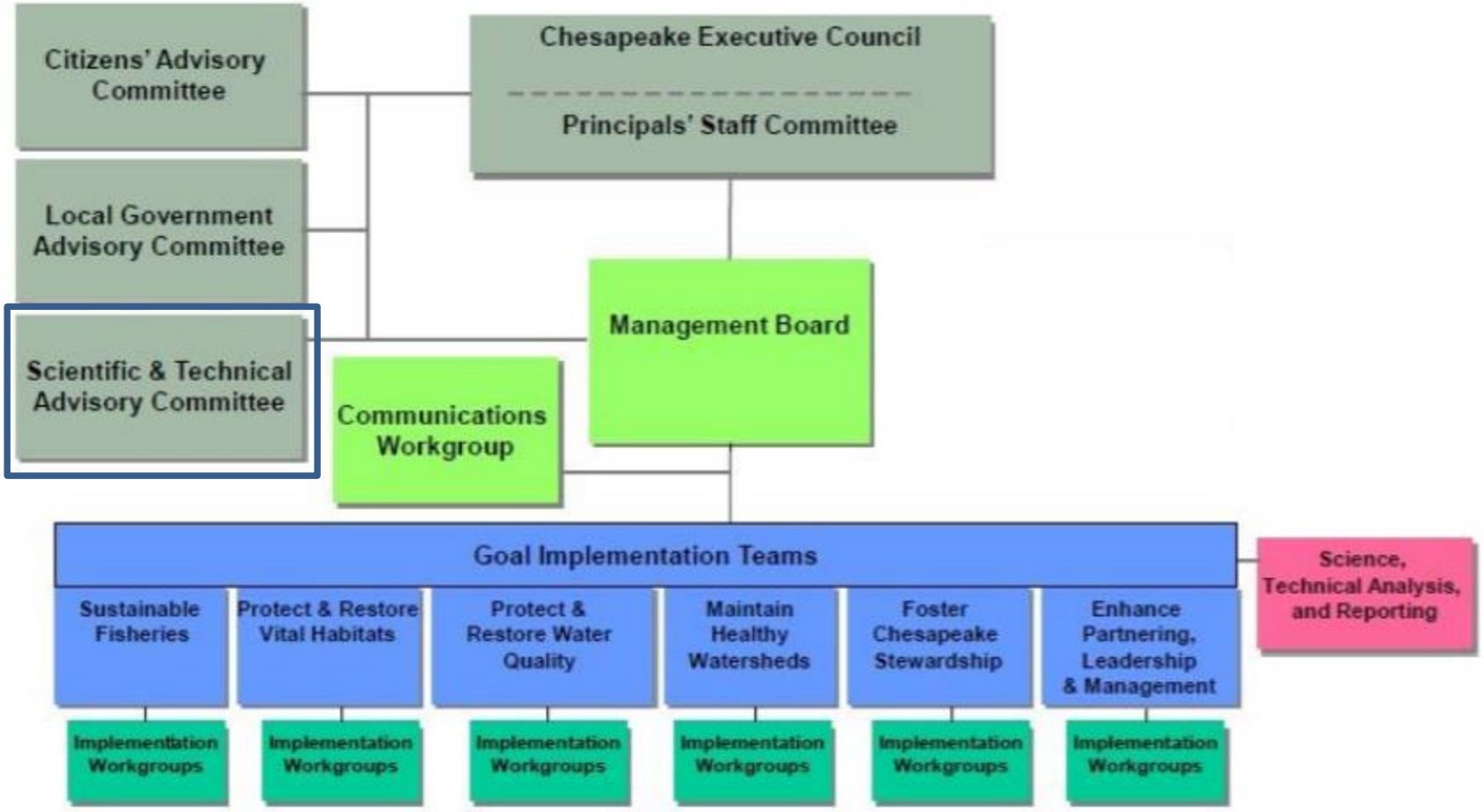
	Expectation letter	Submission
Phase I	2009	2010
Phase II	2011	2012
Phase III	2018	2019

Key Phase III requirement:

"Specify the programmatic and numeric commitments in order to have all practices and controls in place by 2025 to achieve the final Phase III WIP nutrient and sediment planning targets" Phase III Expectation Fact Sheet

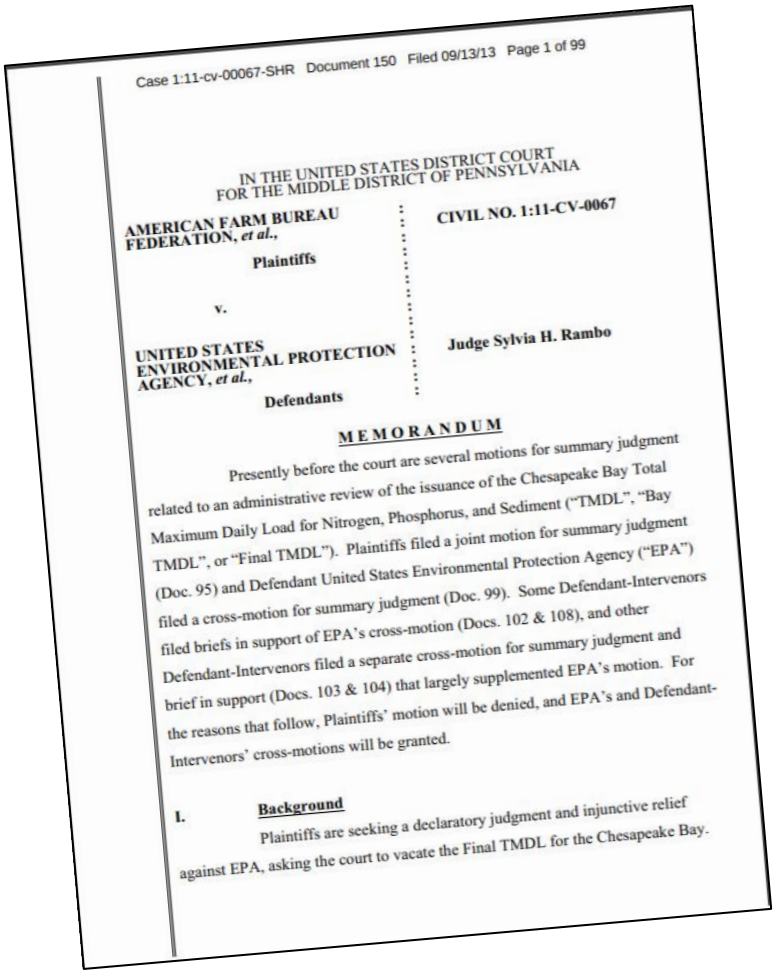
https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-fact-sheet

Chesapeake Bay Program Organizational Structure



https://www.chesapeakebay.net/documents/CBP_Governance_Document_version_3.1_%28updated_03.31.2020%29.pdf

In late 2010, the American Farm Bureau et al. promptly filed a lawsuit in federal court; however, courts upheld the TMDL



Case 1:11-cv-00067-SHR Document 150 Filed 09/13/13 Page 1 of 99

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

AMERICAN FARM BUREAU FEDERATION, *et al.*,
Plaintiffs

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*,
Defendants

CIVIL NO. 1:11-CV-0067

Judge Sylvia H. Rambo

MEMORANDUM

Presently before the court are several motions for summary judgment related to an administrative review of the issuance of the Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus, and Sediment ("TMDL", "Bay TMDL", or "Final TMDL"). Plaintiffs filed a joint motion for summary judgment (Doc. 95) and Defendant United States Environmental Protection Agency ("EPA") filed a cross-motion for summary judgment (Doc. 99). Some Defendant-Intervenors filed briefs in support of EPA's cross-motion (Docs. 102 & 108), and other Defendant-Intervenors filed a separate cross-motion for summary judgment and brief in support (Docs. 103 & 104) that largely supplemented EPA's motion. For the reasons that follow, Plaintiffs' motion will be denied, and EPA's and Defendant-Intervenors' cross-motions will be granted.

I. Background

Plaintiffs are seeking a declaratory judgment and injunctive relief against EPA, asking the court to vacate the Final TMDL for the Chesapeake Bay.

