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OFFICE OF THE GREAT LAKES
LANSING

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International Joint Commission:

Thank you for the opportunity to provide comments on the proposed recommendations outlined in the International Joint Commission's *Lake Erie Ecosystem Priority: Scientific Findings and Policy Recommendations to Reduce Nutrient Loadings and Harmful Algal Blooms* (LEEP) draft document dated August 2013. The following are comments from the Office of the Great Lakes and the Water Resources Division in the Michigan Department of Environmental Quality, and the Michigan Department of Agriculture and Rural Development. The following comments are tied to one of the 15 LEEP report recommendations:

Recommendation 1: Setting phosphorus loading targets

- While increased aquatic vegetation growth and Harmful Algal Blooms (HABs) are typically associated with elevated nutrient concentrations, in Michigan many of the shoreline deposits occur where ambient phosphorus and nitrogen concentrations are very low or declining (e.g., Grand Traverse Bay and Lake Michigan's eastern shore). Once thought to be caused primarily by the presence of excessive nutrients (e.g., phosphorus), there is growing evidence that the increased organic matter deposits may be the result of a complex interaction between nutrients and Dreissenid mussel species, changes in wind patterns over the Great Lakes, and fluctuating water levels.
- Michigan considers the Lake Erie Lakewide Action and Management Plan (LAMP) an important binational planning and implementation document. It is unclear how the recommendations and targets set through the Lake Erie LAMP process to date, including the 2011 Lake Erie Binational Nutrient Management Strategy, were considered in the development of the LEEP recommended targets.
- With regards to the internal loading, the report states that in response to the 1972 Great Lakes Water Quality Agreement, phosphorus loading into the Western Lake Erie Basin (WLEB) had decreased by the mid-1980s despite internal recycling. However, the current system is now being influenced by Dreissenid mussels (among other aquatic invasive species impacts to the food web) which did not invade the region until the mid-1980s. The proposed targets should account for the change in nutrient dynamics and preferential algae feeding by these invasive mussels. This has the potential to be a major factor in the recent blooms, and an issue that needs to be addressed to fully understand how the new ecosystem is processing nutrients.
- The report calls for more of what has been effective in the past rather than addressing what may be needed under current biological community structure with respect to its influence on nutrient cycling dynamics. For example, the report sets a specific phosphorus reduction target (78%) for a specific outcome (50% reduction in hypoxic area). Given the dynamics and understanding of the system, by the time we achieve the desired reductions, other changes will have occurred that may or may not allow the target to be achieved. The socio-economic implications and the

enormous cost of achieving a 78% reduction through largely nonpoint source controls must be given more consideration.

Recommendation 2: Using the Total Maximum Daily Load (TMDL) process as a framework for the WLEB and Central Basin

- The report endorses a phosphorus cleanup plan based on the TMDL process for all significant phosphorus sources, including Dissolved Reactive Phosphorus (DRP). This is no small task for a water body with only state and local interests, let alone a water body with binational interests. From a lakewide perspective, data for a TMDL may not adequately exist. Michigan's TMDL program and reporting are developed consistent with the U.S. Environmental Protection Act's Guidance. In addition, the goal of the TMDL would have to be jointly determined among multiple binational government entities. This could be an extremely difficult and lengthy process.

Recommendation 3: Shifting Best Management Practices (BMPs) that most likely reduce DRP

- Consideration should be given to avoid shifting the majority of available resources to addressing DRP in the WLEB at the expense of other water quality restoration and protection activities (e.g., addressing other factors contributing to HABs, protecting of high quality waters, and restoring other locally impaired waters). Funding BMPs to achieve those goals will not always address DRP. However, we do agree that some agricultural BMPs need to consider DRP and that may require a shift in the types of BMPs that are funded.
- The report suggests that incentive-based programs should immediately shift to preference for BMPs most likely to reduce DRP, yet the references cited in Chapter 3 that speak to what practices impact DRP are at best confusing and seem contradictory. No reference is given for conservation tillage that reduces phosphorus 60-80%, and the report states that reductions in DRP vary widely. Is there enough research-based information to make this recommendation and understand what practices are best to implement?

Recommendation 4: Reducing phosphorus loading during the spring period (March 1-June 30)

- The report recommendation focuses on reducing the spring load. However, that is spring planting season for farmers and a time when fertilizers are added to promote initial growth of crops. One alternative would be to apply fertilizers in the fall or winter, which would present a greater risk of run-off in the spring load. Another approach would be to apply fertilizers after June 30, which would be more costly as crops such as corn would be well established and special techniques would be required with added costs. Other alternatives are to advocate for proactive management to keep inputs and soil in place such as increasing soil health to build soil structure and moisture holding capacity, and active input-uptake analysis to be sure to remove the input with the crop and reduce availability for phosphorus and DRP run-off.

Recommendation 9: Ban the application of manure and biosolids on frozen or snow covered ground

- There is a great deal of science that allows for winter application if the field meets certain standards. The Michigan Agriculture Environmental Assurance Program requires the use of a Manure Application Risk Index evaluation when manure application on snow covered and frozen ground cannot be avoided. We are concerned about an outright elimination because of the unintended consequences of this proposal for small- and medium-sized livestock farms. Options for this group would be to install storage, which also means moving to a liquid manure system and potential field tile discharge risk, along with off-site transport to farms not accustomed to the risks associated with liquid application. To make the economics work, these smaller operations may well need to expand into larger livestock operations.

Recommendation 14: Conduct research on the Lake Erie ecosystem

- There is emphasis placed on fish communities and how the fisheries could respond under the warming trends and altered precipitation patterns associated with continued climate change. While understanding how fish communities might respond to increased DRP is important, it does not relate to the stated goals of the report or the LEEP. Recommending a need to fund research to predict what might happen to the fish community if nutrient enrichment continues is counterintuitive to the goals of the LEEP.
- There appears to be no accounting of the phosphorus loading from the open water disposal of the sediments dredged from Toledo Harbor. This is potentially a major source of phosphorus that is unaccounted for in the report. Please consider strengthening the dredging research recommendation to require a calculation of the total phosphorous load from this practice.

I appreciate the opportunity to provide these comments on the draft LEEP report. If you have any questions or would like to discuss the comments further, please feel free to contact me, or you may contact Michelle Selzer of our staff at 517-284-5050, or at selzerm@michigan.gov.

Sincerely,

Jon W. Allan
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