

# Gulf of Mexico Hypoxia Policy Update 2015

Doug Daigle

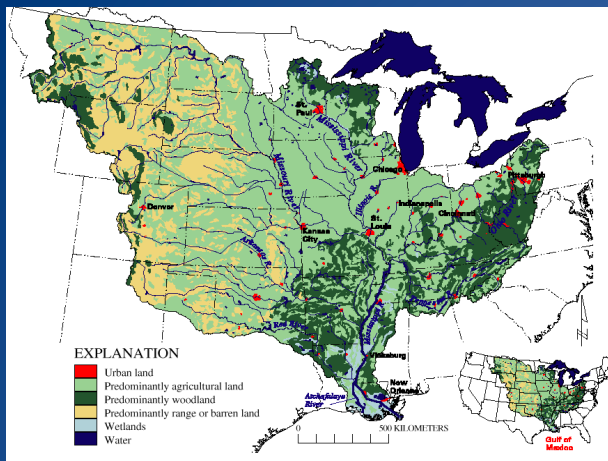
Coordinator, La Hypoxia Working Group,  
Lower MS River Sub-basin Committee, 2015

October 19, 2015





# Mississippi River - Gulf of Mexico Ecosystem Continuum



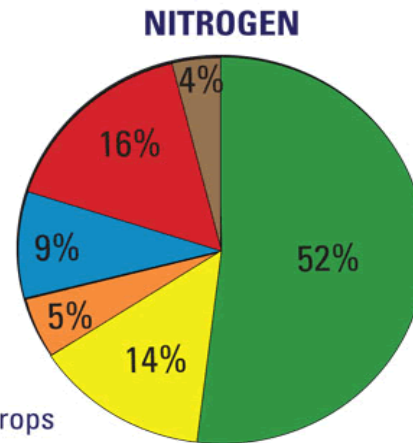
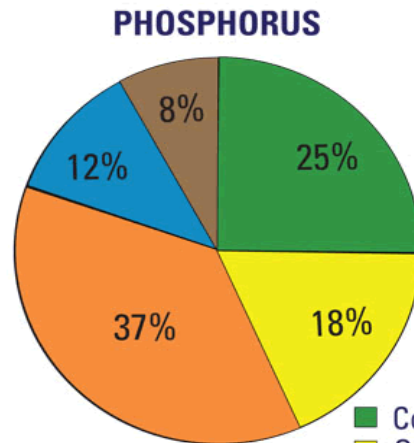
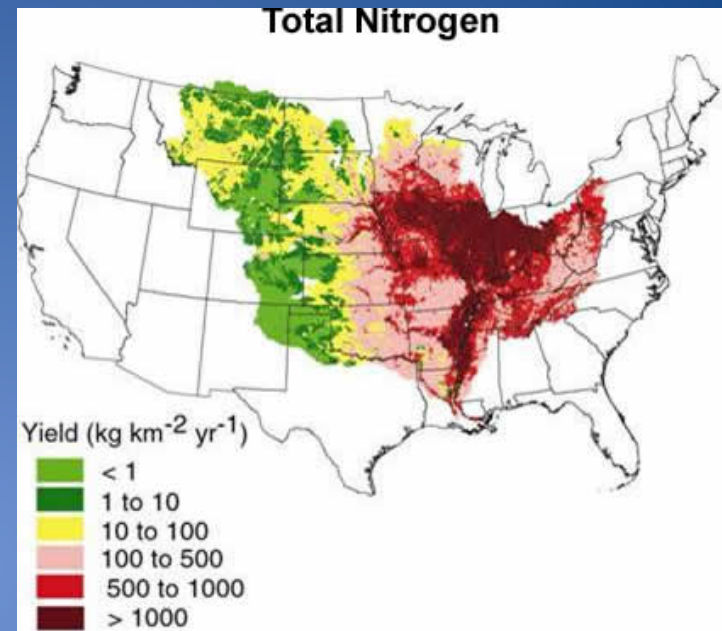
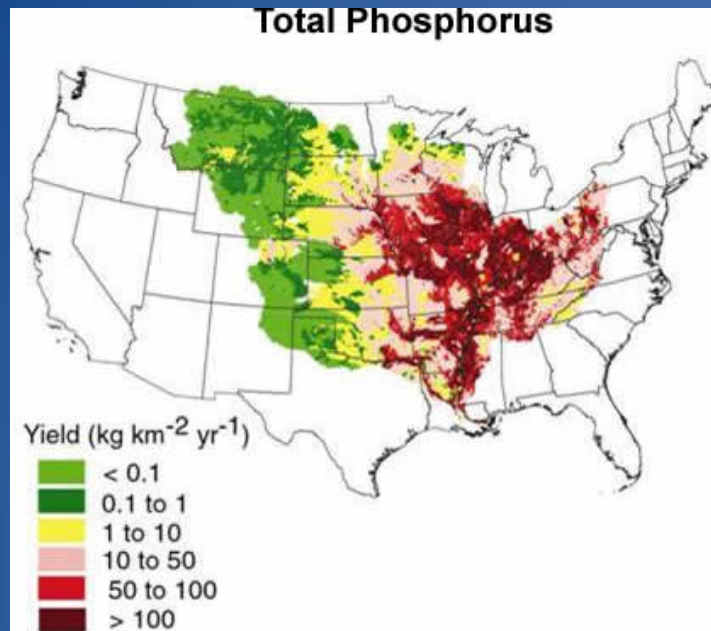
Effects are more far reaching  
than suspended sediment plume,  
esp. N & somewhat P