Procedural history:

- 2013: 99 page decision by Judge Rambo in U.S District Court for Central Pennsylvania upholding EPA's decision
- Appealed to 3rd Circuit Court of Appeals
- 2015: 3rd Circuit upheld case
- 2016: US Supreme Court denied certiorari

Key findings:

- 2010 TMDL represented lawful federalism under the Clean Water Act, particularly given consultation/engagement
- Public comment period was sufficient
- EPA's modeling & use of data was appropriate

In 2014, the Chesapeake Watershed Agreement provided principles, goals & outcomes

WATER QUALITY

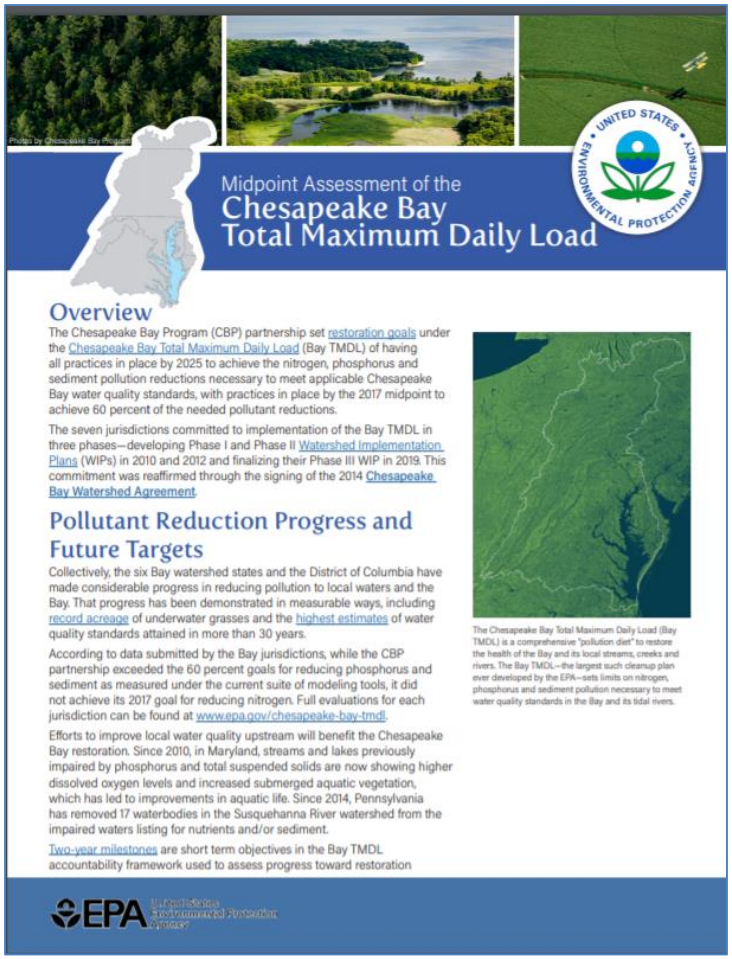
Restoring the Bay's waters is critical to overall watershed restoration because clean water is the foundation for healthy fisheries, habitats and communities across the region. However excess amounts of nitrogen, phosphorus and sediment in the Bay and its tributaries have caused many sections of the Bay to be listed as "impaired" under the Clean Water Act. The Chesapeake Bay Total Maximum Daily Load (TMDL) is driving nutrient and sediment reductions as described in the Watershed Implementation Plans (WIPs), adopted by the states and the District of Columbia, and establishes the foundation for water quality improvements embodied in this Agreement. These plans set nutrient and sediment reduction targets for various sources—stormwater, agriculture, air deposition, wastewater and septic systems.

GOAL: Reduce pollutants to achieve the water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health.

7

2017 Watershed Implementation Plans (WIP) Outcome	By 2017, have practices and controls in place that are expected to achieve 60 percent of the nutrient and sediment pollution load reductions necessary to achieve applicable water quality standards compared to 2009 levels.
2025 WIP Outcome	By 2025, have all practices and controls installed to achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation and chlorophyll *a* standards as articulated in the Chesapeake Bay TMDL document.
Water Quality Standards Attainment and Monitoring Outcome	Continually improve the capacity to monitor and assess the effects of management actions being undertaken to implement the Bay TMDL and improve water quality. Use the monitoring results to report annually to the public on progress made in attaining established Bay water quality standards and trends in reducing nutrients and sediment in the watershed.

In 2017, the Mid-Point Assessment found progress but need for more action



Midpoint Assessment of the
Chesapeake Bay
Total Maximum Daily Load

Overview

The Chesapeake Bay Program (CBP) partnership set restoration goals under the Chesapeake Bay Total Maximum Daily Load (Bay TMDL) of having all practices in place by 2025 to achieve the nitrogen, phosphorus and sediment pollution reductions necessary to meet applicable Chesapeake Bay water quality standards, with practices in place by the 2017 midpoint to achieve 60 percent of the needed pollutant reductions.

The seven jurisdictions committed to implementation of the Bay TMDL in three phases—developing Phase I and Phase II Watershed Implementation Plans (WIPs) in 2010 and 2012 and finalizing their Phase III WIP in 2019. This commitment was reaffirmed through the signing of the 2014 Chesapeake Bay Watershed Agreement.

Pollutant Reduction Progress and Future Targets

Collectively, the six Bay watershed states and the District of Columbia have made considerable progress in reducing pollution to local waters and the Bay. That progress has been demonstrated in measurable ways, including record acreage of underwater grasses and the highest estimates of water quality standards attained in more than 30 years.

According to data submitted by the Bay jurisdictions, while the CBP partnership exceeded the 60 percent goals for reducing phosphorus and sediment as measured under the current suite of modeling tools, it did not achieve its 2017 goal for reducing nitrogen. Full evaluations for each jurisdiction can be found at www.epa.gov/chesapeake-bay-tmdl.

Efforts to improve local water quality upstream will benefit the Chesapeake Bay restoration. Since 2010, in Maryland, streams and lakes previously impaired by phosphorus and total suspended solids are now showing higher dissolved oxygen levels and increased submerged aquatic vegetation, which has led to improvements in aquatic life. Since 2014, Pennsylvania has removed 17 waterbodies in the Susquehanna River watershed from the impaired waters listing for nutrients and/or sediment.

Two-year milestones are short term objectives in the Bay TMDL accountability framework used to assess progress toward restoration

The Chesapeake Bay Total Maximum Daily Load (Bay TMDL) is a comprehensive "pollution diet" to restore the health of the Bay and its local streams, creeks and rivers. The Bay TMDL—the largest such cleanup plan ever developed by the EPA—sets limits on nitrogen, phosphorus and sediment pollution necessary to meet water quality standards in the Bay and its tidal rivers.

EPA

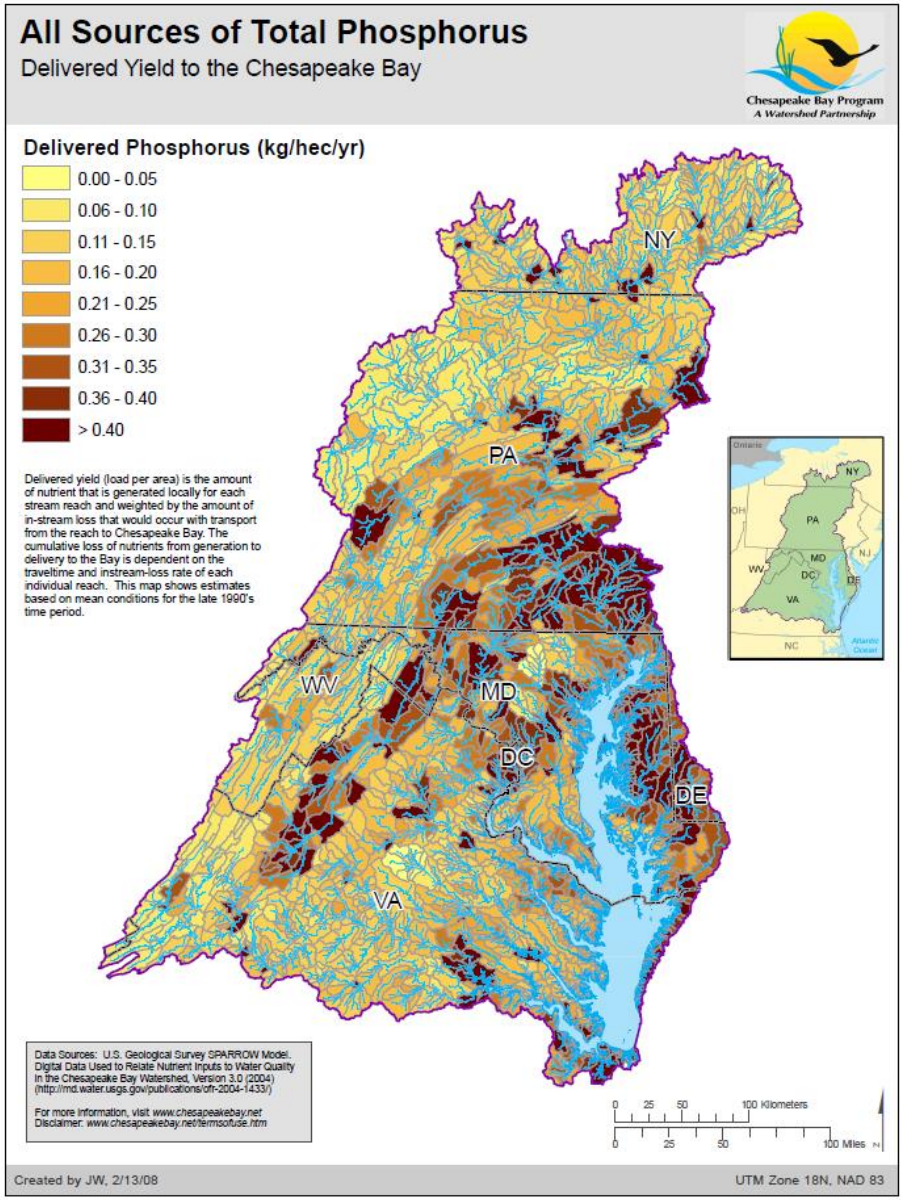
Considerable measurable progress:

- record acreage of underwater grasses
- highest estimates of water quality standards attained in 30 years+

While the 60 percent goals for reducing phosphorus and sediment as measured under the current suite of modeling tools were exceeded, the goal for reducing nitrogen was not met.

