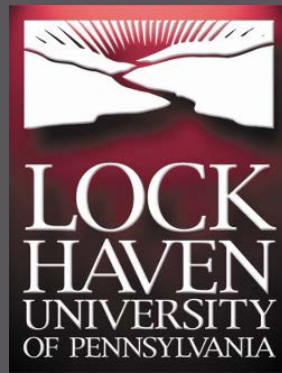


# ATTITUDES AND AWARENESS OF AQUATIC NUTRIENT ENRICHMENT:

Overcoming Obstacles to Improved Environmental  
Management

Samuel C. Pierce

Mississippi State University,  
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Department of Biological Sciences



# Acknowledgments

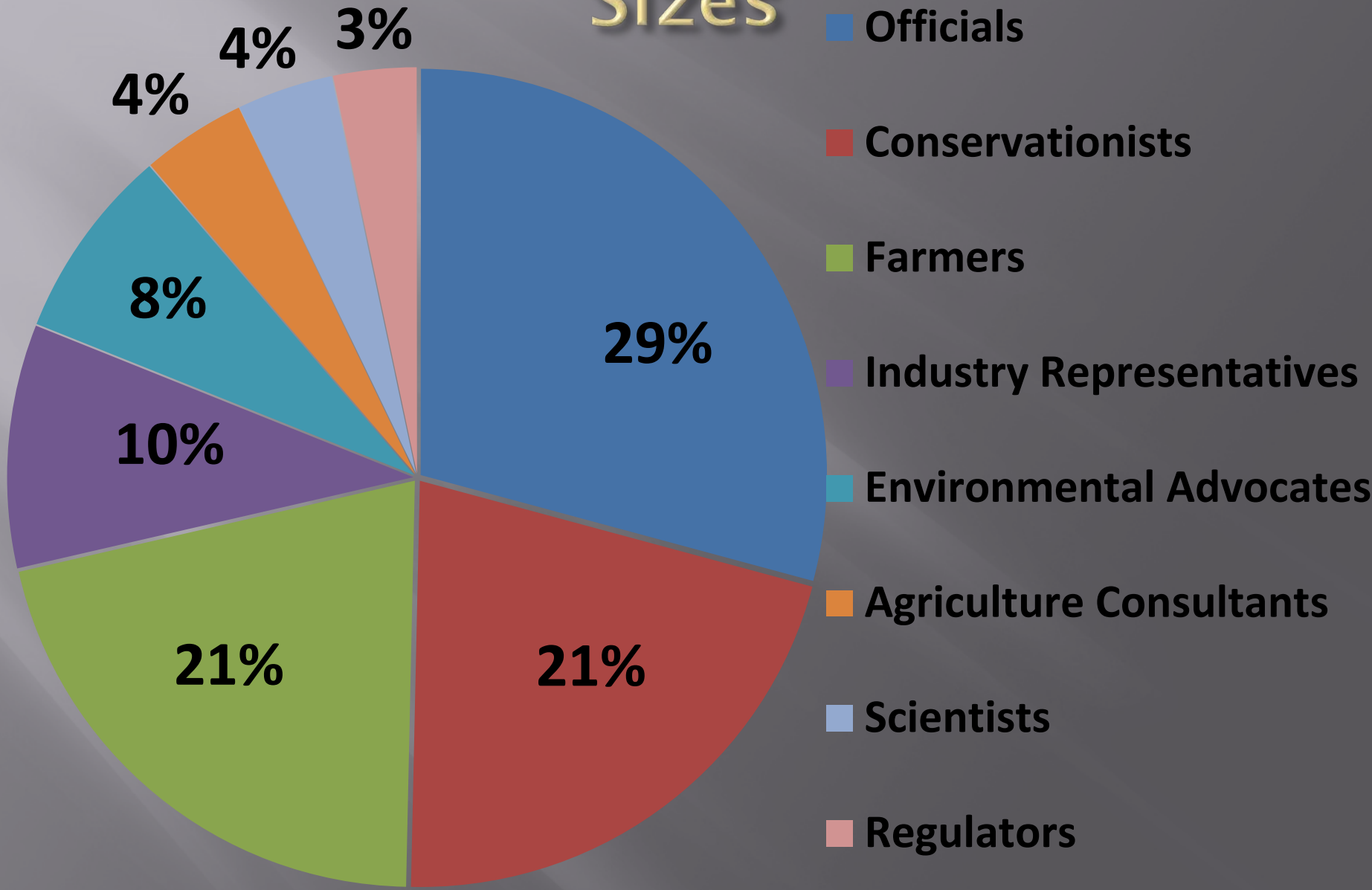


# Public Survey

“Do you believe excess use of N and P are causing environmental problems?”

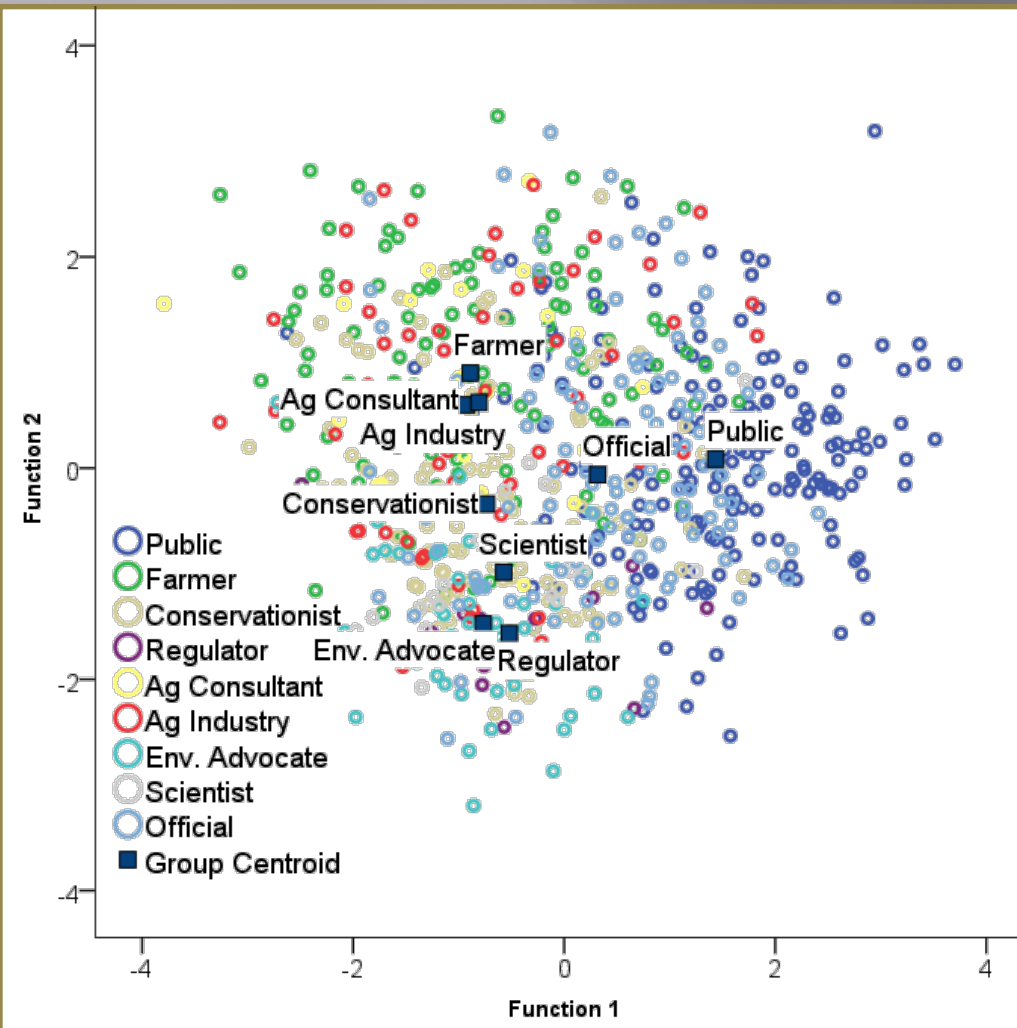
	% Yes
– Farm/Ranch	18%
– Rural (not farm/ranch)	47%
– Town < 2.5k	49%
– Town 2.5-10k	71%
– City 10-50k	56%
– City 50-100k	68%
– City >100k	62%

