University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

OFFICE OF THE PRESIDENT

POST OFFICE BOX 775
CAMBRIDGE, MD 21613-0775
(410) 221-2000
FAX (410) 228-3843
boesch@umces.edu
http://www.umces.edu

June 11, 2007

Mr. Benjamin H. Grumbles, Chair
Mississippi River/Gulf of Mexico Watershed Nutrient Task Force
Office of Water (4101M)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Mr. Grumbles:

We write the Task Force in support of the principal findings of the recently circulated Hypoxia Advisory Panel (HAP) *Draft Advisory* as scientists and engineers who contributed to the original *Integrated Assessment of Hypoxia in the Northern Gulf of Mexico*. The *Draft Advisory* independently continues and strengthens the main findings of the *Integrated Assessment* and the objectives of the Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico.

While we recognize that the HAP is still finalizing its report, we bring to your attention the following conclusions of the *Draft Advisory* that are relevant to the Task Force's reconsideration of the Action Plan:

1. Hypoxic conditions have become prevalent since the 1970s as a result of increased nutrient loads supplied from the Mississippi-Atchafalaya River Basin (MARB) that stimulate phytoplankton production of organic matter.
2. Nitrogen loading from the MARB drives the timing and extent of hypoxia. Based on recent additional results demonstrating phosphorus limitation of phytoplankton at some times and in some places, reduction in the loading of both nitrogen and phosphorus may be required to substantially reduce the prevalence of hypoxia.
3. The majority of the nitrogen and phosphorus delivered to the Gulf, and nearly all of the spring nitrogen flux, comes from nonpoint sources in the Upper Mississippi and Ohio-Tennessee sub-basins, constituting the tile-drained, corn-soybean landscape of Iowa, Illinois, Indiana, and Ohio.
4. Increasing water residence time in drained fields, wetlands, floodplains, and reservoirs would substantially reduce the export of both nitrogen and phosphorus.
5. Until significant nutrient reductions are realized, the existing goal of reducing the extent of hypoxia to an average of 5,000 km^2 is appropriate. It is more important to move in a "directionally correct" fashion and to learn from monitoring results than delay action while refining the reduction goal.
6. Reducing the size of the hypoxic zone and enhancing water quality in the basin are inextricably and positively linked and would produce many other co-benefits. For

the most cost-effective nutrient reduction strategies and policies, social benefits would probably exceed social costs over the long run.

7. The HAP recommends a minimum goal of 45% reduction in nitrogen loads based on models results and judges that a 40% reduction in phosphorus loads is feasible based on observations in other watersheds and would improve water quality within the basin. Both targets should be reassessed after significant nutrient reductions are achieved.
8. The most effective agricultural management practices should be applied in targeted watersheds with the greatest potential for nutrient reductions, allowing the optimization of costs and benefits. Strong economic incentives are required through restructuring of present agricultural support payments to reward conservation, eliminate incentives for corn-soybeans, and create incentives for perennial crops.
9. Tighter limits on emissions of nitrogen oxides from power plants and vehicles and targeted upgrading of sewage treatment plants, particularly with regard to phosphorus removal, could improve water quality and assist hypoxia reduction.

We believe that the HAP's findings affirm those of the *Integrated Assessment* in all important respects, while adding some additional insights on potential reductions in phosphorus loads, recent trends in flows and nutrient loads, ancillary benefits of nutrient reduction in the watershed, agricultural drainage management, economic feasibility, institutional barriers, and the consequences of expanded ethanol production.

We note that the HAP has included numerous recommendations for research, monitoring, modeling and assessment. We do not believe that management action must wait until these research questions are addressed. We suggest that the HAP should more specifically identify those key priorities for resolving critical uncertainties and monitoring meaningful outcomes.

It is now nearly halfway between the submission of the *Action Plan* to the President and the Congress in January 2001 and the 2015 target date for reducing the hypoxic zone to less than 5,000 km^2. Yet there is no evidence of progress toward that goal and modest implementation of actions to achieve it. With this scientific reaffirmation by the HAP, we urge the Task Force to recommit to the three goals of the *Action Plan* and to develop and implement expeditiously a concerted and deliberate strategy to achieve them.

Sincerely yours,

Victor J. Bierman, Jr.
LimnoTech, Inc.

Donald F. Boesch
University of Maryland Center for Environmental Science

John W. Day, Jr.
Louisiana State University

Robert J. Diaz
College of William and Mary

Dubravko Justić
Louisiana State University

Dennis R. Keeney
Iowa State University

William J. Mitsch
Ohio State University

Nancy N. Rabalais
Louisiana Universities Marine Consortium

Gyles W. Randall
University of Minnesota

Donald Scavia
University of Michigan

R. Eugene Turner
Louisiana State University