-EPA 2017 Mid Point Assessment

Phosphorous runoff improving in many areas



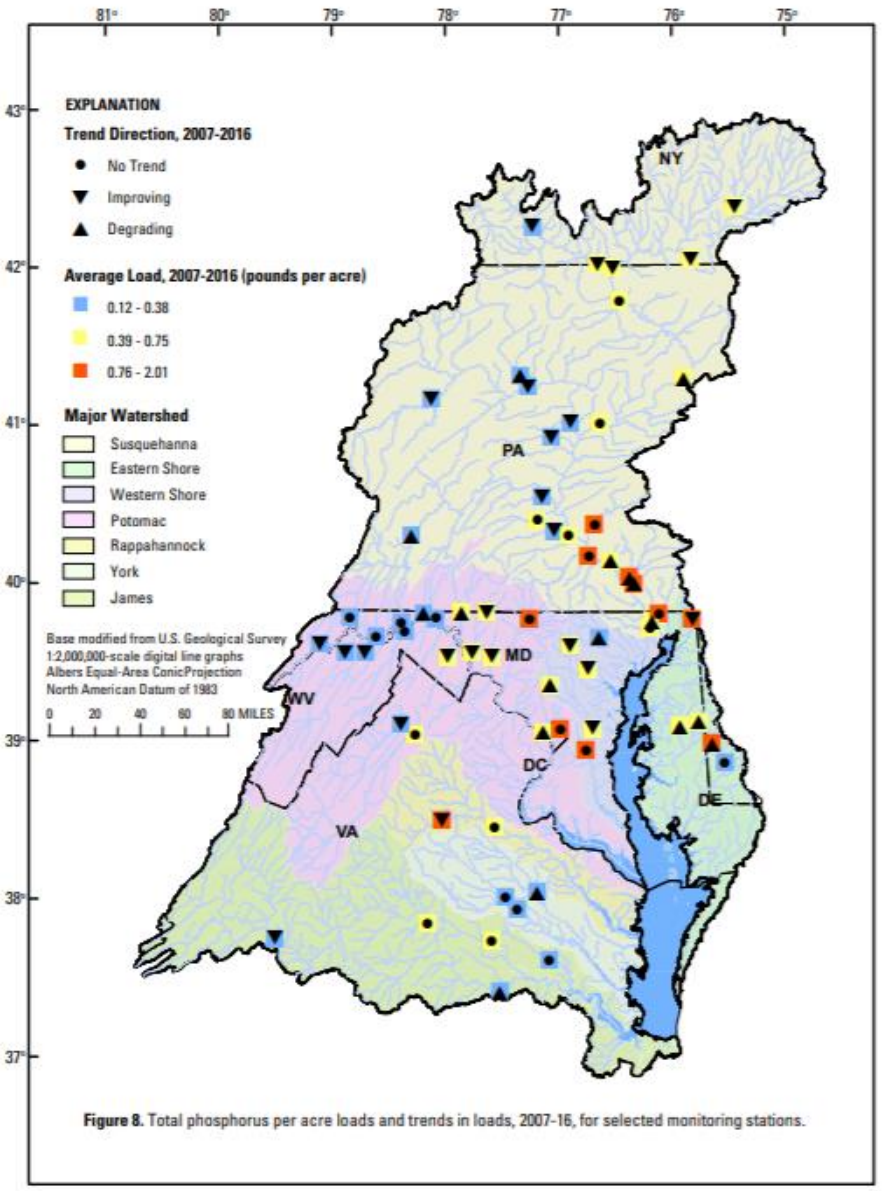
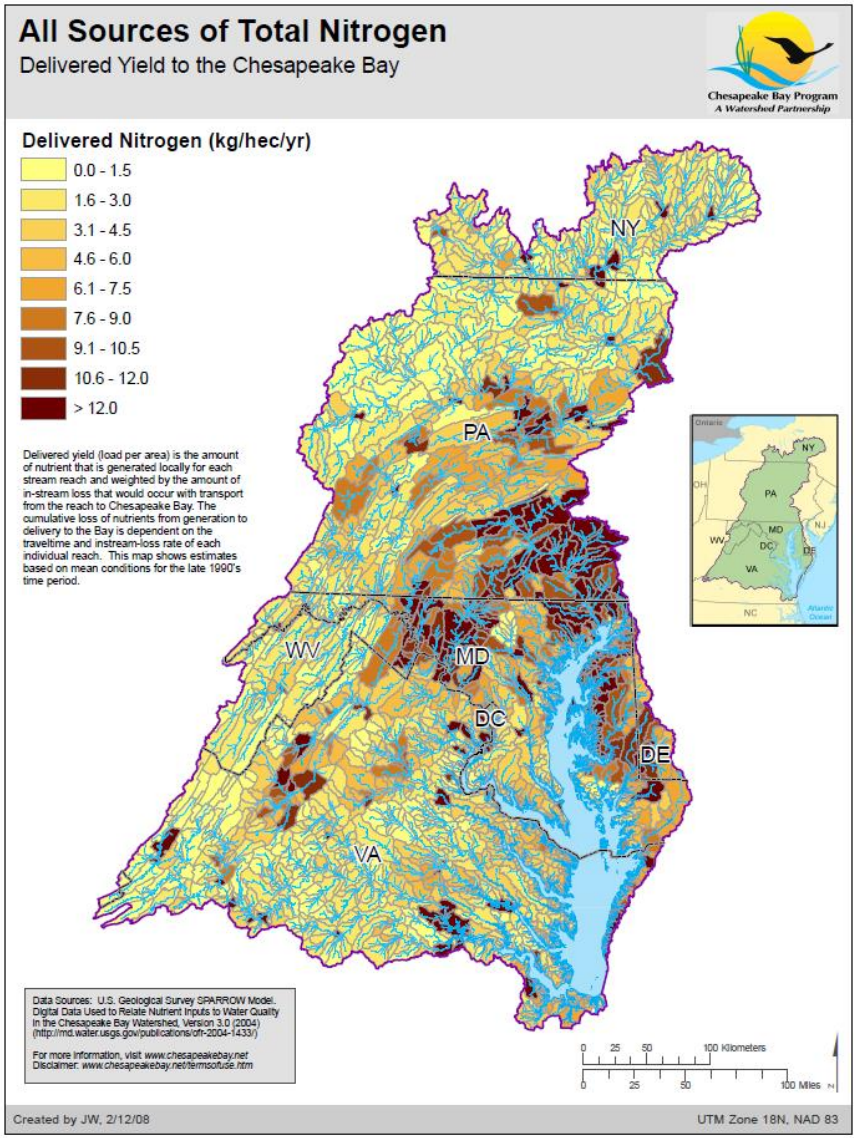


Figure 8. Total phosphorus per acre loads and trends in loads, 2007-16, for selected monitoring stations.

Moyer & Blomquist (2017)