dominant wind direction



Source: N. Rabalais, LUMCON

# Nutrient Yields from the Mississippi Basin



## Sources

- Corn and soybean crops
- Other crops
- Pasture and range
- Urban and population-related sources
- Atmospheric deposition
- Natural land

U.S. Department of the Interior  
U.S. Geological Survey

alexander et al. 2008



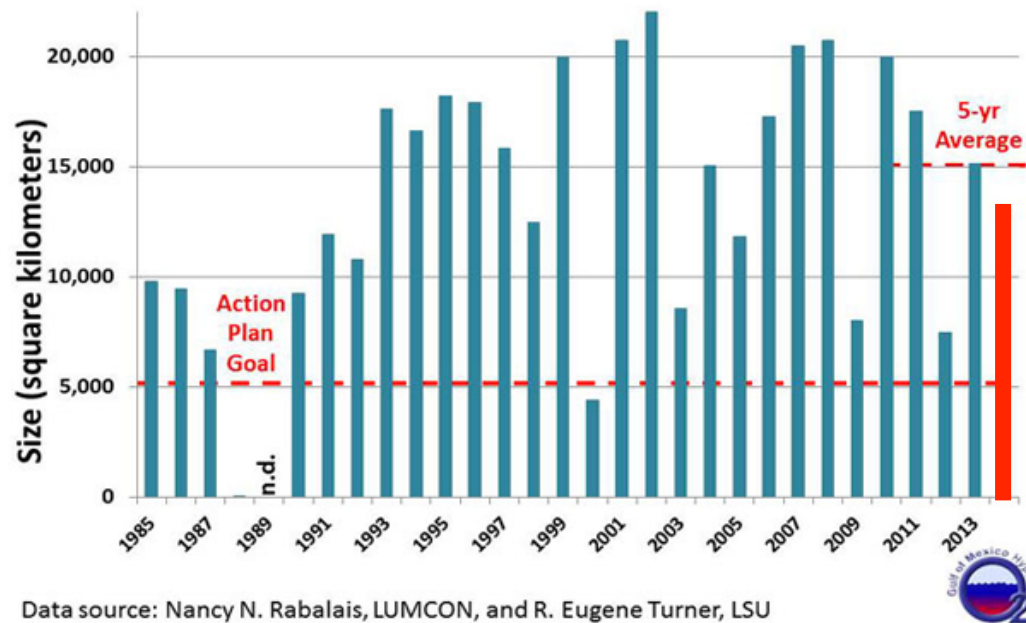
# 2014

QuickTime™ and a  
decompressor  
are needed to see this picture.

