

Hypoxia Task Force *Gulf Hypoxia Action Plan* and the Infrastructure Investment & Jobs Act Gulf Hypoxia Program

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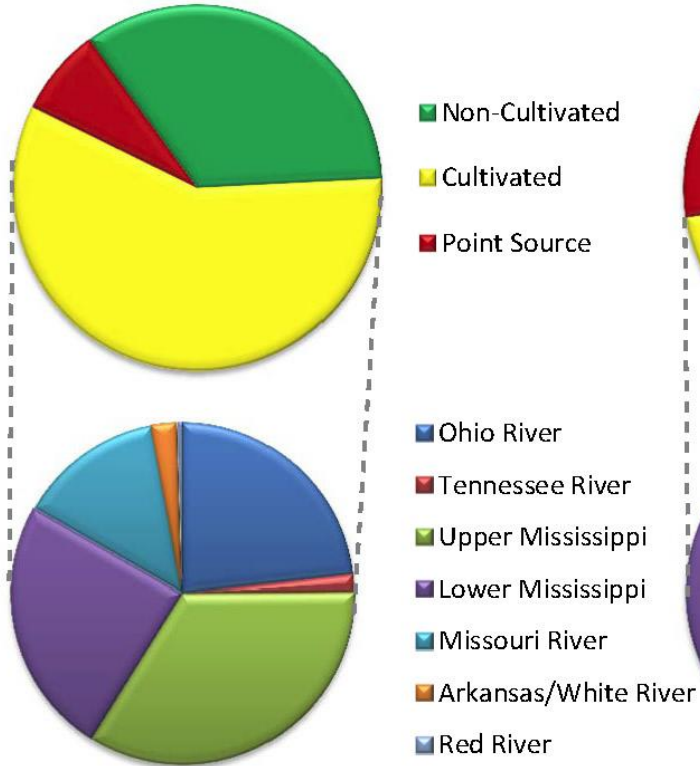
EESI Resilient and Healthy Rivers Series: The Mississippi River

Hypoxia & the Mississippi River Basin

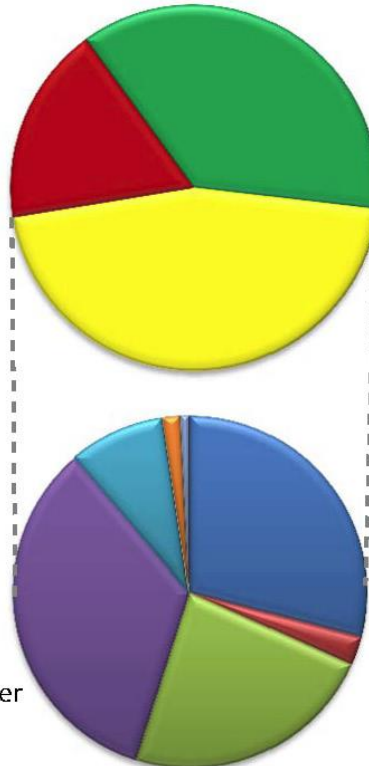


Mississippi River Basin Loads

Total Nitrogen to Gulf



Total Phosphorus to Gulf



USDA CEAP-SWAT model estimates of sources of TN & TP from MARB to the Gulf of Mexico (2003-2006 data, [White et al 2014](#))