Nitrogen runoff goals not yet met



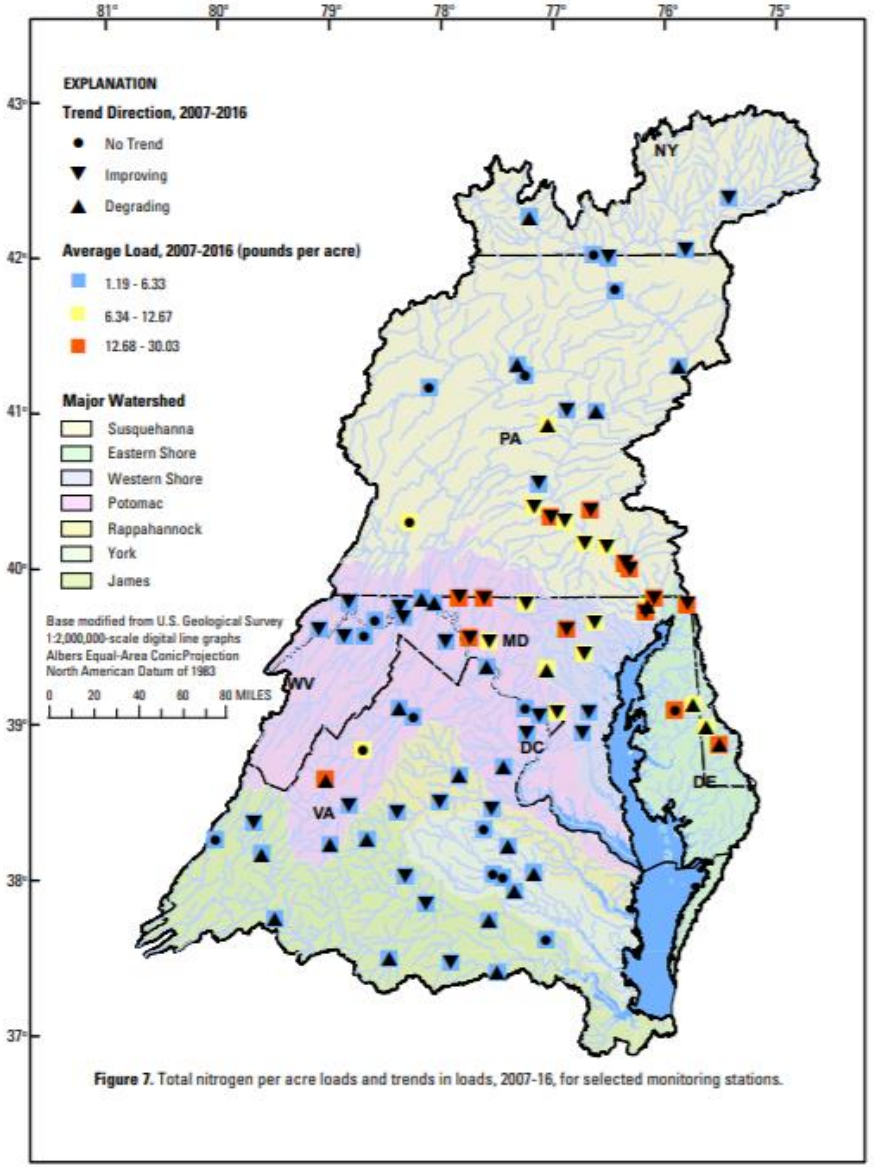
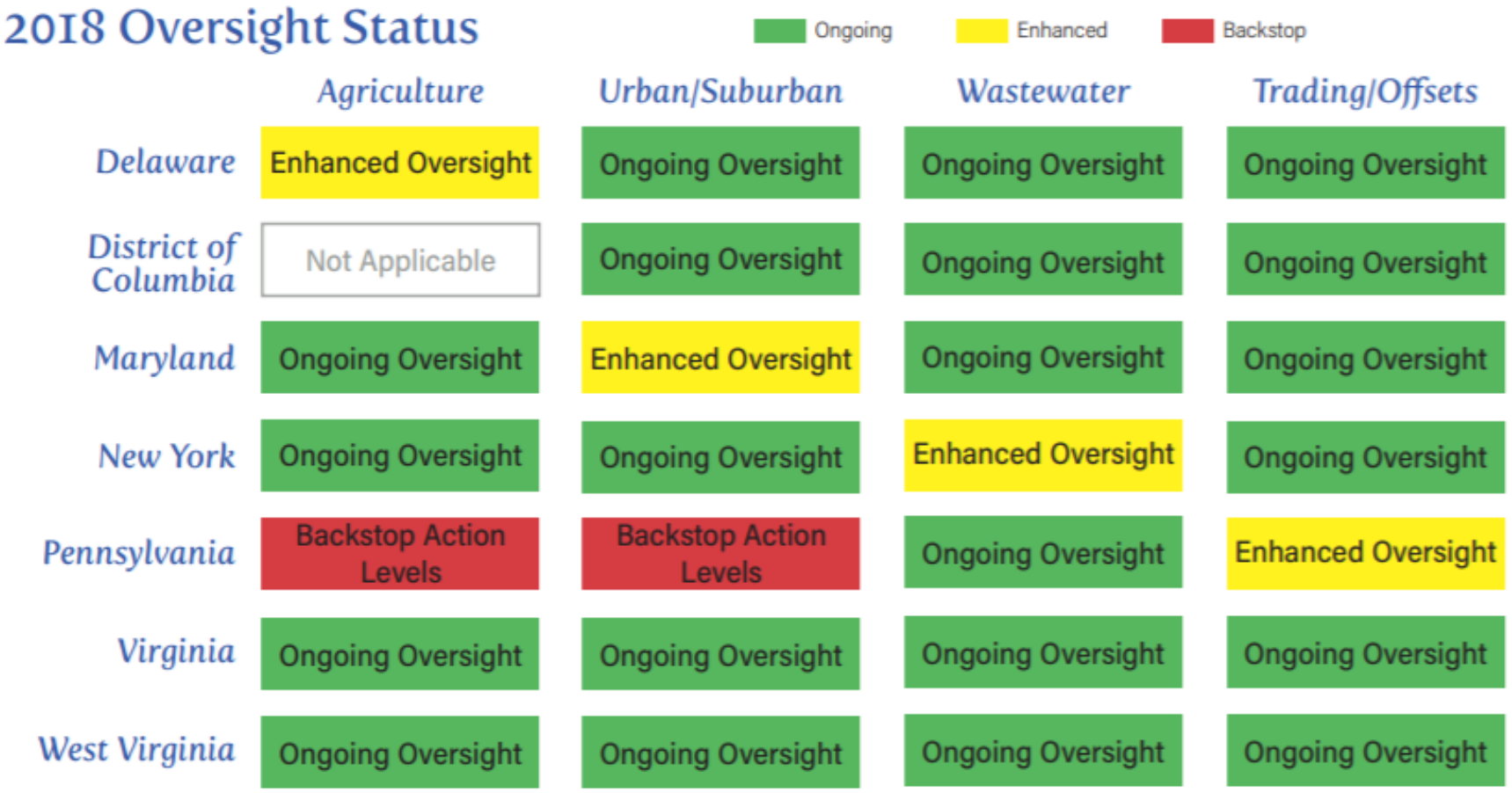


Figure 7. Total nitrogen per acre loads and trends in loads, 2007-16, for selected monitoring stations.

Moyer & Blomquist (2017)

The Mid Point Assessment also examined key areas of regulation state by state



https://www.epa.gov/sites/production/files/2018-07/documents/factsheet-epa-midpoint-assessment-chesapeake-bay-tmdl.pdf

In August 2019, jurisdictions submitted Phase III Watershed Implementation Plans for EPA review; feedback provided Dec. 2019

→ Virginia and Maryland plans, if fully funded and implemented, can meet their targets.

→ Pennsylvania's plan underfunded by $250-300 million and falls 25% short of meeting its nitrogen-reduction goal.

In January 2020, Chesapeake Bay Program Director said the "TMDL is not enforceable"; huge backlash & questions

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EPA Chesapeake Bay Program director says 2025 pollution targets are not 'enforceable'

By RACHAEL PACELLA
CAPITAL GAZETTE | JAN 03, 2020 | 6:23 PM

"The head of the EPA's Chesapeake Bay Program stepped back from strict enforcement of 2025 pollution goals for the Chesapeake Bay Friday, calling the technical targets "an aspiration" and not an enforceable deadline.

The comments by program Director Dana Aunkst near the end of a two-day conference in Annapolis sparked criticism from state officials and outrage from several environmental groups who said the comments represent the Trump administration's retreat from the Chesapeake Bay cleanup effort."

https://www.capitalgazette.com/environment/ac-cn-bay-comission-0104-20200103-o5nun6uojbapjecl5dak7p62wa-story.html

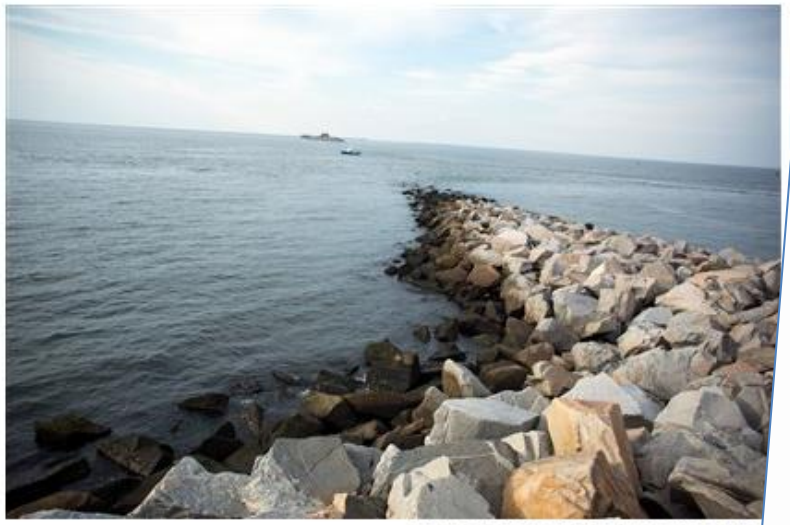
Dana Aunkst
Director, Chesapeake Bay Program
U.S. Environmental Protection Agency

Particular focus on Pennsylvania: while making improvements, PA has long lagged behind in meeting water quality goals

Pittsburgh Post-Gazette
post-gazette.com

EPA gives poor marks to Pa. on protecting Chesapeake Bay watershed

March 23, 2015 12:00 AM



Dennis Drenner/The New York Tim

Pennsylvania discharges more nitrogen into tributaries of the Chesapeake Bay than any other state.

