



SERA-46

Land Grant Universities Working Collaboratively with the Hypoxia Task Force

Mike Schmitt, University of Minnesota
Amanda Gumbert, University of Kentucky
Beth Baker, Mississippi State University



Role of Land Grant Universities (LGUs) in U.S.



Teaching

Morrill Act, 1862

Teach such branches of learning as are related to agriculture and the mechanic arts.

Role of Land Grant Universities (LGUs) in U.S.



Teaching



Research

Morrill Act, 1862

Teach such branches of learning as are related to agriculture and the mechanic arts.

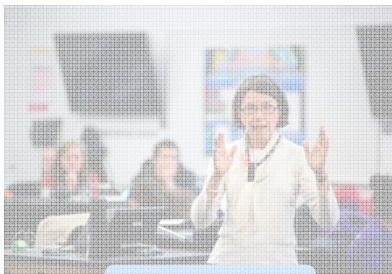
Hatch Act, 1887

Provide federal funds to state land grant colleges to create agricultural research facilities.

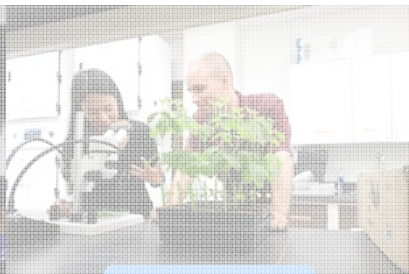
Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

Role of Land Grant Universities (LGUs) in U.S.



Teaching



Research



Extension

Morrill Act, 1862

Teach such branches of learning as are related to agriculture and the mechanic arts.

Hatch Act, 1887

Provide federal funds to state land grant colleges to create agricultural research facilities.

Smith Lever Act, 1914

Provide education to adults off-campus that is relevant, understandable and practical.

Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

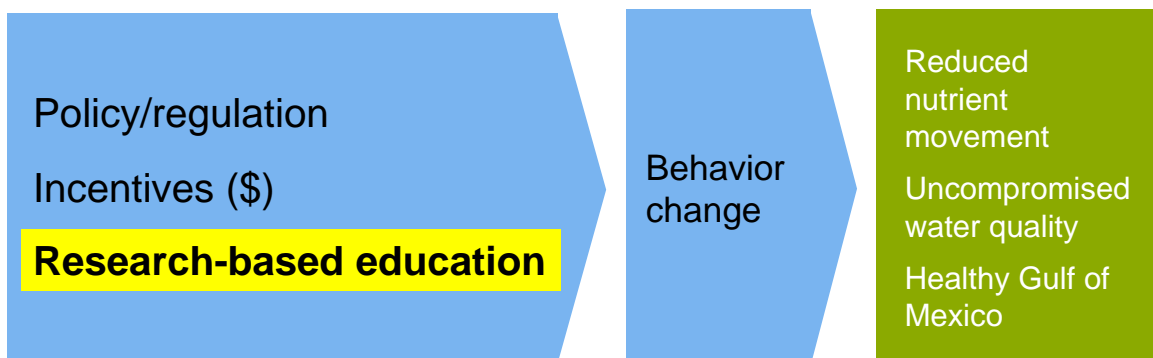
How to Achieve Water Quality Goals



Winter 2018

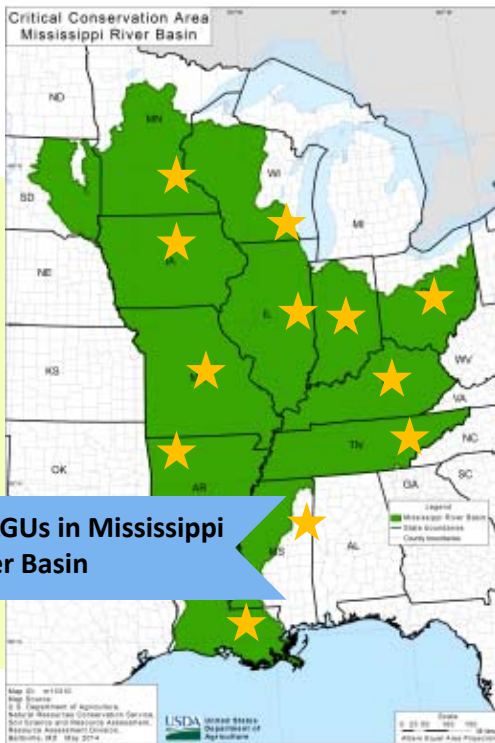
Hypoxia Task Force Meeting, Arlington, VA