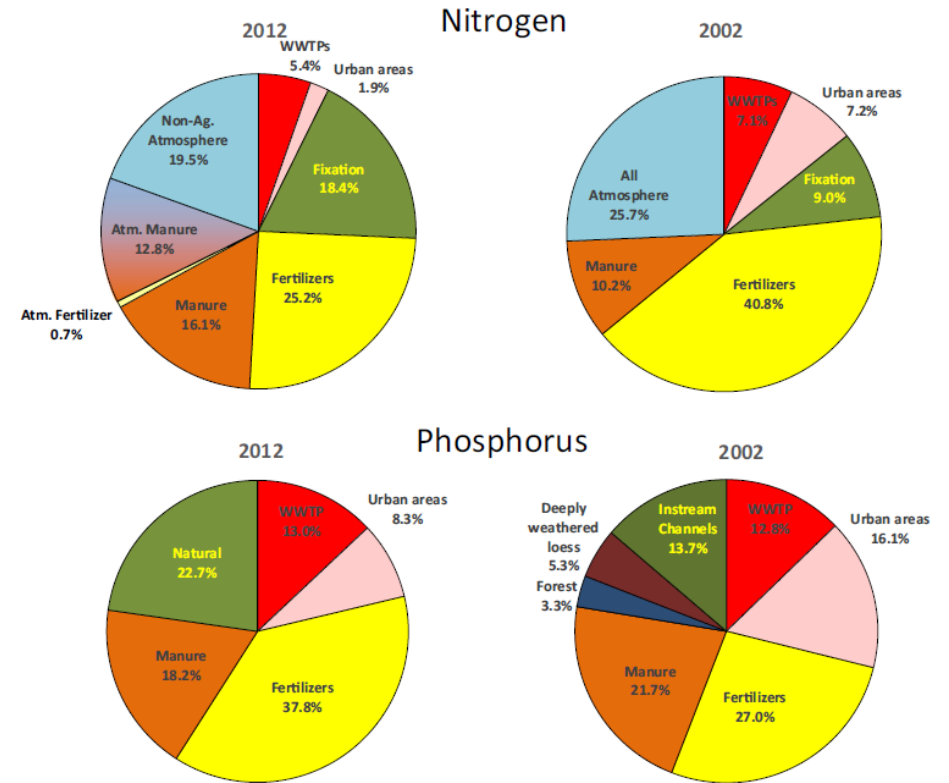
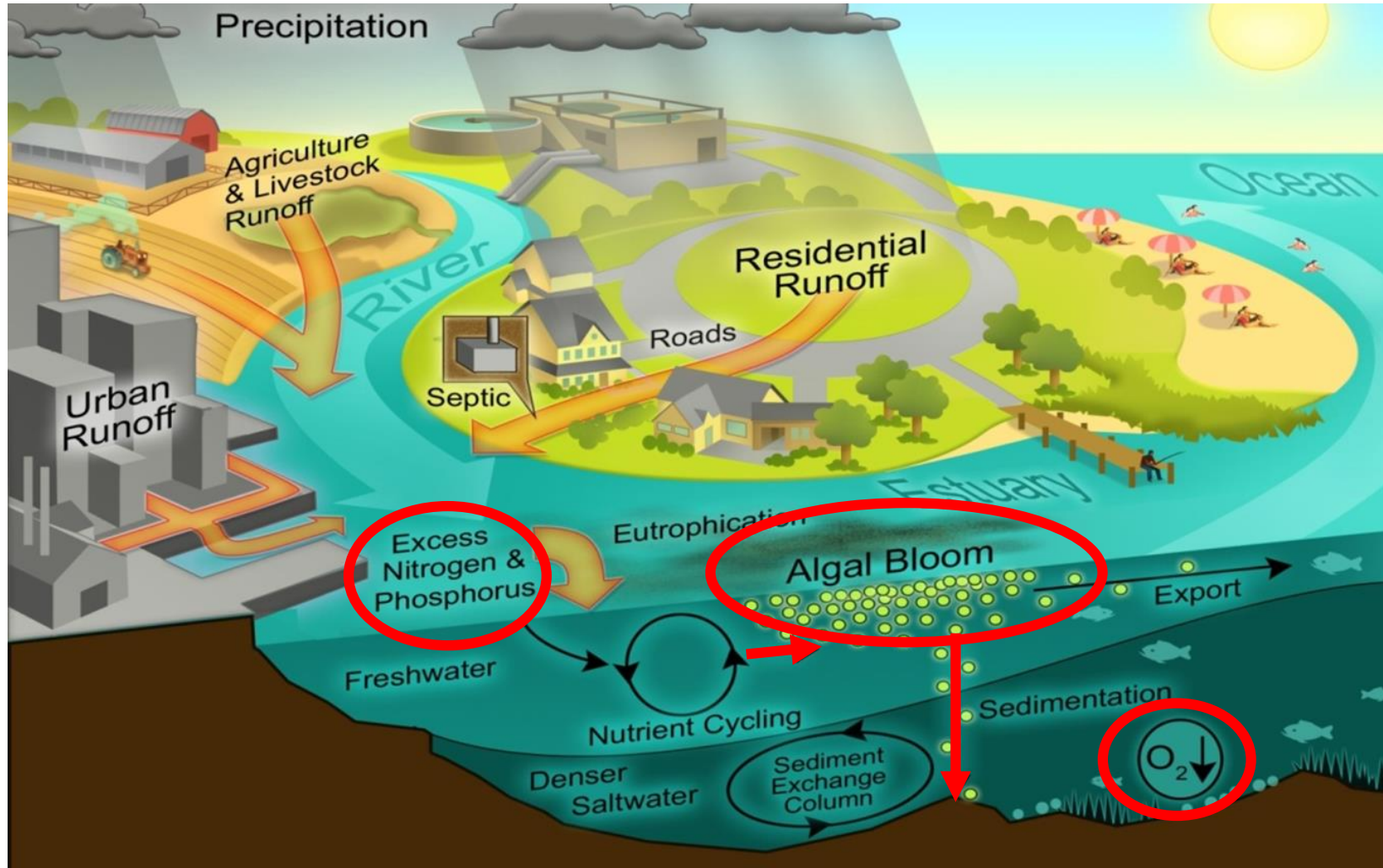