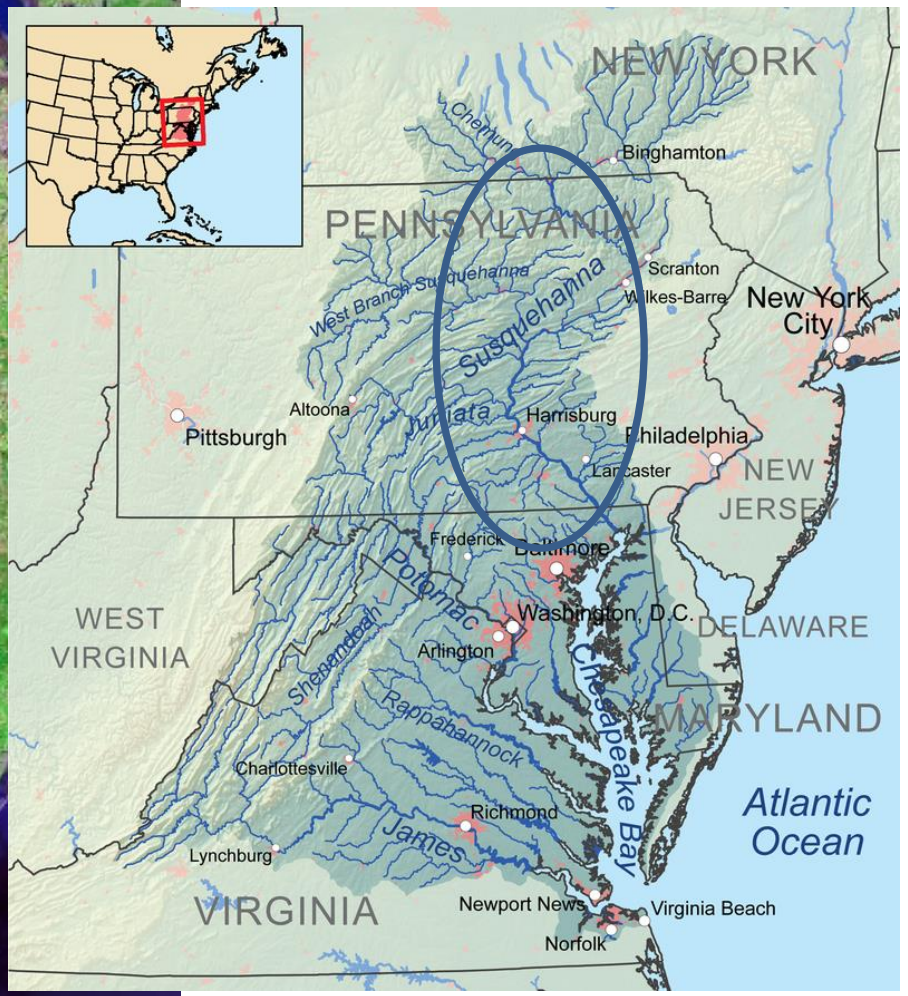
By Don Hopey / Pittsburgh Post-Gazette

More pollution flowing into Chesapeake Bay than expected

APRIL 21, 2015 | 12:01 AM

BY MARIE CUSICK

More than 50% of the inflow of freshwater into the Chesapeake Bay comes from the Susquehanna River



"Chesapeake watershed map" by Kmusser - Own work, Elevation data from SRTM, hydrologic data from the National Hydrography Dataset, urban areas from Vector Map, all other features from the National Atlas.. Licensed under CC BY-SA 3.0 via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Chesapeakewatershedmap.png#/media/File:Chesapeakewatershedmap.png

PA has the most number of impaired streams or stream segments in the U.S.

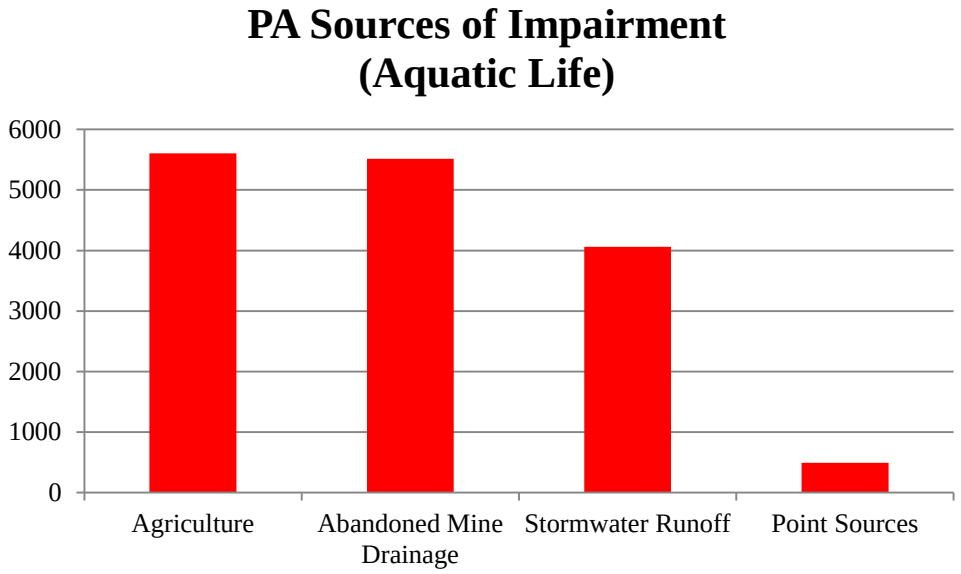
Impaired Waters Listed By State

Description of this table

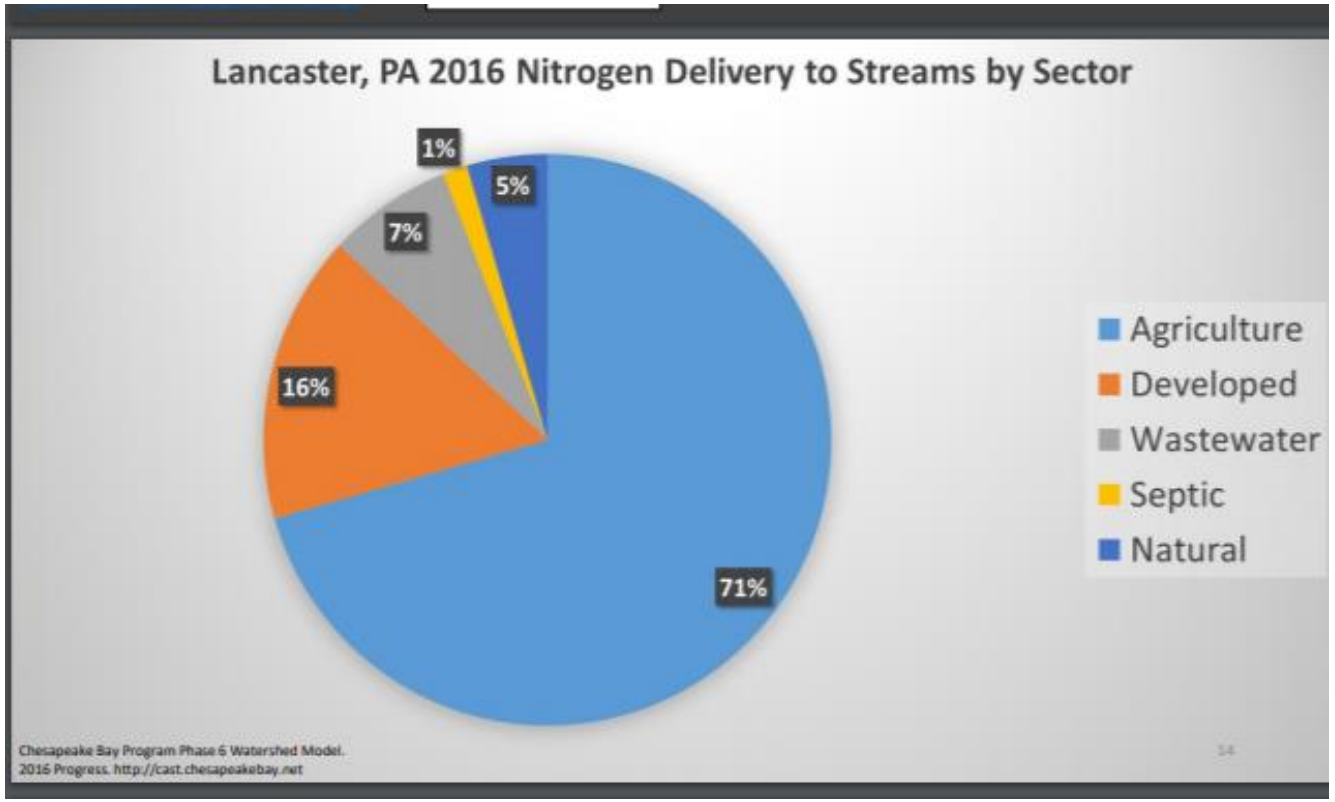
State Name	Number of Waters on 303(d) List
Alabama	283
Alaska	35
American Samoa	45
Arizona	91
Arkansas	225
California	1,021
Colorado	244
Connecticut	461
Delaware	101
District Of Columbia	36
Florida	2,292
Georgia	242
Guam	47
Hawaii	298
Idaho	741
Illinois	1,057
Indiana	1,836
Iowa	480
Kansas	1,372
Kentucky	1,433
Louisiana	236
Maine	114
Maryland	184
Massachusetts	720
Michigan	2,352
Minnesota	1,144
Mississippi	229
Missouri	257
Montana	480
N. Mariana Islands	24
Nebraska	342
Nevada	215
New Hampshire	1,449
New Jersey	716
New Mexico	209
New York	1,543
North Carolina	1,130
North Dakota	201
Ohio	267
Oklahoma	657
Oregon	1,397
Pennsylvania	6,957
Puerto Rico	231
Rhode Island	120
South Carolina	961
South Dakota	166
Tennessee	1,012
Texas	719
Utah	156
Vermont	104
Virgin Islands	87
Virginia	1,523
Washington	2,420
West Virginia	1,097
Wisconsin	593
Wyoming	107