# Stakeholders - Relative Sample Sizes



# Ordination: Public vs Stakeholder

Stakeholders differed from public:



More knowledge

- Have heard about the Dead Zone/Hypoxia

Less action

- Lawsuits not needed to minimize nutrients
- Those responsible should not pay for mitigation

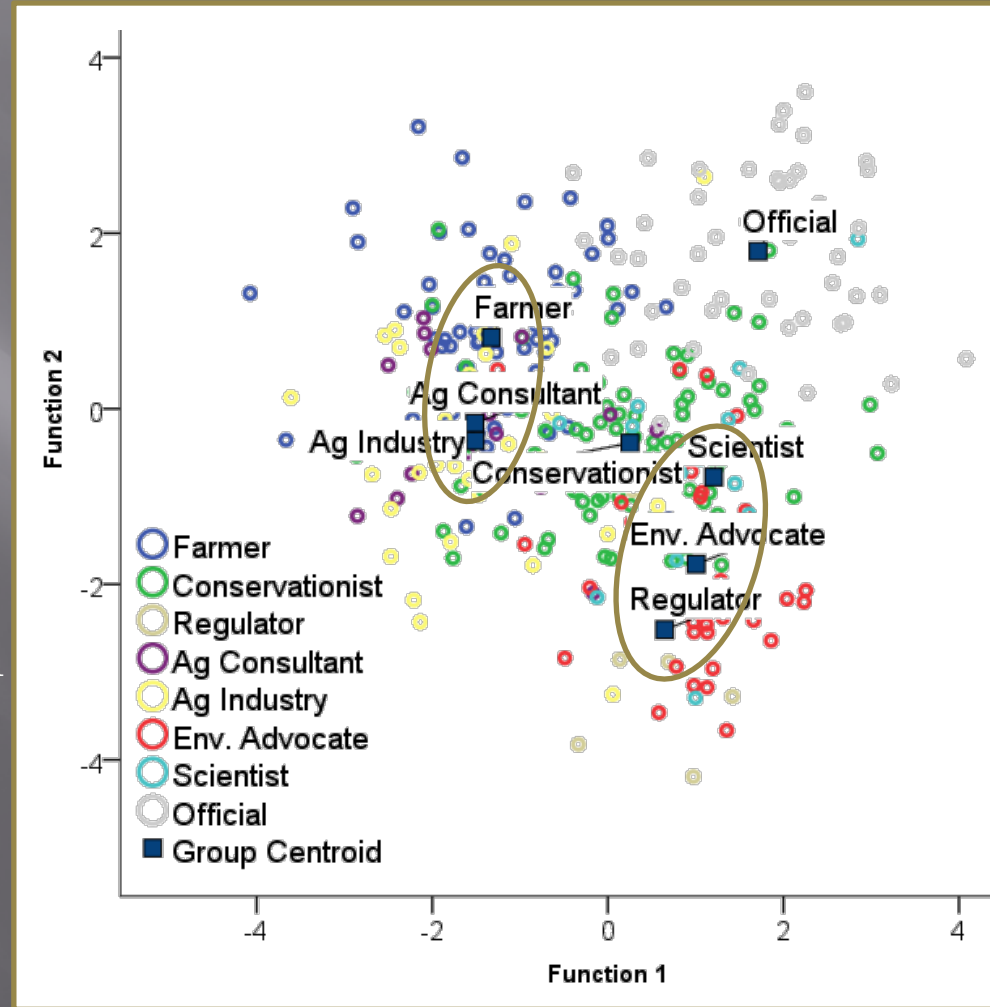
# Stakeholder Ordination

## F2 – Axis of Immediate Concerns

- ❑ **NOT** heard about Gulf hypoxia
- ❑ **NOT** heard about the Dead Zone
- ❑ Relax env. standards for economy
- ❑ Municipalities **cannot** afford costs