FIGURE 5. Allocation of loading by source from the MARB from this study (2012) for nitrogen and phosphorus and based on results from the 2002 SPARROW model (Robertson and Saad 2013) for nitrogen and phosphorus.

USGS SPARROW model estimates of sources of TN & TP from MARB to the Gulf of Mexico (2012 data, [Robertson and Saad 2021](#))

Hypoxia 101



[Learn more about nutrient pollution and the associated water quality and human health impacts](#)

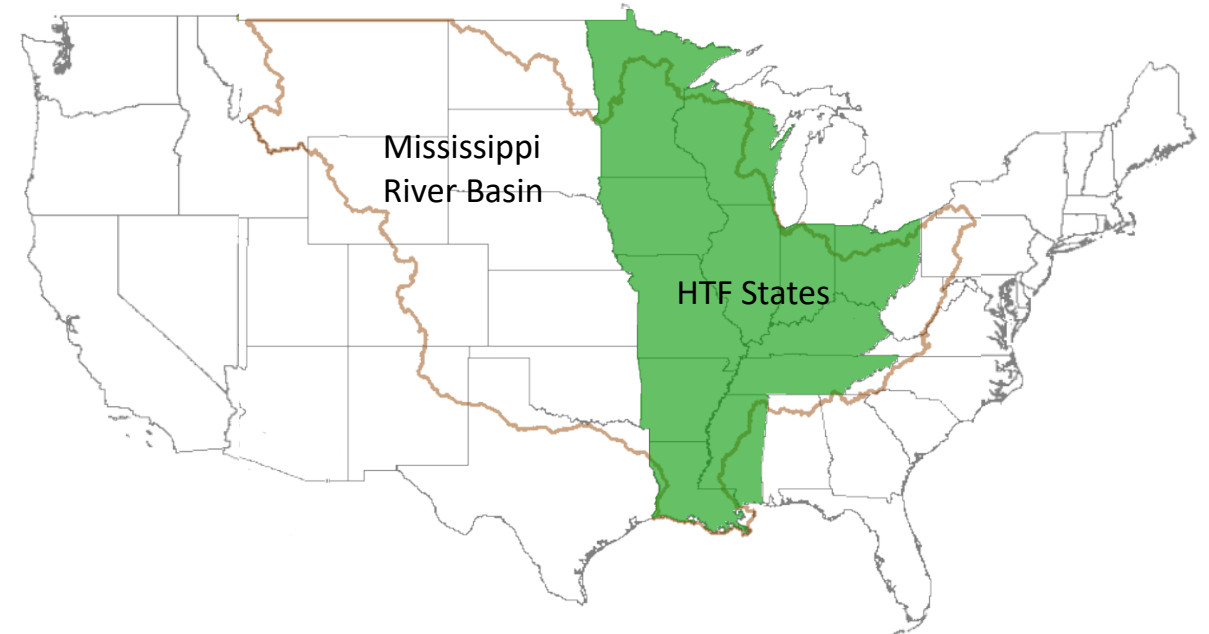
Hypoxia Task Force Members

5 Federal Agencies and Tribes

US Environmental Protection Agency (co-chair)
 National Oceanic and Atmospheric Administration
 US Army Corps of Engineers
 US Department of Agriculture
 US Department of Interior
 National Tribal Water Council (reps 21 Tribes with
 land in this area)

