

Arkansas Watershed Advisory Group  
Roundtable Discussion  
Gulf of Mexico Hypoxia  
Thursday, October 30<sup>th</sup>, 2008  
1:00 pm to 5:00 pm  
ADEQ Commission Room



The Gulf of Mexico Hypoxia Roundtable Discussion was held on October 30, 2008 preceding the biannual AWAG conference. The speakers for the roundtable included Phil Bass of USEPA, Bill Layher of Biologics RTEC, Inc., Reed Green of U.S. Geological Survey, Kevin Pierson of Audubon Arkansas, and Ellen McNulty of ADEQ.

The keynote Phil Bass of USEPA, explained hypoxia is mainly caused by excess nitrogen from the Mississippi River in combination with seasonal stratification of Gulf water. Excess nitrogen creates ideal conditions of algal and zooplankton growth, thus creating organic matter that sinks to the ocean bottom. As a result, oxygen is depleted causing fish to leave the area and create stress and/ or death to bottom dwelling organisms. The Louisiana Universities Marine Consortium, measures the hypoxic zone each summer and in the last five years has averaged 17,070 sq kilometers. The surveys are funded by the National Oceanic and Atmospheric Administration, who provides a Hypoxia Watch System as a public service. The hypoxic zone measured its greatest size of 22,000 square kilometers, greater than the size of Massachusetts, in 2002.

The second speaker was William “Bill” Layher of Layher Biologics RTEC, Inc. Dr. Layher conducted joint research with Ken Brazil and Doug Daigle on Assessing Load Contributions to the Gulf of Mexico and associated action to reduce nutrient loading. The research found no central database currently being used by the US Department of Agriculture cataloging information regarding 1) what agriculture lands have implemented Best Management Practices 2) what lands have previously been enrolled in Farm Bill programs and are currently enrolled and 3) a manner to share this information to the public. The research also showed the difficulty in modeling erosion potential and runoff when limited information of actual land practices is available. The only source available

to collect the necessary information for a watershed model is dependent on the cooperation and coordination of local USDA office personnel, which includes the Natural Resources Conservation Service (NRCS) and the County Conservation District. Despite the cooperation from local personnel, the information on BMP implementation is incomplete nor recorded in reports easily provided to the public. Therefore, the information available is insufficient to dictate which efforts are the best methods to address hypoxia concerns.

Kevin Pierson, Director of Conservation for Audubon Arkansas presented Audubon's role in a joint project with Environmental Defense Fund and the National Wildlife Federation to create a coordinated plan to protect the Lower Mississippi River Basin. Mr. Pierson shared that 34 sq/miles of wetlands are lost each year in Arkansas and in the last 50 years 90,000 square miles of wetlands have been converted to other landuses. Arkansas Audubon hopes to achieve three goals as part of Audubon's Mississippi River Initiative: improve the function and ecological health and visibility of the Mississippi River System from headwaters to gulf, improve the function and stability of the wetlands and waters of the Louisiana coasts, and improve water quality. This plan's implementation is funded by the Walton Family Foundation.

USGS Assistant Director, Reed Green was the last speaker of the roundtable. Dr. Green shared the findings of a recent report "Difference in Phosphorus and Nitrogen Delivery to the Gulf of Mexico from the Mississippi River Basin." The report showed the links between nitrogen and phosphorus to the seasonal hypoxia in the northern Gulf of Mexico. A water quality model, SPARROW, was used to reveal the differences in N and P sources and transport. The model simulations indicated the percentage of contribution from non-point sources. Agricultural sources in the watershed contribute more than 70% of N and P delivered to the Gulf waters. The largest contributor of N from agriculture operations was 52% from corn and soybean cultivation, then atmospheric deposition at 16%; whereas 37% of the P contribution mainly comes from animal manure on pasture and rangelands, 25% from corn and soybean cultivation, 18% from other crops and the remaining 12% from urban sources. The loading amount delivered to the Gulf increases with the stream size and is influenced by the ability of reservoirs trapping sediments. Arkansas' loading amount of nitrogen ranks 5<sup>th</sup> and 4<sup>th</sup> for phosphorus. Dr. Green also shared other materials in relation to Arkansas' influence on hypoxia sources.