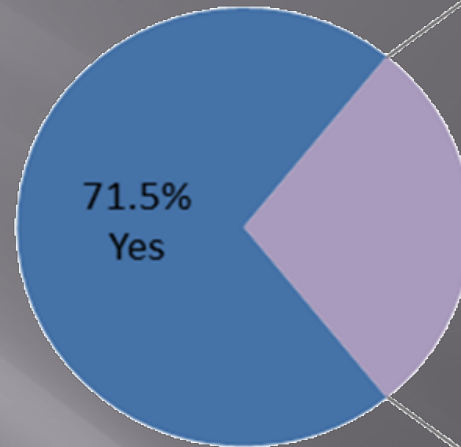
## F1 – Axis of Environmental Enforcement

- ❑ Problems warrant nutrient reduction
- ❑ Effects are **NOT** exaggerated
- ❑ Those responsible should pay
- ❑ **N & P cause env. problems.**
- ❑ **Federal agencies are important**
- ❑ Regulations are necessary

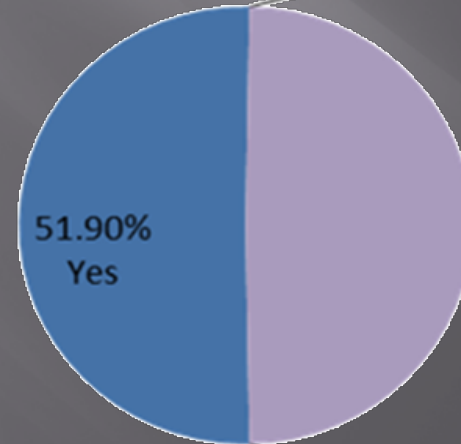


# Have you heard of...

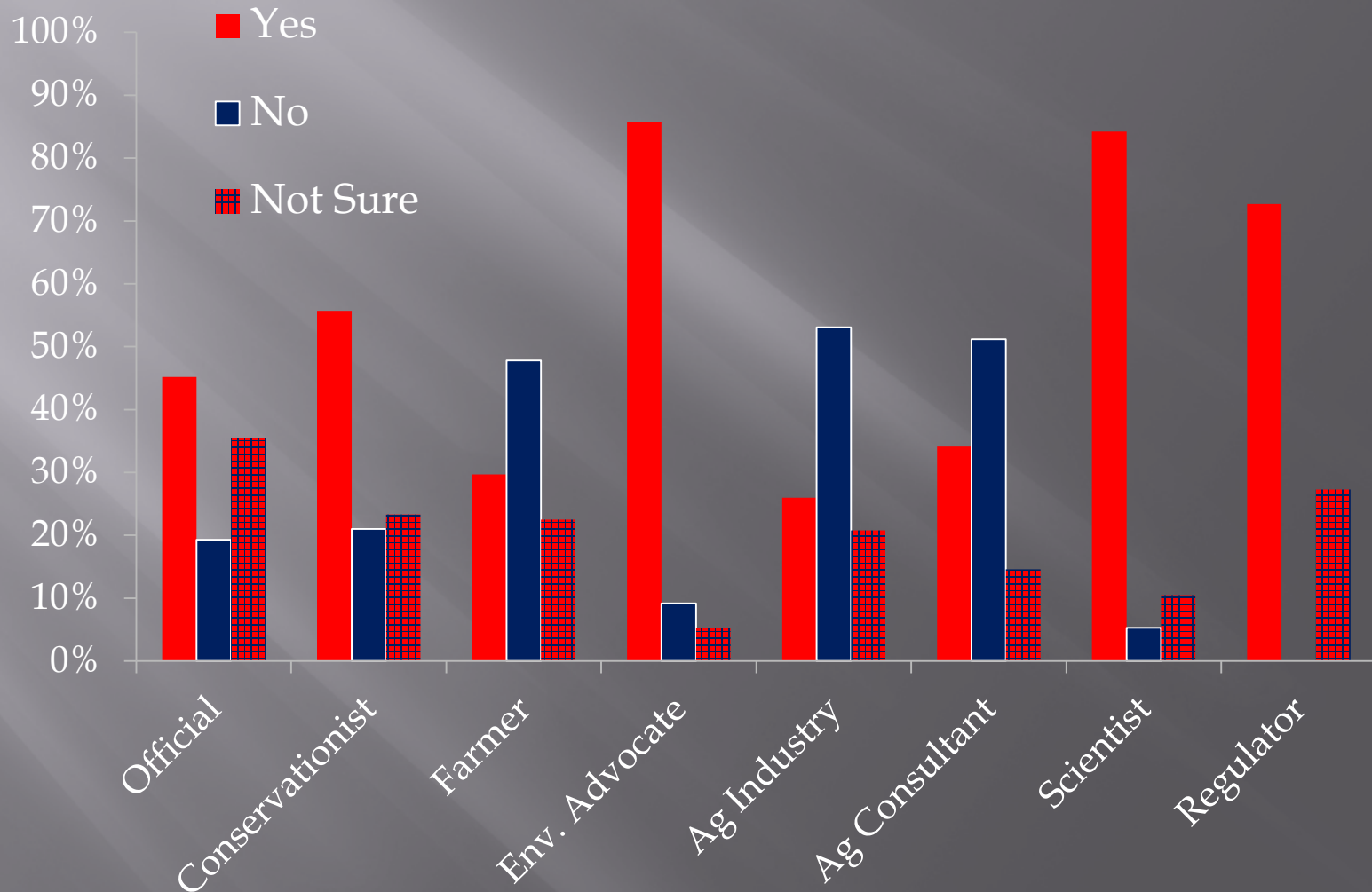
Dead Zone



Gulf Hypoxia

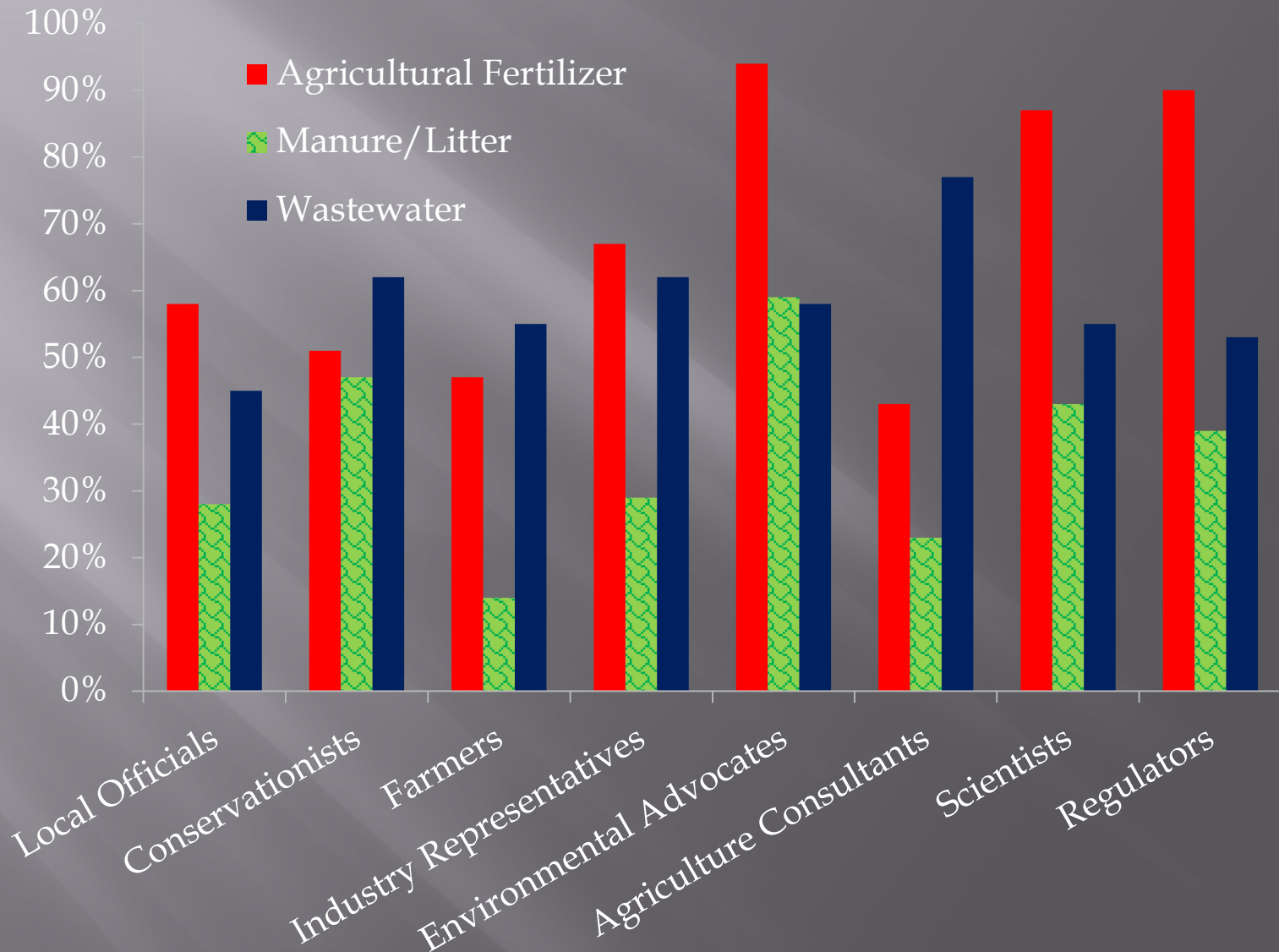


# Do you believe excess N and P are causing environmental problems?