12 States

Arkansas	Ohio
Missouri	Louisiana
Iowa (co-chair)	Illinois
Tennessee	Mississippi
Minnesota	Kentucky
Indiana	Wisconsin



Coordinating Committee: staff level support to members

- Each state member represents the Agriculture, Environmental Quality, and/or Natural Resources agency; multiple state agencies engage with the CC.
- Three Sub-Basin Committees are CC members (Upper Miss, Lower Miss, Ohio River)
- Land Grant Univ. Consortium works with the CC: SERA-46 has two reps from each state LGU

Task Force Background

Late 1990s

Late 1990s: Formed based on the White House Committee on Environment and Natural Resources' "[Integrated Assessment](#)"

- Scientific basis for [2001 Action Plan](#) with goal to reduce the size of the Hypoxic Zone
- Led to focus on reducing nitrogen loads to the gulf via the Mississippi River

2001

2001 Action Plan called for periodic [Reassessments](#)

- Convened [four science symposia](#)
- [EPA Science Advisory Board](#) panel, synthesized science and symposia outcomes, recommended dual nitrogen and phosphorus reduction strategy, 45% reduction

2008

[2008 Action Plan](#)

- Agreement by states to implement their own strategies with dual N and P reduction effort

2015

[2015](#) reiterated the goal, adopted an interim target

- 20% reduction of nitrogen and phosphorus loading by 2025

2022

[Gulf Hypoxia Program](#) established to advance the Gulf Hypoxia Action Plan goals

- \$60M over 5 years to states, Tribes, Sub-Basin Committees, Land Grant Univ. Consortium

Present

States/Tribes implementing [Nutrient Reduction Strategies](#) with first-time dedicated support through the IJA Gulf Hypoxia Program; Sub-Basin Committees & Land Grant Univs providing local, multi-state supports; EPA submits biennial [Reports to Congress](#) describing progress

Gulf Hypoxia Action Plan Goals

Coastal Goal

“Reduce the...extent of the Gulf of Mexico hypoxic zone to **less than 5,000 square kilometers by the year 2035**. Reaching this...will require a significant commitment of resources... An Interim Target of a **20 percent reduction of nitrogen and phosphorus loading by 2025** is a milestone for immediate planning and implementation actions.”