Total: 42,459 impaired waters

There are various sources of impairment; big ones include ag and urban stormwater runoff



Feedback for Pennsylvania: Phase III WIP meets numeric targets for P; only 75% for N



https://www.chesapeakebay.net/channel_files/25878/ag_wg_trentacoste_6_19_18.pdf

"Pennsylvania's current planned efforts do not achieve the nitrogen Phase III WIP planning target, nor does the plan explain how or when additional reductions from the remaining County Action Plans will be incorporated into the broader plan to achieve the nitrogen planning target."

https://www.epa.gov/sites/production/files/2019-12/documents/pa.pdf

Huge amount of effort and $ going into watershed restoration work, but PA lawmakers have proposed freezing conservation budget

PA Environment Digest Blog

An Update On Environmental Issues In Pennsylvania
Edited By: David E. Hess
Former Secretary, PA Department of Environmental Protection

TUESDAY, APRIL 21, 2020

House Republicans Pass Bill To Freeze Funding For County Conservation Districts, Local Parks, Farm Conservation, Watershed Restoration Projects; Will Hurt Local Economies

On April 21, House Republicans passed House Bill 1822 (M.Keller-R-Perry) by a party line vote to freeze funding for county conservation districts and from a series of environmental and other funds to support

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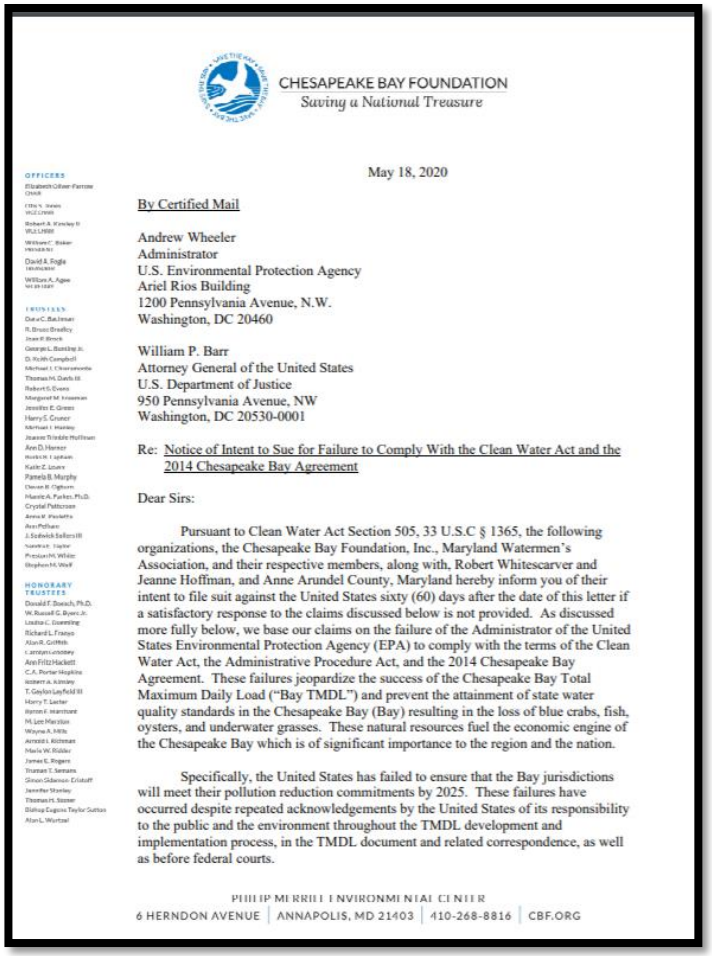
David E. Hess

This Blog is a companion to www.PaEnvironmentDigest.com, the weekly online newsletter and a product of PA Environment News

https://paenvironmentdaily.blogspot.com/2020/04/house-republicans-pass-bill-to-freeze.html

In 2020, other states, NGO sent 60 day notices of intent to sue EPA for failure to meet requirements



CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

May 18, 2020

By Certified Mail

Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

William P. Barr
Attorney General of the United States
U.S. Department of Justice
950 Pennsylvania Avenue, NW
Washington, DC 20530-0001

Re: Notice of Intent to Sue for Failure to Comply With the Clean Water Act and the 2014 Chesapeake Bay Agreement

Dear Sirs:

Pursuant to Clean Water Act Section 505, 33 U.S.C § 1365, the following organizations, the Chesapeake Bay Foundation, Inc., Maryland Watermen's Association, and their respective members, along with, Robert Whitescarver and Jeanne Hoffman, and Anne Arundel County, Maryland hereby inform you of their intent to file suit against the United States sixty (60) days after the date of this letter if a satisfactory response to the claims discussed below is not provided. As discussed more fully below, we base our claims on the failure of the Administrator of the United States Environmental Protection Agency (EPA) to comply with the terms of the Clean Water Act, the Administrative Procedure Act, and the 2014 Chesapeake Bay Agreement. These failures jeopardize the success of the Chesapeake Bay Total Maximum Daily Load ("Bay TMDL") and prevent the attainment of state water quality standards in the Chesapeake Bay (Bay) resulting in the loss of blue crabs, fish, oysters, and underwater grasses. These natural resources fuel the economic engine of the Chesapeake Bay which is of significant importance to the region and the nation.

Specifically, the United States has failed to ensure that the Bay jurisdictions will meet their pollution reduction commitments by 2025. These failures have occurred despite repeated acknowledgements by the United States of its responsibility to the public and the environment throughout the TMDL development and implementation process, in the TMDL document and related correspondence, as well as before federal courts.

PHILIP MERRILL ENVIRONMENTAL CENTER
6 HERNDON AVENUE | ANNAPOLIS, MD 21403 | 410-268-8816 | CBF.ORG

Two sets of notices:

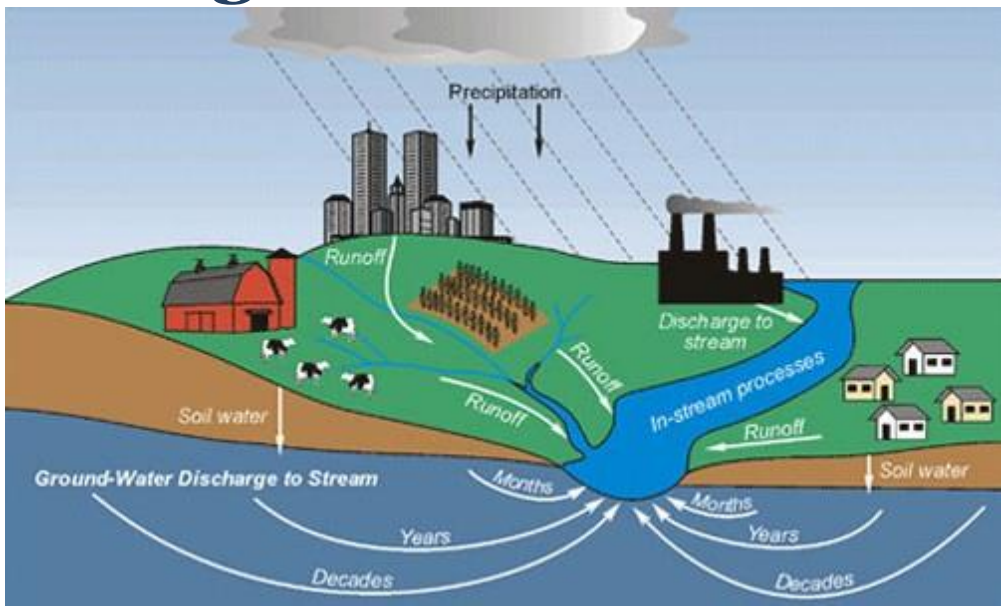
- Chesapeake Bay Foundation, together with the MD Watermen's Association, Anne Arundel County, and Virginia cattle farmers
- Attorneys General of Maryland, Virginia, and the District of Columbia