How to Achieve Water Quality Goals



Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

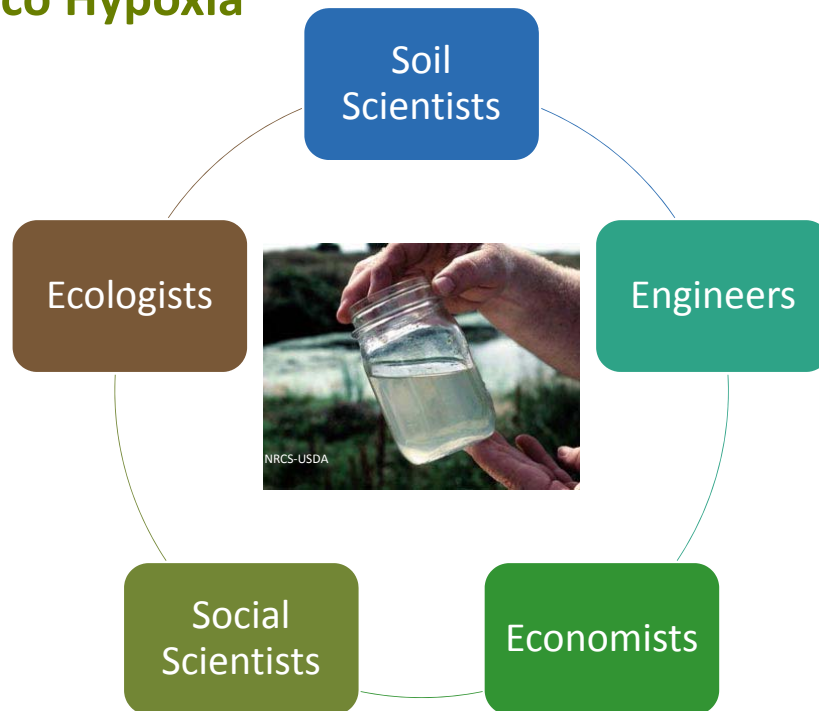


12 LGUs in Mississippi
River Basin

USDA-NIFA coordinates
multistate efforts via regional
committees

Strong linkage/coordination
with Hypoxia Task Force

LGU Expertise in Addressing Gulf of Mexico Hypoxia



Benefits of LGUs Collaborating with HTF



- Multi-institutional teams focus on regional issues and solutions
- Multi- and trans-disciplinary approaches to problem solving
- Integration of research and extension

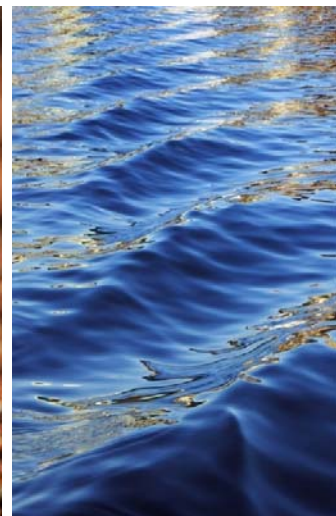
Winter 2018

Hypoxia Task Force Meeting, Arlington, VA



SERA-46 Goal

Promote effective implementation of science-based approaches to nutrient management/conservation that reduce nutrient losses to the environment.



Priorities for Collaborative Work

Developed May 2015
Revised September 2017

Three Focus Areas

1. *Strengthening Networks*
2. *Conservation Systems Research and Outreach*
3. *Monitoring and Tracking of Progress*

**Hypoxia Task Force and LGU SERA-46
Priorities for Collaborative Work
Working Document
September 2017**

This document outlines emergent opportunities for potential short- and long-term collaborative work between the Hypoxia Task Force and LGU SERA-46. It is a work in progress, reflecting the most recent thinking of HTF and SERA-46 members about where collaboration will contribute most to state-level nutrient strategies and reducing the hypoxic zone in the Gulf of Mexico.