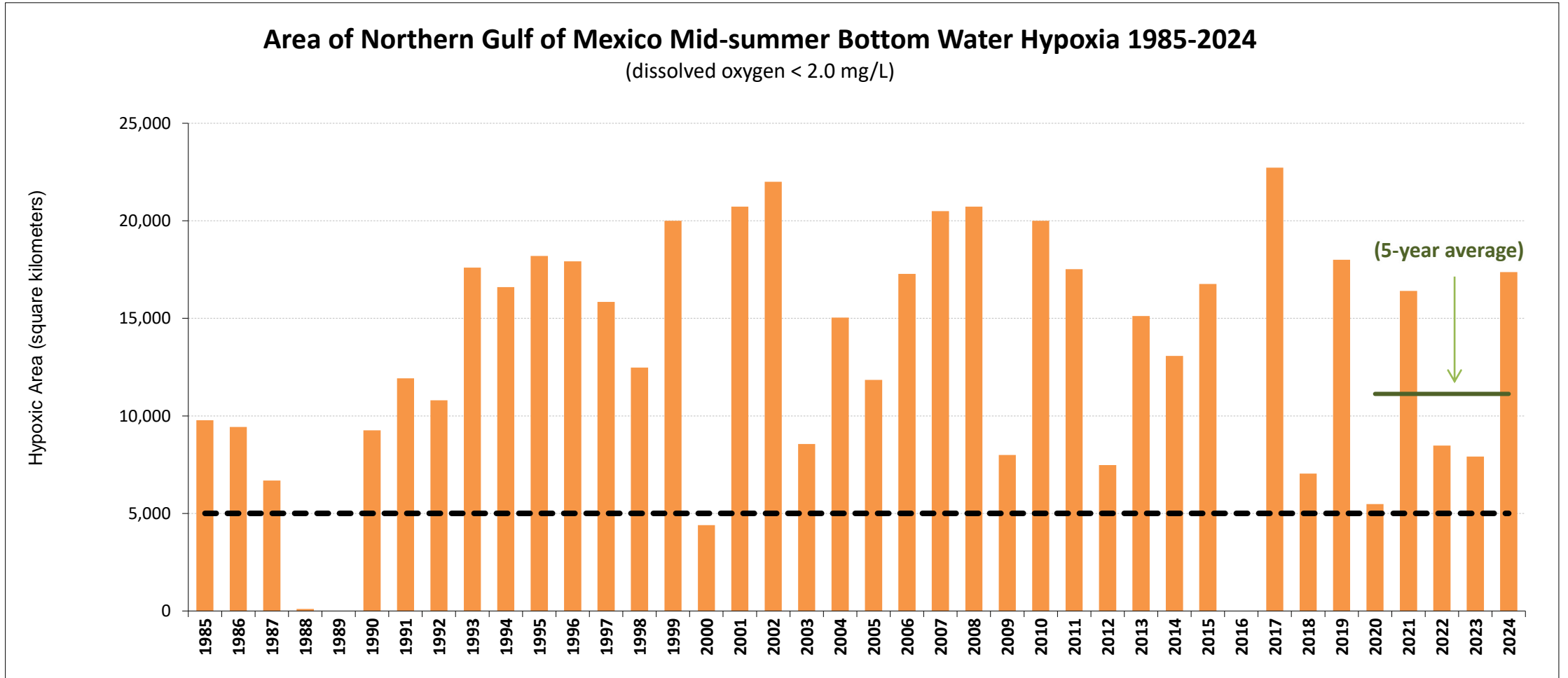
Within Basin Goal

“To **restore and protect the waters of the 31 states and tribal lands** within the MARB through implementation of nutrient and sediment reduction actions to **protect public health and aquatic life** as well as reduce negative impacts of water pollution on the Gulf of Mexico.”

Quality of Life Goal

“To **improve the communities and economic conditions** across the MARB, in particular the agriculture, fisheries and recreation sectors, through improved public and private land management and a cooperative, incentive-based approach.”

Gulf Hypoxia Action Plan Goals



Historic size of hypoxia from 1985 to 2024. No data for 1989 and 2016. 1988 value is 100 sq. km.

[\(N. Rabalais, LSU/LUMCON & R. Turner, LSU\)](#)

State of Gulf Science

Model Results

Offer guidance on watershed nutrient reduction levels to meet the goal and significantly advance our understanding

- Single (N) and/or dual (N & P) load reductions needed
- Expected effects of reaching the Interim Target on the zone

Coastal Goal

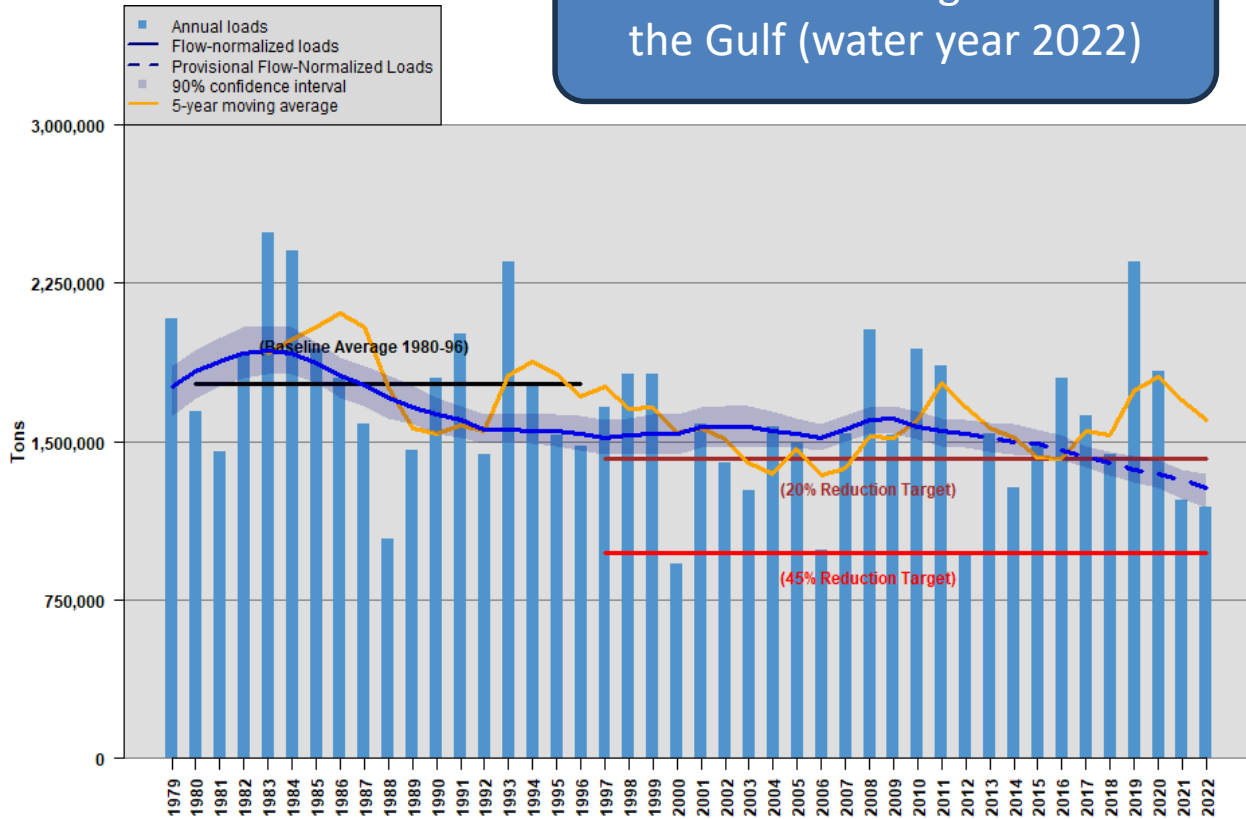
- To achieve the goal, more effective to reduce both N and P simultaneously than to decrease N alone
- The present findings do not suggest a need to change targets, but emphasize the criticality of reducing both nutrients by 45% ([Fennel and Laurent 2018](#))