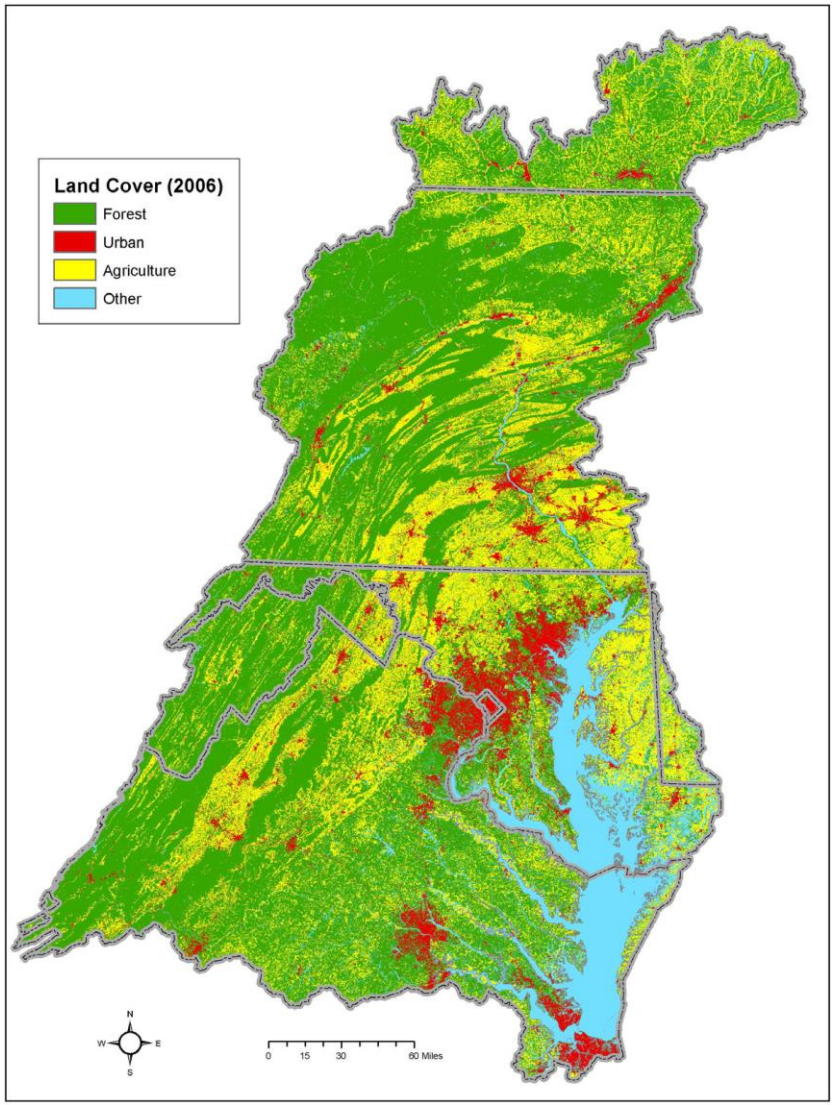
Issues:

- EPA has failed to ensure the Bay jurisdictions will meet their pollution reduction commitments by the 2025 deadline.
- The agency's failure is a violation of the federal Clean Water Act, the Administrative Procedure Act, and the 2014 Chesapeake Bay Agreement.

https://www.cbf.org/document-library/litigation/cbf-epa-noi-may-18-2020.pdf

Issues going forward: non-point source; land use; Conowingo Dam; stormwater/climate change





Storms Irene & Lee (2011) mobilized sediment; post-storm study revealed reservoirs on the Susquehanna be to “dynamically” full

13 Sept. 2011, Post Tropical Storms Irene and Lee
https://eoimages.gsfc.nasa.gov/images/imagerecords/89000/89003/chesapeake_tmo_2011256.jpg

High runoff, heightened concerns.
2019 = highest mean streamflow since 1937.

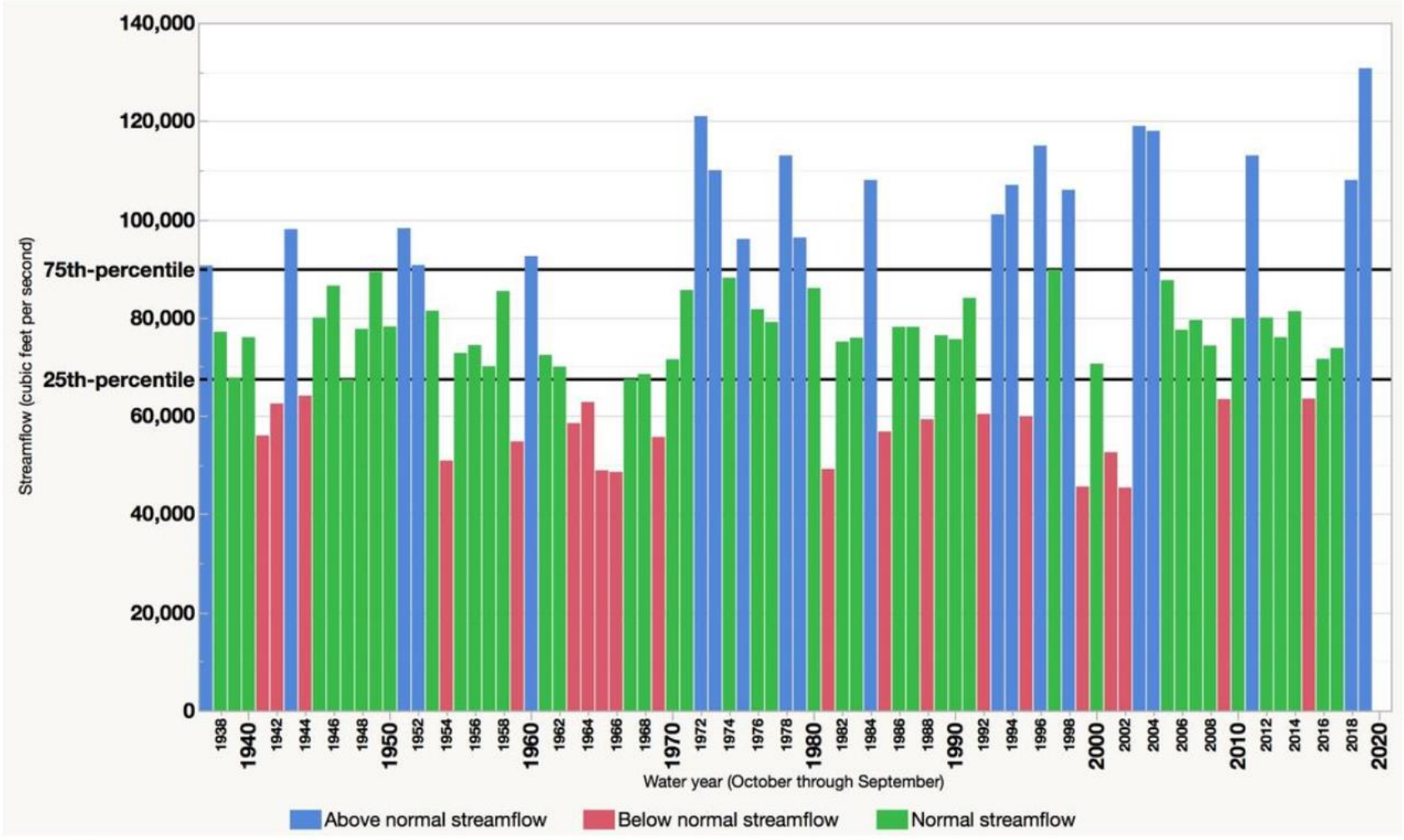
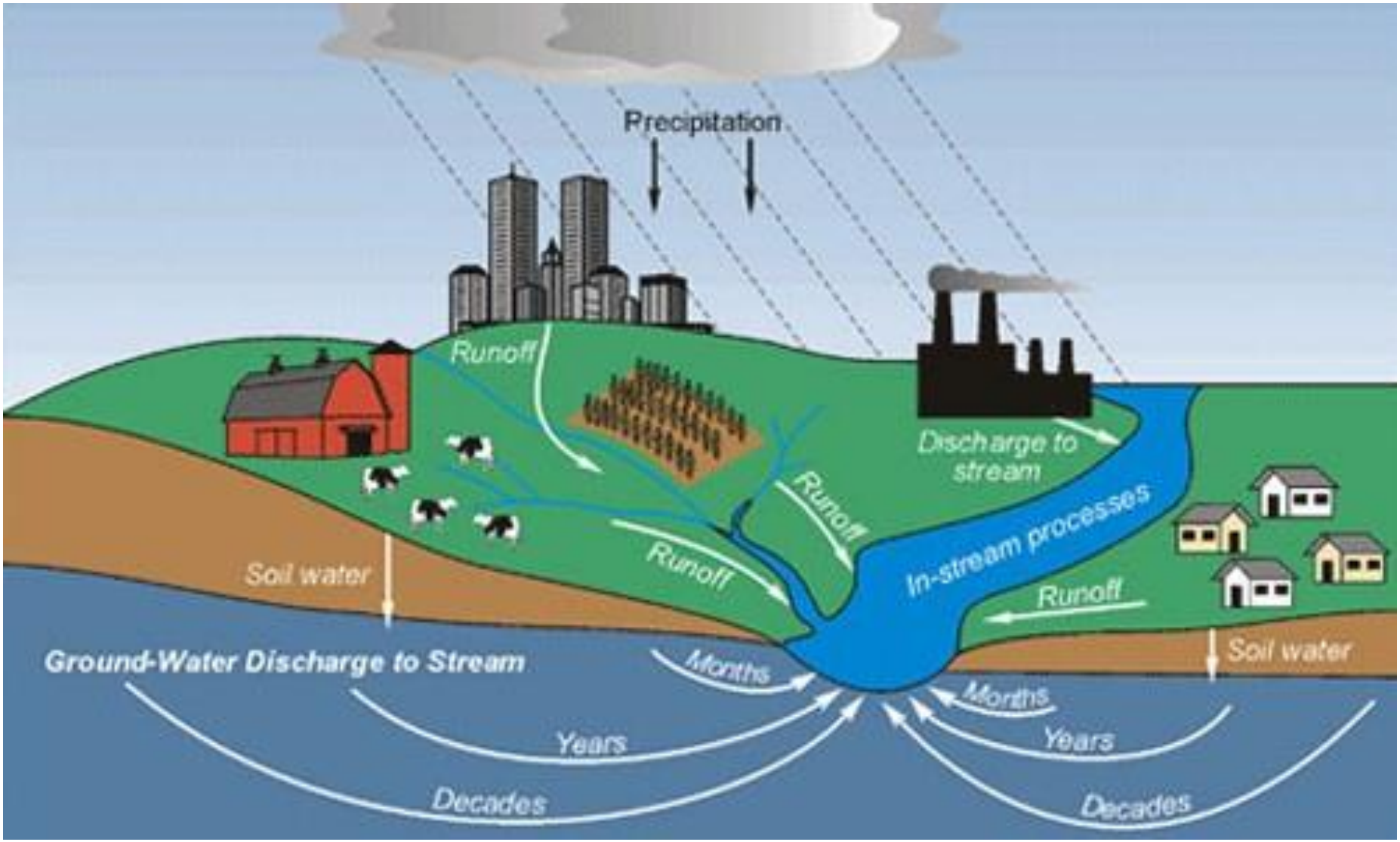