Each item in this summary can be tied to the three broad, proposed objectives:

Objective 1: Establish and strengthen relationships that can serve the missions of multiple organizations addressing nutrient movement and environmental quality.

Objective 2: Expand the knowledge base through the discovery of new tools and practices as well as the continual validation of recommended practices.

Objective 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.

Additional information will be necessary to operationalize these ideas, such as:

- How will SERA-46 and HTF integrate these ideas with existing efforts?
- How will these ideas be resourced (e.g. funded, staffed)?

Answering these questions will be important next steps in moving priorities for land-grant HTF collaboration forward.

Document Key

○ = SERA-46 Priority

Items in Bold Italics = Short-term deliverables (Early 2018)

Note that some priority items may have short-term deliverables that are not yet developed and that all items will be communicated within the land-grants as being priorities for HTF and LGU collaboration.

Winter 2018 Hypoxia Task Force Meeting, Arlington, VA

Progress

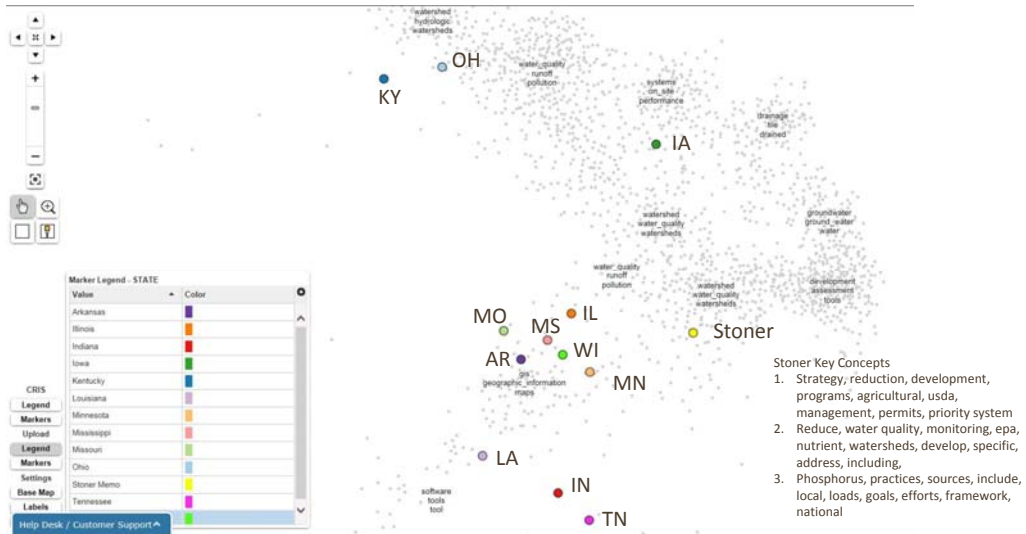
Strengthening Networks #1 - Identify common attributes and gaps across state nutrient reduction strategies



Photo courtesy Mississippi State University

Winter 2018 Hypoxia Task Force Meeting, Arlington, VA

Ray Knighton, USDA-NIFA
 Pushgraph Analysis State Nutrient Strategies
 in the space of nutrient/water quality projects in CRIS database



Winter 2018 Hypoxia Task Force Meeting, Arlington, VA

Progress

Conservation Systems Research and Outreach #1 -
 Assist in the optimization of cover crop practice performance.



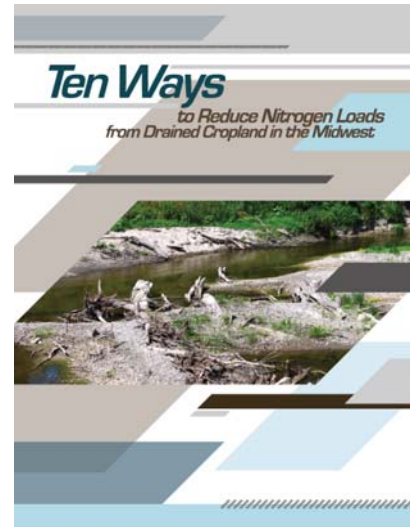
Photo courtesy Mississippi State University

Winter 2018 Hypoxia Task Force Meeting, Arlington, VA

Progress

Conservation Systems Research and Outreach #2 – Translate science in tile drained areas into accessible information for states to adopt into policies to address nutrient use and movement, particularly with corn and N.