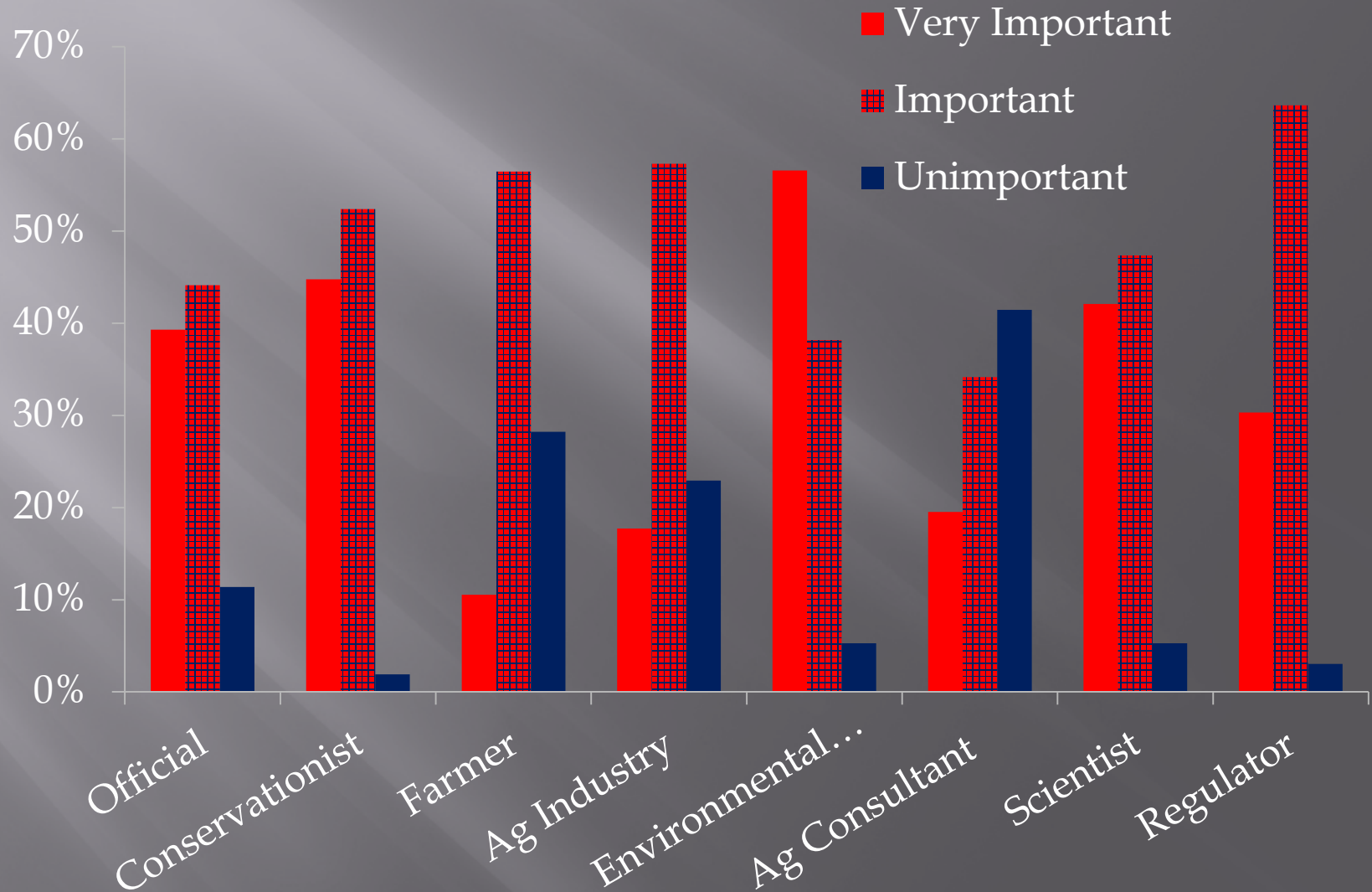




# Major Source of N/P



# Importance of Federal Government



# What do they have in common?

- ▣ Stakeholders and public believed:
  - People would change their behavior if they understood environmental consequences
  
- ▣ Stakeholders generally believed:
  - Voluntary measures are effective
  - Outreach and education can change behavior
  - Farmers are very important
    - ▣ Six of the nine stakeholder groups named FARMERS as MOST IMPORTANT for keeping "excess" N and P out of MS waters