Interim Target

- Though a large hypoxic zone is likely to persist, reaching the interim target brings the system closer to an inflection point where measurable decreases in the hypoxic zone size can be expected with future load reductions.

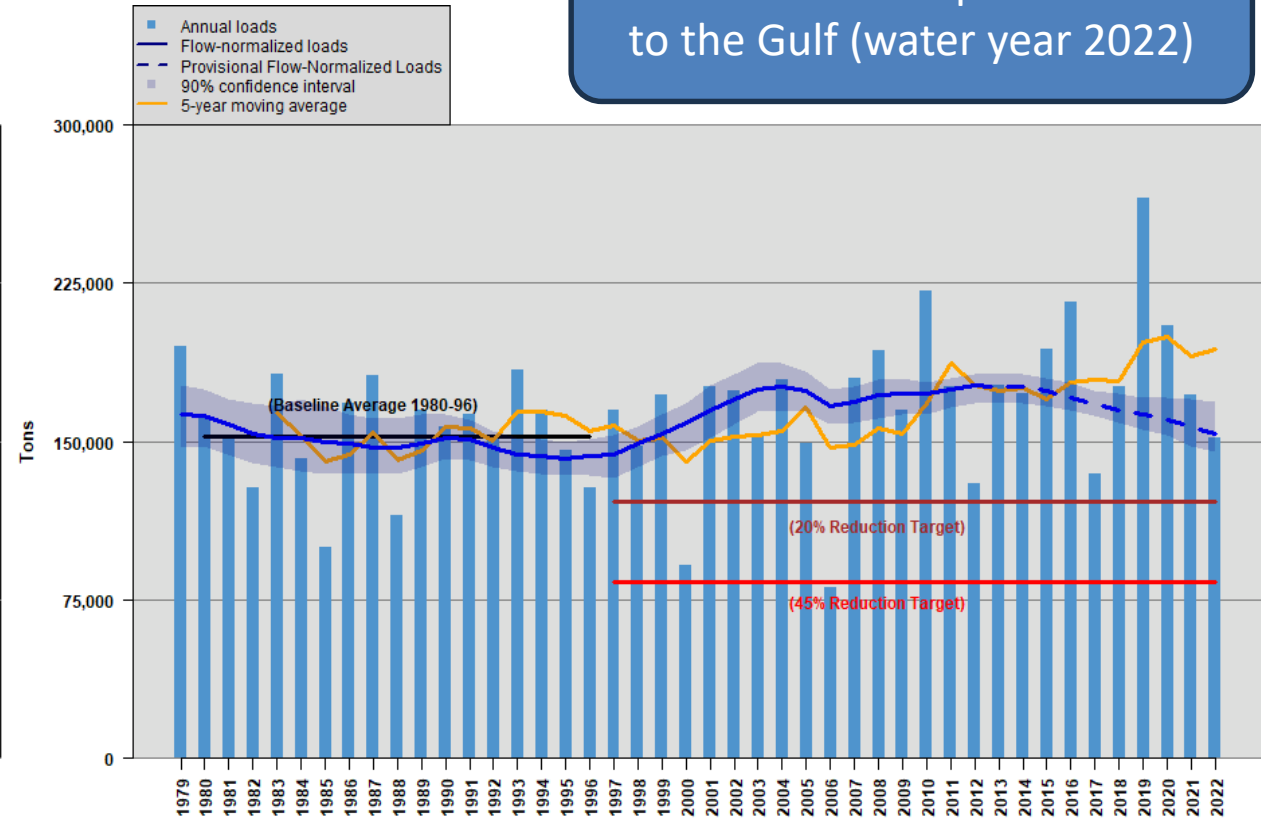
Annual Water Quality Loading Trends to the Gulf of Mexico