Figure 1. Annual mean streamflow into the Chesapeake Bay, water years 1937–2019.

https://www.usgs.gov/centers/cba/science/record-freshwater-flow-water-year-2019-affects-conditions-chesapeake-bay?qt-science_center_objects=0#qt-science_center_objects

Non-point source runoff is the most challenging concern, but also an opportunity?



http://www.chesapeakebay.net/issues/issue/groundwater

March 2016 “PA in the Balance” Conference brought 100+ stakeholders together to discuss water quality and agriculture

This conference feels like “we” can all try to pull together to make things better for the watershed and the Bay. It’s real lonely feeling that ag is in this alone, and to blame for what has happened.

- Conference Participant

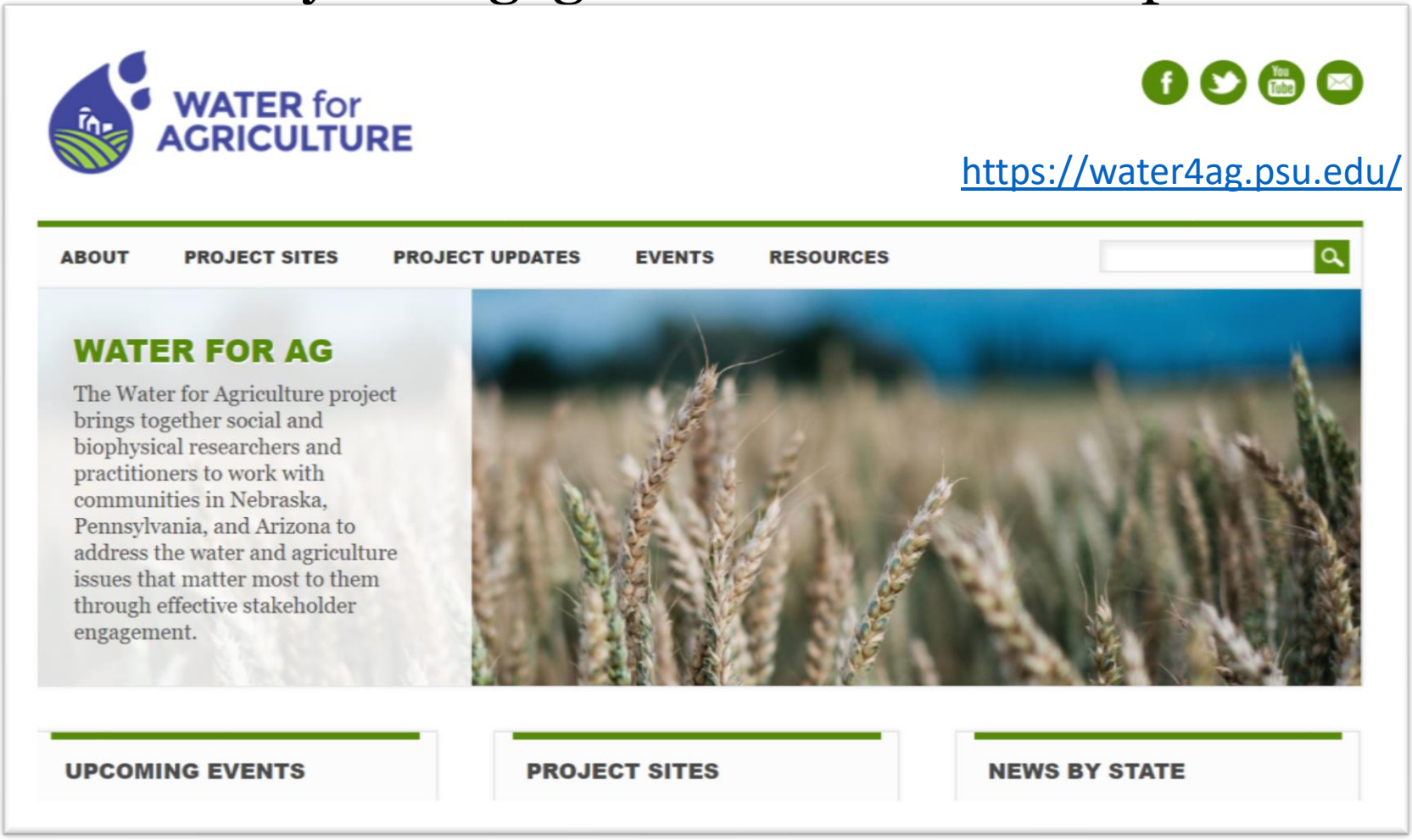
For reports and more, see https://agsci.psu.edu/aec/pa-in-balanc

Participants identified a number of key themes

- Embrace a Culture of Stewardship
- Develop and Deploy Effective Targeting
- Integrate Soil Health, Manure Management, and Riparian Ecosystem Stewardship into Water Quality Strategies
- Support Community Based Approaches
- Recognize and Support a Three Pronged Approach to Accelerate Conservation
- Revisit and Retool Conservation Incentive Programs
- Collaboratively Seek New Funding Opportunities

For reports and more, see https://agsci.psu.edu/aec/pa-in-balance

Water for Agriculture research project provides another way to engage from the bottom up



This work is supported by the Agriculture and Food Research Initiative (AFRI) Water for Agriculture grant no. 2017-68007-26584/project accession no. 1013079 from the USDA National Institute of Food and Agriculture.

Going forward, a lot of questions remain

- Addressing emerging issues (climate change, Conowingo, land use, other)
- Figuring out why modeling results differ from modeled results
- Identifying ways to get resources and projects implemented in key areas (challenge for all states)
- Newest challenge: covid-19, which impacts funding, engagement, work on the ground

Thank you!

Questions?

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Senior Lecturer, Penn State Law
Asst. Director for Outreach & Engagement, Penn States Institutes of Energy and the Environment

Email: lbf10@psu.edu
On Twitter: @fowler_lara