

SERA 46 - A Framework for Nutrient Reduction Strategy Collaboration: the Role for Land Grant Universities

Period of Performance 10/2014 – 9/2019

- The Hypoxia Task Force (HTF) is a collaborative mix of environmental quality, agricultural, and conservation agencies from twelve of the Mississippi basin states and five federal agencies.
- The 2008 HTF Action plan calls for a 45% reduction in Nutrient transport to the Gulf of Mexico to reduce the size of the hypoxic zone to < 5000 sq K.
- To achieve these goals, the 12 States in the Mississippi/Ohio River Basin are developing and implementing strategies to reduce loadings of nitrogen and phosphorous to their local surface waters and ultimately to the Gulf of Mexico. These nutrient reduction strategies are in response to the 2009 Stoner Memo.
- The strategies are comprehensive in nature and address both point and nonpoint sources of nutrient pollution.
- At the 2013 Spring HTF meeting, David Shaw, VPR, Mississippi State, suggested that Land Grant Universities (LGUs) are uniquely positioned to assist each state within the basin and the HTF as a whole in the development and implementation of the state level nutrient reduction strategies.
- June 2013, a white paper was developed stating that:
 - LGU's conduct basic and applied research across a myriad of relevant disciplines including agronomy, soil science, nutrient transport, water quality, agricultural economics, and human behavior.
 - The Extension system puts the science into practice by educating farmers and agribusinesses, conducting on-farm research, and understanding farm level economics and farmer decision making.
 - LGUs in each state have local expertise, credibility and are a highly trusted source of objective research-based information helpful to all entities actively exploring solutions to nutrient pollution,
 - Through USDA's National Institute for Food and Agriculture (NIFA) and formal and informal committees, faculty in LGUs regularly collaborate on multi-state research and extension education projects, and
 - Could provide a valuable service within and among states in development and delivery of nutrient strategies.
- Fall 2013 HTF meeting, select representatives from MRB LGUs participated in a workshop with HTF leadership to discuss ways in which the HTF could formally and collectively engage with LGUs, utilizing their expertise in attainment of 2008 Hypoxia Action Plan goals.

Proposed Concept – Form a framework for greater collaboration within and among states for development and implementation of nutrient management strategies.

- Formation of a network of LGUs among the twelve HTF states that focuses on the development and implementation of nutrient reduction strategies and for the activities of the HTF.
- Organization and engagement of appropriate LGU faculty to work with its HTF member agency within each state.
- Outreach and education to the agricultural community at the state and national levels.

March 2014 – A MOU was executed between the HTF and the North Central and Southern Experiment Station and Extension Service Directors with the following purpose:

- To strengthen cooperation among parties to fulfill the commitments of the Gulf Hypoxia Plan 2008 for reducing, mitigating, and controlling hypoxia in the Gulf of Mexico and improving water quality in the Mississippi River Basin.

April 2014 – SERA Development

- It was determined that an ERA was an appropriate structural vehicle to capture this multistate activity on behalf of the LGUs.
- The Southern Directors agreed to assume leadership and host the activity as a SERA. Dr. Eric Young and Dr. Robin Shepard agreed to serve as AAs. Dr. Mike Schmidt and Dr. Wes Burger agreed to service as co-chairs for the initial proposal development.
- May 2014 – Experiment Station and Extension Service Directors nominated 1 Experiment Station Scientist and 1 Extension Service Specialist from each of the 12 MRB LGUs to serve on a writing committee.
- SERA 46 – “A Framework for Nutrient Reduction Strategy Collaboration: the Role for Land Grant Universities” was approved by the Experiment Station and Extension Service Directors at the Fall 2014.

April 2015 - Priorities for Collaboration

- SERA 46 leadership presented the concept at the Fall 2015 HTF meeting and at the 2015 Spring HTF meeting met with HTF leadership and Coordinating Committee to establish specific priorities for collaboration under the following broad 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.

Current Activities

- Monthly conference calls with HTF Coordinating Committee
- Strengthening Networks
 - Developing series of white papers for HTF addressing:
 - Variability among states in fertility recommendations
 - Review of state nutrient reduction strategies
 - Science behind strategies for nitrogen transport in tile-drained systems
- USEPA released RFP in Spring 2016 that included program area focused on SERA 46 objectives. Two projects were funded:

- “Using social and civil engagement indicators to advance nutrient reduction strategies”
 - “Building capacity for watershed leadership and management in twelve Mississippi River Basin”
- Presentations were given at the January and April meetings on economic evaluation of improved water quality and ecosystem services.
- SERA 46 leadership discussed with HTF potential projects related to metrics and measures of nutrient reduction.