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## Size of bottom-water hypoxia in mid-summer



Data source: Nancy N. Rabalais, LUMCON, and R. Eugene Turner, LSU

Funding sources: NOAA Center for Sponsored Coastal Ocean Research and U.S. EPA Gulf of Mexico Program



# Gulf Hypoxia Action Plan 2008

for Reducing, Mitigating, and Controlling Hypoxia  
in the Northern Gulf of Mexico and Improving  
Water Quality in the Mississippi River Basin



## *Action Plan for Reducing Hypoxia in the Northern Gulf of Mexico (2001, 2008)*

- The *Action Plan* represents the national policy response to the problem of Gulf Hypoxia
- Its specific goal: reduction of the average annual size of the hypoxic zone to 5000 square kilometers (@ 1,900 square miles) by 2015
- The underlying goal is to protect the resource of the Gulf fishery before negative impacts are seen on the system



# 2001 Action Plan

- 2015 Goal
- “Subject to available resources”
- Reduce 5 year running average areal extent to less than 5000 square km through cost-effective, voluntary actions by all States... and all categories of sources and removals... to reduce annual discharge of N to the Gulf
- Action 1 calls for Task Force to submit integrated budget proposal by December 2000



# Clean Rivers/Clean Gulf Budget Draft – 1/2001

- Overall funding level: \$1billion a year for 5 years
- MR-GM Omnibus Restoration & Adaptive Management Funds – start FY2003
- Special FY 2002 \$75 million “jump start” for States and Tribes to develop sub-basin strategies
- Omnibus Funding Mechanism: distributed to States and Tribes; included
  - Watershed Partnerships: \$10 million/year for 5 years
  - MMR: \$50 million/year for 5 years
  - Innovation Projects: \$4 million per project per sub-basin per year for 5 years (\$28 million)

## Two main components of 2008 Action Plan Coastal Goal:

**Size:** 5000 square kilometers/1950 square miles as 5 year running average

**Date:** 2015

Goal is currently associated with a 45% dual nutrient (N & P) reduction strategy (SAB 2007)

Measure of nutrient loading/reduction near the mouths of the Mississippi/Atchafalaya Rivers (MAR) links Coastal Goal to actions upstream



