

ACHIEVING WATER QUALITY GOALS IN THE CHESAPEAKE BAY: A COMPREHENSIVE EVALUATION OF SYSTEM RESPONSE

An Independent Report from the Scientific and Technical
Advisory Committee (STAC)

Chesapeake Bay Program


Annapolis, MD

May 2023

To date, the majority of nutrient reductions (97%) have been attributed to wastewater treatment plant (WWTP) upgrades (point sources) and to large and sustained reductions in atmospheric N deposition. **Nonpoint sources have contributed a smaller share of the needed reductions.**

The CAST model calculates that total **urban** and agricultural N and P nonpoint loads decreased **15%** and **29%**, respectively, between 1985 and 2021.

Nonpoint sources, however, are the single largest remaining source of nutrients to the Bay.

A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right quadrant of the slide.

First, voluntary nonpoint source programs struggle to produce the scale of behavioral change and practice adoption necessary to achieve water quality goals, i.e., an implementation gap.

Second, the nonpoint source programs and practices implemented may not be as effective as expected at reducing nonpoint source pollution, i.e., a response gap.

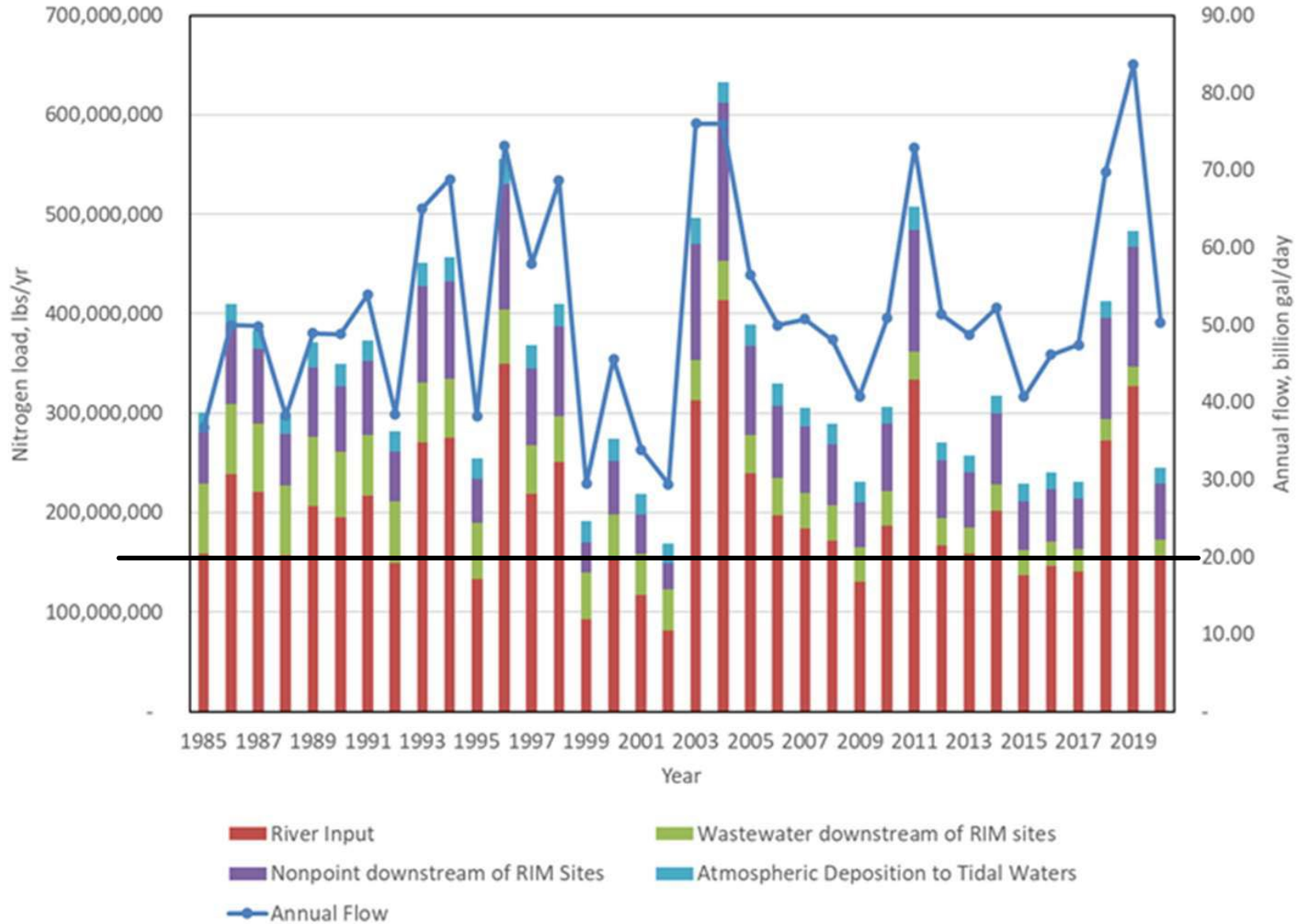
In most states, urban nonpoint source programs assign municipalities and larger industrial sites responsibility for reducing N, P, and sediment loads from urban lands under their jurisdiction through MS4 permits...

