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PROJECT SUMMARY

NGOMEX 2006: Integrated Observational Studies of Hypoxia in the Northern Gulf of Mexico
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Cost: $2,252,617 budget period of 5/1/06-4/30/09

The largest zone of oxygen-depleted coastal waters in the United States, and the second largest for the coastal ocean, is on the Louisiana continental shelf. The size of the Gulf of Mexico hypoxic zone averaged 8,252 km^2 from 1985-1992, reached a record size of 22,000 km^2 in 2002, and averaged 15,632 km^2 for the last five years (2000-2005). The size for the last five years is important in determining whether the Action Plan developed by the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (2001) has been effective in its environmental goal of a hypoxic zone less than 5,000 km^2 for a five-year running average by the year 2015. A key metric in the assessment of success for the Action Plan is the continuing determination of the estimated mid-summer size of the hypoxic area. The refinement of knowledge on the frequency, duration and extent of the hypoxic zone through the year helps to place hypoxia dynamics in perspective with nutrient management activities in the watershed, natural variability and climate change.

The Mississippi River/Gulf of Mexico Watershed Nutrient Task Force is currently assessing the Action Plan formalized in 2001 for the state of knowledge of the science and nutrient loads to the Gulf of Mexico, the accomplishments in reducing nutrients, adaptive management strategies, and future directions. A basic foundation is necessary for the long-term data set and to enhance these observations with additional data from shipboard instrumentation and enhanced capabilities from integrated observing systems. These efforts will provide a synthetic, interdisciplinary approach that directly supports improved modeling, better understanding, and important strategies related to nutrient management scenarios within the Mississippi River basin.

The proposed work will:

- provide a continuing and consistent series of long-term data that document the temporal and spatial extent of hypoxia,
- collect hydrographic, chemical, and biological data related to the development and maintenance of hypoxia over seasonal cycles,
- enhance instrumentation at an existing integrated observing station in an area of high frequency hypoxia,
- identify relationships among river discharge and constituent loads, physical conditions, especially currents, and biological and chemical parameters,
- continue to link the coastal ecosystem studies with Mississippi River data on discharge, concentration and loads of relevant constituents
- refine models of the severity and extent of hypoxia,
- continue to publish peer-reviewed results to communicate with the science and management community and to support assessment of measures taken under the Action Plan, and
- continue public outreach, including a web site, to translate research results to a broad cross-section of the public.