Annual Total Nitrogen Loads to the Gulf (water year 2022)



Trend start period	Trend end year	Trend, in percent change	Lower 90% confidence interval	Upper 90% confidence interval	Trend attributed to changes in streamflow	Trend attributed to other changes in the watershed
1980-1996	2022	-25%	-32%	-19%	2%	-27%

Annual Total Phosphorus Loads to the Gulf (water year 2022)



Trend start period	Trend end year	Trend, in percent change	Lower 90% confidence interval	Upper 90% confidence interval	Trend attributed to changes in streamflow	Trend attributed to other changes in the watershed
1980-1996	2022	3%	-5%	13%	1%	2%

Tracking Progress Toward the *Gulf Hypoxia Action Plan* Goal and 2025 Interim Target

- States report ongoing work to quantify progress towards the 2035 goal and 2025 interim target through [Nutrient Reduction Strategies](#) and Gulf Hypoxia Program [workplans](#).
- Long-term monitoring and reporting of loading [trends](#) using the United States Geological Survey (USGS) Weighted Regressions on Time, Discharge and Season (WRTDS) model.
- The 5-year average areal extent of the hypoxic zone, based on the National Oceanic and Atmospheric Administration's (NOAA) annual hypoxic zone cruise that [measures](#) the areal extent.
- Regular tracking of loading trends from [point](#) and [nonpoint](#) sources.
- MARB-scale modeling assessments of nutrient loading trends from agricultural sources using USGS SPARROW models and USDA Conservation Effects Assessment Project (CEAP) assessments.

Infrastructure Investment & Jobs Act

Gulf Hypoxia Program

\$60M over 5-years as a first-time dedicated investment in the *Gulf Hypoxia Action Plan* to reduce nutrients delivered to the Gulf of Mexico hypoxic zone via the Mississippi River.

EPA is awarding most of the funding in \$4.2M cooperative agreements to 12 states.

- First awards underway: BMPs, sub-grants, planning, outreach, practice and soil sampling education, stakeholder engagement, WWTP optimization
- Second awards in planning stage

EPA is awarding modest support to eligible Tribes & Nations, Sub-Basin committees, and the Land Grant University consortium SERA-46.

\$5.4M total to 15 tribes

- Support staff; demo projects; implement, augment, advance NPS progs; capacity building; 7 to apply for Treatment as State for CWA programs.

\$400K to each of three Sub-basin committees and \$600K to SERA-46

- Comms strategies, cross-border convenings, research needs assessment, WQ monitoring on Mississippi, Ohio and large tributaries.

Gulf Hypoxia Program

Ensure that GHP benefits are realized by disadvantaged communities

- OH: Home Septic Treatment System Program
- MO: Watershed Stewardship Workshop

Advance water quality actions that have climate adaptation or mitigation co-benefits

- IL: Cover Crop Premium Discount Program
- TN: WWTP Optimization
- Upper Sioux Community: Streambank Stabilization

Support states as they scale up implementation of their nutrient reduction strategies

- AR: Implement Conservation Practices in High Priority Areas
- MN: Scaling up Conservation Practice Adoption

Support Tribes in leveraging existing or developing new nutrient reduction strategies

- Mille Lacs Band of Ojibwe: Watershed Management Plan Implementation
- St. Croix Chippewa Indians: NPS Assessment Report
- 7 of 15 GHP Tribes applying for TAS for CWA programs

