



University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

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

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Dr. Holly Stallworth
Designated Federal Officer
Science Advisory Board
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, DC

Dear Dr. Stallworth:

I am writing to urge the Science Advisory Board (SAB) to complete and deliver the Advisory of its Hypoxia Advisory Panel (HAP) without further delay. The reviews of the August 30 draft by SAB members and external peer reviewers are uniformly positive, but raise some important suggestions that should be addressed in completing the final version of the report. These suggestions mostly concern improving clarity and prioritization and should be easily and expeditiously addressed. In my own reading of this draft I found it substantially improved over the May 24 draft and a very solid report that provides important findings and recommendations.

The report reaffirms the major findings of the 2000 *Integrated Assessment* on which the 2001 *Action Plan for Reducing, Mitigating and Controlling Hypoxia* is based, while noting that “scientific understanding of the causes of hypoxia has grown while actions to control hypoxia have lagged.” As its actions have lagged, the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, which is responsible for the Action Plan, has also not yet completed the Reassessment (of which the SAB review is a part) that should have been concluded by December 2005 according to the Plan. At the earliest it will be completed more than two years late and half way into the implementation period leading the 2015 goal. As stated in the Plan, the objective of the Reassessment should be to “assess the nutrient load reductions achieved and the response of the hypoxic zone, water quality throughout the Basin, and economic and social effects.” In lieu of significant efforts to execute the Plan, the Task Force chose instead to revisit the very premises of the Action Plan and has stalled in place while waiting for the completion of the HAP review. Consequently, I recommend that the SAB not reconvene or further extend the period of public comment on what, after all, should be an independent scientific assessment based on science and not a protracted public comment process. Extending this process would only provide further excuse for delaying the Action Plan.

As a former member of the Science Advisory Board I am troubled by the concessions that the SAB has already made to the vested interests for retreat and delay in the implementation of the Action Plan. Scientists actively involved in Gulf hypoxia research or who participated in the *Integrated Assessment* were excluded as a class from the participation on the Hypoxia Advisory Panel, but only after their biographies were solicited and publically vetted by the SAB. This leaves the inescapable impression that this exclusion was a concession to objections from the

agricultural industry. Would the IPCC exclude the leading experts on climate change or anyone who had been involved in its Third Assessment because the energy industry objected? Considered in that light, the latest orchestrated calls for reconvening the panel to consider additional perspectives of Midwestern agricultural scientists ring particularly hollow considering that two members of the HAP are associated with the College of Agriculture and Life Sciences at Iowa State University, for example, and none at all were associated with Louisiana institutions.

Despite this unfortunate concession, I believe that the HAP engaged outstanding scientists who did an extraordinary job—particularly given their initial limited familiarity with these complex environments and the time constraints on the Panel—in sorting through the evidence and bringing to bear global scientific understanding to produce a scientifically sound report. The Panel was also very effective in dissipating the fog of confusion created by the unprofessional EPA Region IV White Paper and the poorly conceived symposia held as part of the Reassessment process. I commend the SAB for protecting the scientific independence and objectivity of the Panel.

While there are some assertions in the HAP report with which I do not fully agree or by which I am not convinced, these few exceptions do not diminish the HAP's major findings. Disagreement, after all, is in the nature of science. In this vein, there will be ample opportunity for the incorporation of different perspectives and new findings as the execution of the Action Plan proceeds in an adaptive manner. However, I note that as new findings accumulate and understanding grows they have consistently been breaking in the direction that indicates more substantial countermeasures and early actions are required, for example:

- It now appears that greater reductions in nitrogen loading will be required to achieve the hypoxia reduction goal than anticipated in the Action Plan and reductions in phosphorus loading may also be required.
- The growing extent of hypoxia in relation to nutrient loading suggests that the shelf ecosystem has lost resilience as a result of recurrent and extensive hypoxia. While this does not mean that the ecosystem has literally reached or would reach a “point of no return,” as the HAP rather carelessly states, it might mean that delaying reductions in nutrient loading will make ecosystem recovery and hypoxia contraction that much more difficult.
- As recently pointed out by the recent National Research Council report *Mississippi River Water Quality and the Clean Water Act: Progress, Challenges, and Opportunities*, nutrient-impairment of water quality is prevalent throughout the basin. Consequently, considerable benefits would be realized in the upstream states by execution of the Hypoxia Action Plan.
- The concerns raised in another recent National Research Council report, *Water Implications of Biofuels Production in the United States*, about impacts on water quality are very consistent with the findings of the HAP that the increased corn cropping for ethanol distillation poses a serious risk of exacerbating Gulf of Mexico hypoxia. The sharply higher nitrogen and phosphorus loadings measured for the spring of 2007 are particularly troubling in this regard.

- The HAP draft report identifies a substantial array of feasible solutions for abating nutrient pollution that could be pursued, including some that received scant attention in the *Integrated Assessment*, such as advanced wastewater treatment and drainage water management.
- The devastating effects of Hurricane Katrina have made clear the urgency of a strategic program for coastal restoration in the Mississippi Delta (Day, J.W. et al. 2007. Restoration of the Mississippi Delta: Lessons from Hurricanes Katrina and Rita. *Science* 315:1679-1684). Toward that end the Louisiana Coastal Area Ecosystem Restoration Program is authorized by the Water Resources Development Act that has passed both houses of Congress. A fundamental element of this restoration must be large diversions of the lower Mississippi and Atchafalaya rivers that could inject greater volumes of river flow into hypoxia-sensitive shelf waters. Cleaning up the nutrient pollution in the lower rivers must be achieved prior to the installation of these diversions in order to avoid the Sophie's Choice between dead zones and complete deterioration of the Louisiana coastal landscape.

Clearly, the Action Plan now requires a firm implementation schedule that includes significant and immediate measures to abate nutrient pollution.

Thank you for this opportunity to offer these hopefully last comments on the Hypoxia Advisory Panel's Advisory.

Sincerely yours,



Donald F. Boesch
Professor

cc: Dr. Granger Morgan, SAB Chair
Mr. Benjamin Grumbles, EPA Assistant Administrator
Vice Admiral Conrad Lautenbacher, NOAA Administrator
Dr. Leonard Bahr, Louisiana Governor's Office