Municipal separate storm sewer systems can meet these requirements using a variety of BMPs. They can implement BMPs on public land, often upgrading existing stormwater infrastructure and stream restoration projects, or in private developments using common stormwater BMPs (Gonzalez et al., 2016). Given the competition for urban land, BMP implementation opportunities are often limited and exceedingly expensive.


Recently, nonpoint source reductions have been more difficult to achieve. Despite concerted efforts since the TMDL was adopted in 2010, the CAST model estimates that the annual amount of nonpoint source **N loads reaching the Bay has been reduced by only 3.5 million pounds** during the period 2009–2021. The 3.5-million-pound nonpoint source reduction represents just **9% of the total 40 million lb/yr** of N reductions achieved over the same period from all sources.

Panel A

Nitrogen Load and River Flow



Various assessments of progress toward WQS attainment indicate that complete attainment is not likely to happen soon.



How's *THAT* for rain on
your parade ?!



VIRGINIA WIP III URBAN NMP ACRES (AUGUST 23, 2019)

Watershed	2025 acreage Goal
Potomac	186,448
Rappahannock	56,537
York	72,996
James	230,681
Eastern Shore	6,808

553,470 acres

WHERE ARE WE ?

(JULY 2023 DCR UNM DATABASE ET. AL.)

Category	Acres	# Plans
Golf	25,599	266/ 315 86%
State Lands	2,039	
MS4	1,574	
Voluntary	138	

29,350 acres = 5.3%

Recommendations of the
Expert Panel to Define
Removal Rates for Urban
Nutrient Management
CBP Approved Final Report
2013

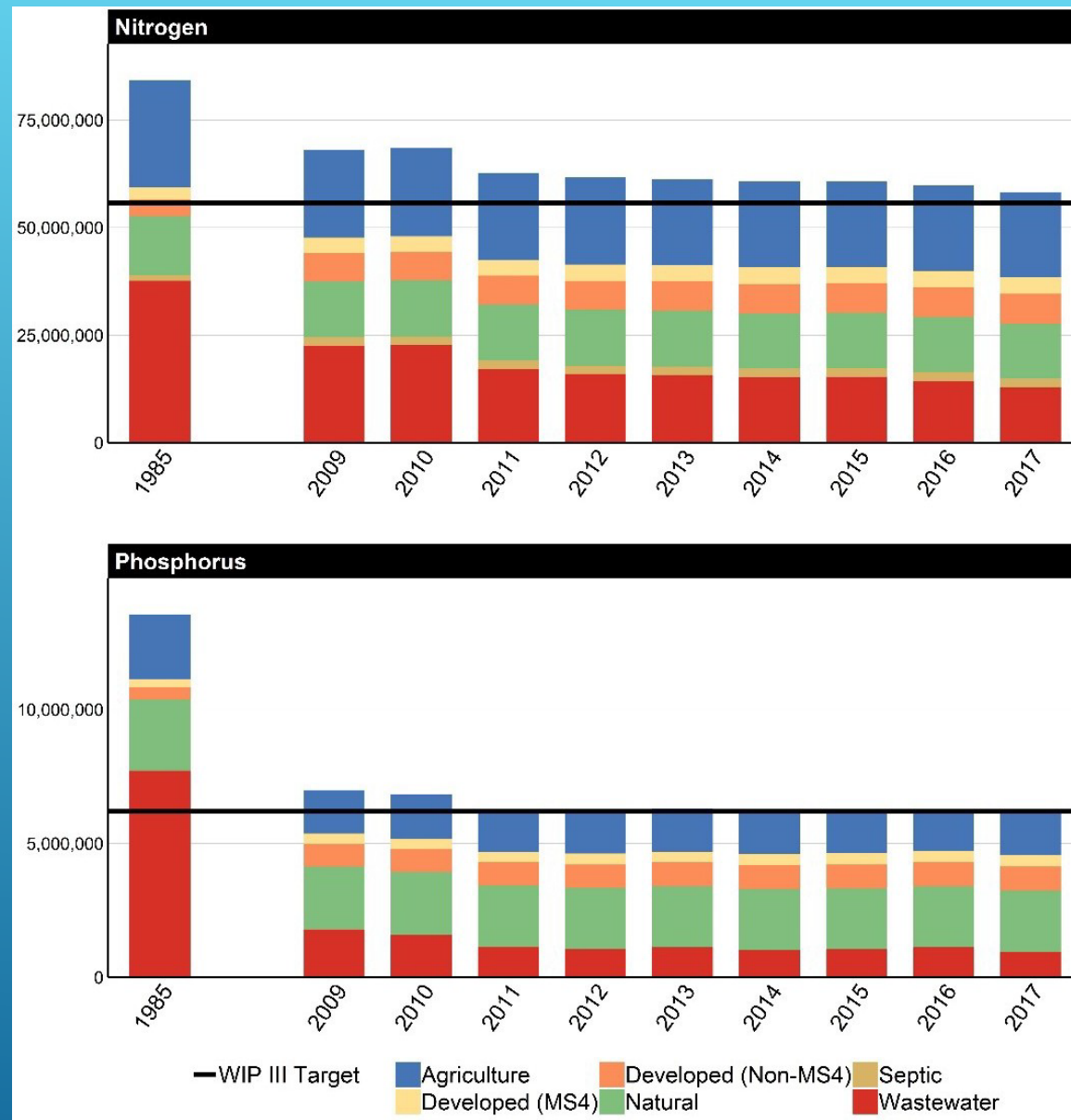


Figure 2: Nitrogen and Phosphorus Load Progress (Phase 6 Watershed Model, Edge of Tide)