Document and communicate progress towards HTF goals at the Basin scale

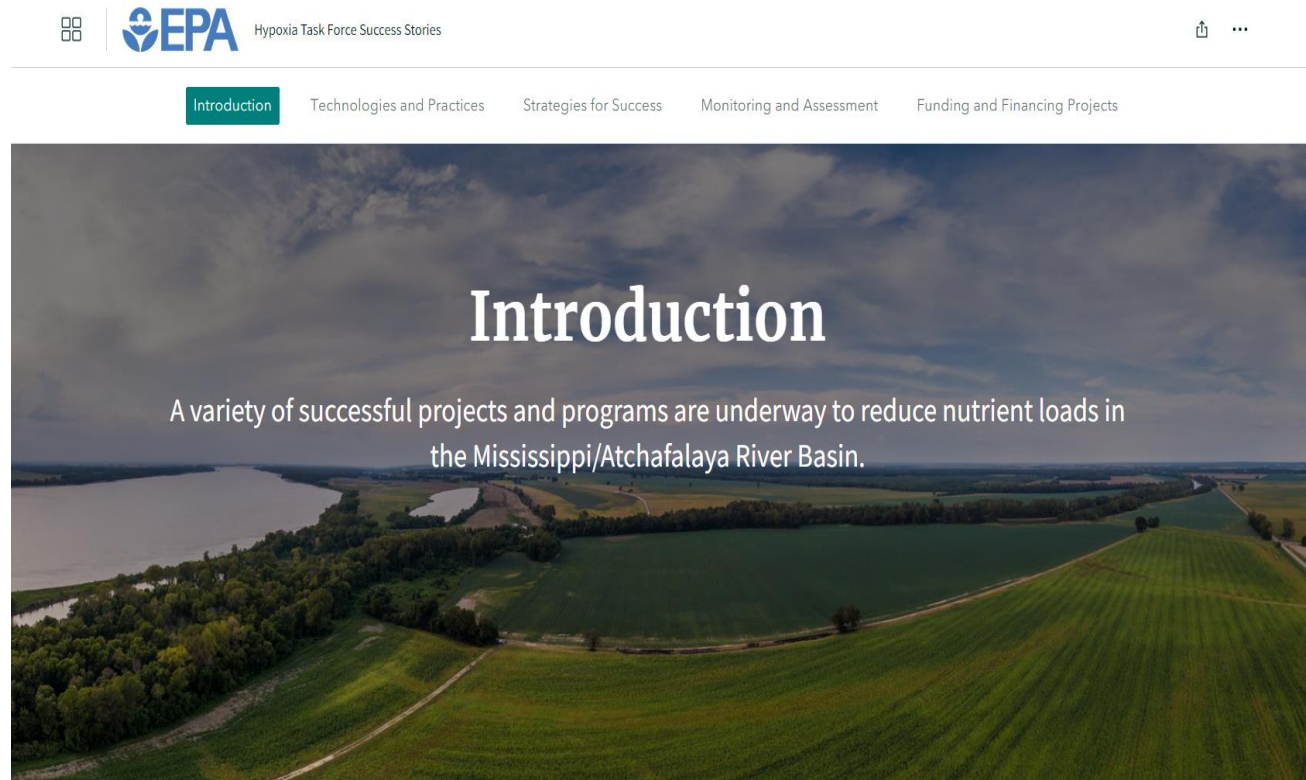
- SERA 46: Basin-wide Communications Strategy
- UMRBA: Upper MS River NRS & Comms Strategy

Advance research in support of nutrient reduction strategies

- MS: Diatom Index
- SERA 46: Support Research at Universities in HTF States

*Above is not comprehensive, see [GHP webpage](#) for all priorities, Implementation Memoranda, state and partner workplans, etc.

Hypoxia Task Force – Learn More



- Explore Hypoxia Task Force [Success Stories](#).
- Review biennial [Reports to Congress](#).
- Attend a Hypoxia Task Force [public meeting](#).
- Sign up to receive the Hypoxia Task Force quarterly [newsletter](#).
- Engage with [state implementation](#).
- Explore task force goals, meetings, science, Reports to Congress, Gulf Hypoxia Program, and more resources on [EPA's website](#).
- The public can communicate anytime with the Hypoxia Task Force by [submitting input and inquires](#).