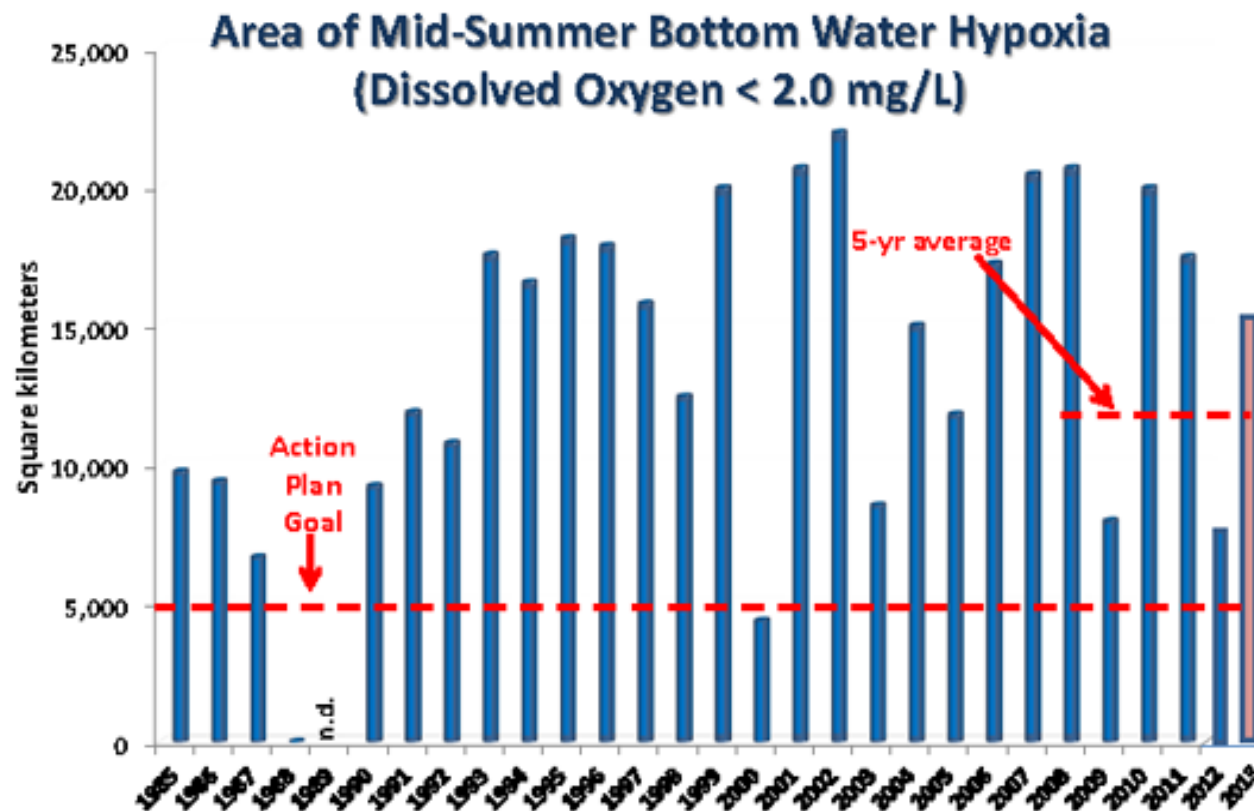
# 2008 Action Plan Highlighted State Nutrient Reduction Strategies

- 2001 Plan had Sub-basin Committees forming nutrient reduction strategies – efforts at this through 2007 (<http://epa.gov/gmpo/lmrsbc/pdf/lmrsb-nutrient-reduction-strategies.pdf>)
- 2008 Action Plan:
- *Complete and implement comprehensive nitrogen and phosphorus reduction strategies for states within the Mississippi/Atchafalaya River Basin encompassing watersheds with significant contributions of nitrogen and phosphorus to the surface waters of the Mississippi/Atchafalaya River Basin, and ultimately to the Gulf of Mexico.*

## LMRSBC & LHWG

- Both formed in 2003 to help implement the 2001 Action Plan at the state and sub-basin level
- *“By Summer 2001*, States and Tribes in the Basin, in consultation with the Task Force, will establish sub-basin committees to coordinate implementation of the Action
- Plan by major sub-basins, including coordination among smaller watersheds, Tribes, and States in each of those sub-basins”





Data source: N.N. Rabalais, Louisiana Universities Marine Consortium, R.E. Turner, Louisiana State University  
Funded by: NOAA, Center for Sponsored Coastal Ocean Research

*Bottom-water hypoxia area estimates from 1985-2013. Although some mapping was conducted in 1989, the complete survey was not conducted, no data (n.d.). The five-year running average and goal for the Hypoxia Action Plan are represented by the horizontal lines.*





## Actions to achieve Revised Coastal Goal

- Implement state nutrient reduction strategies
- Federal programs scaled at basin level:
  - USDA Mississippi River Basin Initiative, Regional Conservation Partnership Program
  - USFWS Mississippi River Habitat Initiative, Landscape Conservation Cooperatives

Quantification: Monitoring, Tracking, Modeling

Partnerships: Land Grant Universities, Private Sector

Research

Pursue Additional Funding\*

# Land Grant Universities Partnership with Gulf Hypoxia Task Force

- Purdue University, University of Illinois, University of Arkansas, University of Kentucky, Mississippi State University, Ohio State University, University of Tennessee, University of Missouri, University of Minnesota, University of Wisconsin, Iowa State University and Louisiana State University.

