

*Ecological Impacts of Hypoxia on Living Resources Workshop*

26-29 March 2007

Stennis, Mississippi

Sponsored by NCCOS/CSCOR, GLERL, NESDIS, and the Northern Gulf Cooperative Institute

Workshop Rationale: Hypoxia is a common water quality issue that can severely impact aquatic ecosystems. Although hypoxia can occur naturally, it is often a symptom of degraded water quality resulting from anthropogenic activities (e.g. nutrient pollution, eutrophication). Over the last few decades there have been increases in the frequency, duration, and aerial extent of hypoxic events with hypoxia now recognized as one of the most significant threats to coastal ecosystems and fisheries production worldwide. Numerous investigators have studied the effects of hypoxia on fish physiology, population dynamics, and community structure and function. However, in many aquatic systems, a clear view of the impacts of hypoxia on living resources at the population or community level either does not exist, or has not been disseminated to managers in a manner that can be used to quantify ecosystem and economic impacts and support the establishment of goals for system restoration..

To help fill these information gaps, NOAA is convening a workshop in coordination with the Northern Gulf of Mexico Cooperative Institute at the Stennis Space Center to assess the current state-of-knowledge of the ecological impacts of hypoxia on living resources with a focus on application of the science to coastal decision-making. The effectiveness of existing approaches for evaluating the impacts of hypoxia on ecologically, commercially, and recreationally important fish and shellfish populations will be compared in three coastal systems noted for seasonally recurring and persistent hypoxic zones - Chesapeake Bay, Gulf of Mexico, and Lake Erie. Other regions may be included as comparative systems if they represent unique and especially powerful examples that support the workshop objectives.

Objectives:

- 1) to compile, present, and evaluate the state-of-knowledge of hypoxia effects on fish and shellfish populations and communities in three systems in a manner that can be used in evaluating the resource, and potentially economic impacts, of alternative management decisions;
- 2) to develop recommendations for selecting and applying management tools (e.g. indicators, predictive models) that quantify the effects of hypoxia on fish and shellfish populations in a manner that can be used to inform the management of hypoxia in coastal systems;

3) to identify research priorities needed to further advance the state-of-knowledge of hypoxia effects on fish and shellfish in a manner that can be used in evaluating the resource and socioeconomic impacts of alternative management decisions in coastal systems impacted by hypoxia;

Outcomes:

- 1) Pre-meeting "white paper" that summarizes historical information on hypoxia effects on fish and shellfish, ongoing activities, and informational needs.
- 2) NOAA Technical Report summarizing Workshop accomplishments of objectives
- 3) peer-reviewed publication (e.g. special issue) targeted toward workshop objectives

Format: A 4-day workshop – first 2 days will be open to the public and include presentations, second 2 days will be by invitation only for 20-30 researchers and managers.

Contact:

Alan Lewitus, NOAA Center for Sponsored Coastal Ocean Research  
(301) 713-3338 x178  
[Alan.Lewitus@noaa.gov](mailto:Alan.Lewitus@noaa.gov)

Robert Magnien, NOAA Center for Sponsored Coastal Ocean Research  
(301) 713-3338 x159  
[Rob.Magnien@noaa.gov](mailto:Rob.Magnien@noaa.gov)

Stephen Brandt, NOAA Great Lakes Environmental Research Laboratory  
(734) 741-2244  
[Stephen.B.Brandt@noaa.gov](mailto:Stephen.B.Brandt@noaa.gov)