# Promoting Stewardship

**MISSISSIPPI STATE UNIVERSITY**  
TM

**REACH** 

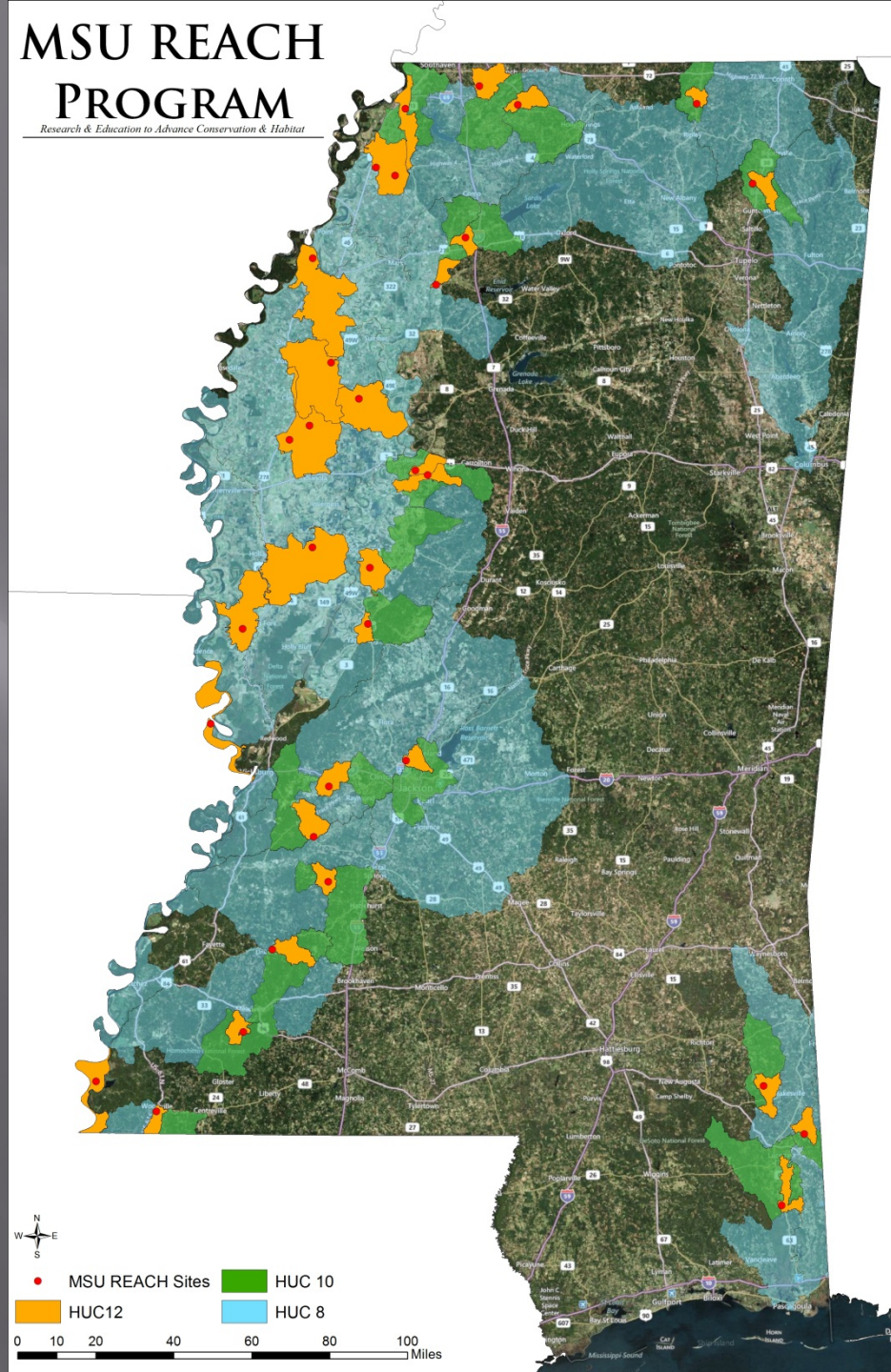
RESEARCH & EDUCATION TO ADVANCE CONSERVATION & HABITAT

- ▣ Statewide collective
- ▣ Gets farmers into ongoing research
- ▣ Access to data
  - e.g., Real-time hydrographs

[http://livedata.hachhydromet.com/trend/graph?p  
anel=1356&showLegend=true&public=true](http://livedata.hachhydromet.com/trend/graph?panel=1356&showLegend=true&public=true)

## MSU REACH PROGRAM

*Research & Education to Advance Conservation & Habitat*



# The Next Steps

- ▣ Existing Programs
  - Testing effectiveness
  - Social media



- ▣ Spokesperson
- ▣ Other Stakeholders
- ▣ Keep them on the farm

# The Next Generation of Stakeholders