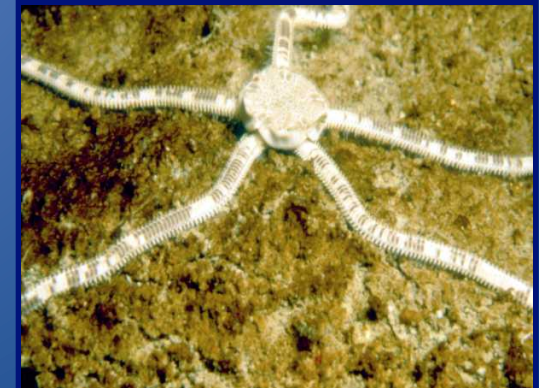
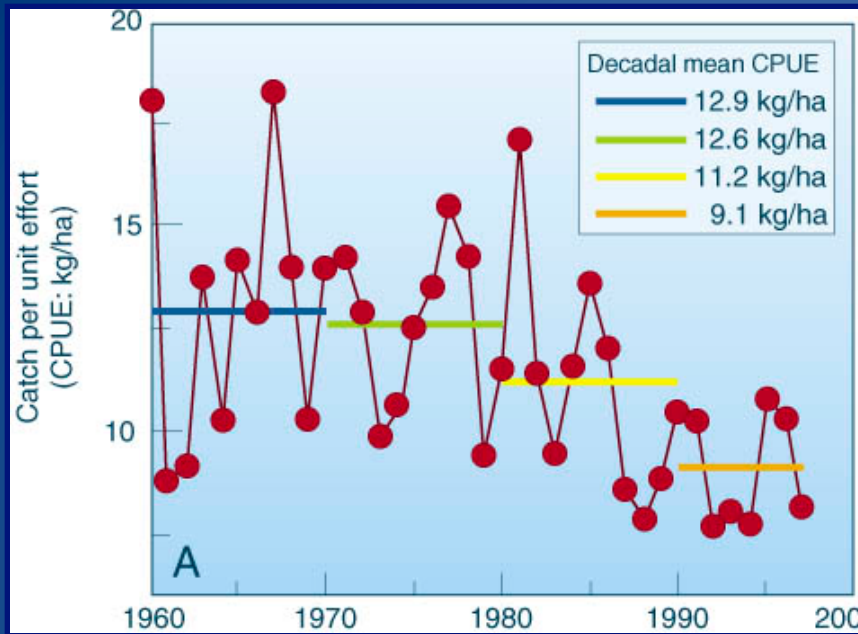


SERA Goal: “Promote effective implementation of science-based approaches to nutrient management/conservation that reduces nutrient losses to the environment.”

- Objectives: 1. Establish and strengthen relationships that can serve the missions of multiple organizations addressing nutrient movement and environmental quality.
- 2. Expand the knowledge base for discovery of new tools and practices as well as for the continual validation of recommended practices.
- 3. Improve the coordination and delivering of educational programming and increase the implementation effectiveness of nutrient management strategies that reduce nutrient movement for agricultural and non-agricultural audiences.
- [https://water-meetings.tetrattech.com/Hypoxia/content/Docs/SERA\\_LGU\\_Framework.pdf](https://water-meetings.tetrattech.com/Hypoxia/content/Docs/SERA_LGU_Framework.pdf)

# The Consequences

- Fisheries resources at risk
- Altered migration
- Reduced habitat
- Changes in food resources
- Susceptibility of early life stages
- Growth & reproduction



The future of the fishery ultimately depends  
on the health of the resource

The Gulf of Mexico has one of the  
last productive wild coastal fisheries  
left in the continental U.S.



## Take Away Points

- Nutrients in the river should be reduced under any scenario
- The strategy since 2001 is supposed to be act now rather than waiting for large-scale impacts on the fishery
- Shrimpers, fishermen, and coastal communities have to engage on this issue to ensure their resource gets protected

# Wetland Restoration Projects in Louisiana



*DU Delivered WRP*



*DU Public Lands*