“According to the data provided by Virginia for the 2017 progress run, Virginia achieved its statewide 2017 targets for nitrogen and phosphorus, but did not achieve its statewide target for sediment. Virginia achieved its 2017 targets for all pollutants in all major basins except for nitrogen in the Rappahannock and for sediment in the James and the Rappahannock.” WIP III

As indicated in the July 2018 Virginia Shellfish Aquaculture Situation and Outlook Report published by VIMS, the 2017 farm gate value for Virginia shellfish aquaculture was \$53.4 million. Virginia is first in the U.S. for hard clam production and first on the East Coast of the U.S. for oyster production. WIP III

Blue Crabs – The Chesapeake Bay blue crab population was approximately 594 million in 2019 reflecting an almost 60% increase from 2018. WIP III

This year's survey (2023) estimated total crab abundance at 323 million. That compares to the 227 million estimated in 2022, the lowest in the survey's 33-year history.

<https://www.cbf.org/news-media/newsroom/2023/all/blue-crab-survey-results-show-improvement-after-all-time-low-but-concerns-remain.html> May 18,2023

Striped Bass – Scientists measured 1,998 juvenile striped bass in Virginia tributaries of the Chesapeake Bay during their 2017 assessment of juvenile striped bass. However, preliminary results from the 2018 benchmark stock assessment study presented to the Atlantic States Marine Fisheries Commission in February 2019 reflects declining female spawning striped bass populations, suggesting the stock is overfished. WIP III

Jul 7, 2023 - News

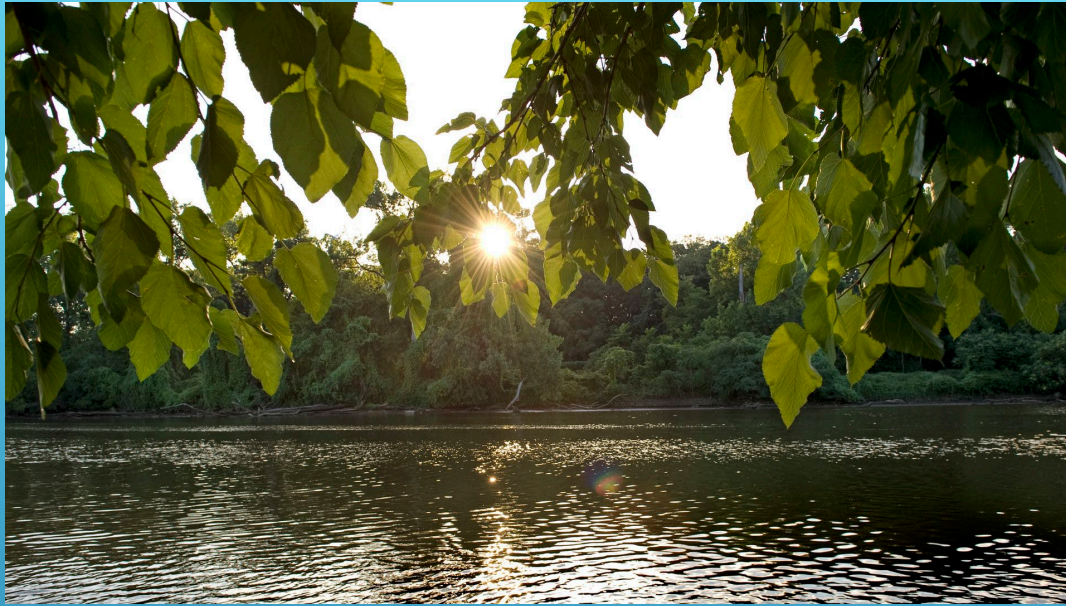


Photo: Linda Davidson/The Washington Post

For the first time since 1971, people will be allowed to briefly swim in the Anacostia River for one day this weekend (July 8).

Why it matters: Swimming has been illegal in the Anacostia for more than 50 years due to safety concerns, but years of cleanup and monitoring efforts have made the river safe enough to temporarily lift the ban for the special, sanctioned swim.

Driving the news: The Anacostia Riverkeeper is hosting the "Splash" dip off the Kingman Island Dock next to the Benning Road Bridge on Saturday from noon to 3pm.

<https://www.axios.com/local/washington-dc/2023/07/07/anacostia-river-swimming>