Delivery: Ten Ways to Reduce Nitrogen Loads from Drained Cropland in the Midwest (University of Illinois Extension, 2016); Phosphorus publication in progress.



Progress



Delivery: Special Issue Journal of Soil and Water Conservation: Edge-of-Field Monitoring for Nutrient Losses

Progress



Conservation Systems Research and Outreach #3 – Create a network of watershed practitioners and farmer leaders to strengthen the effectiveness of nutrient management strategies.



Photo courtesy University of Kentucky

Winter 2018 Hypoxia Task Force Meeting, Arlington, VA



Map: <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/rcpp/?cid=stetjrb1254130>

Winter 2018 Hypoxia Task Force Meeting, Arlington, VA

Progress

Monitoring and Tracking Progress #3 – Using Social and Civic Engagement Indicators to Advance Nutrient Reduction Efforts

Delivery

- *Established active work group: social and environmental scientists from the 15 HTF and GOMA states.*
- *Facilitated numerous webinars; hosted “Applied Research Symposium: The Social Dimensions of Nutrient Reduction”; developed synthesis report.*
- *Established an information hub: Human Dimension in Water*
<https://h2o.ssrc.msstate.edu/>



Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

Valuable Collaborations

- State and Federal agencies represented by Hypoxia Task Force membership
- Direct farmer and farm advisor interaction
 - Extension audiences
- State Departments of Agriculture
 - Some states have records of success
 - Iowa State University a resource for science, research, technology, on-farm practices
- Other multi-state committees
 - SERA-17, NC-1190, etc.

Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

Continued Work



- MARB Nonpoint Sources Nutrient Reduction Measurement Framework
- Facilitate dialogue between SERA-46 members and state HTF members
- Cross-MARB communication of science directly to state agencies for translation into their nutrient reduction policies and programs



Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

Future Efforts and Needs

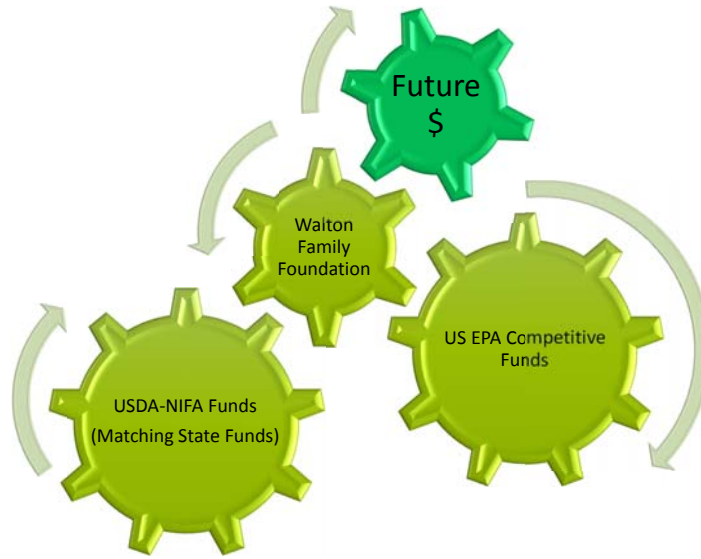


- Expand economics shared priority around on-farm economic tools, costs, and benefits – work has begun, funding needed.
- Expand research and education on multifunctional agricultural landscapes that provide a broad suite of societal and ecosystem services – working group identified, funding needed.

Winter 2018

Hypoxia Task Force Meeting, Arlington, VA

Funding



For More Information



<http://northcentralwater.org/sera-46/>

<https://www.epa.gov/ms-htf/hypoxia-task-force-partnerships>

Thank You!



Winter 2018 Hypoxia Task Force Meeting, Arlington, VA

Thank you!



Winter 2018 Hypoxia Task Force Meeting, Arlington, VA



What is SERA-46?

- Southern Extension and Research Activities committee number 46.
- Formal USDA National Institute of Food and Agriculture (NIFA) and land-grant university funded committee designed to promote multistate, research and extension activities.
- Created to operationalize a non-funded Cooperative Agreement between the Hypoxia Task Force and land-grant university Extension and Experiment Stations in the North Central and Southern Regions of the United States