

**Scientific & Technical Advisory Committee  
Chesapeake Bay Program**



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**MEMORANDUM**

**November 25, 2003**

**TO:** **Richard Batiuk**  
**Associate Director for Science**  
**US EPA Chesapeake Bay Program Office**  
**410 Severn Avenue, Suite 109**  
**Annapolis, MD 21403**

**FROM:** **STAC Executive Board**  
**Cliff Randall, Carl Hershner, Denise Breitburg, Kevin Sellner, Les Lanyon,**  
**Jonathan Phinney, Jonathan Kramer**

**SUBJECT:** **Review of Nutrient Equivalents Technical Methodology**

This is a joint memo from the STAC Executive Board in reply to your message of November 12 to Kevin Sellner requesting STAC's assistance with review of the nutrient equivalents technical methodology. This item was discussed during an Executive Board conference call on Friday, November 21, and, of course, the Board wants to assist you with the review of this document, and will appoint three members to serve on the Ad Hoc Technical Advisory Committee.

Perhaps it is premature, but the Board also would like to voice some of our reservations regarding the approach and schedule that has been established by the Implementation Committee. It is our general opinion that there is no genuine equivalency between nitrogen and phosphorus from a biological growth perspective, and any efforts to establish an equivalency will always be an exercise in compromise, albeit justified through regression analysis. Second, if it is decided that a nitrogen-phosphorus equivalency policy is acceptable, is a blanket policy of this type wise? If the policy is adopted, wouldn't it be wiser to consider such requests on an exception basis so that the specific circumstances and geographical location of the nutrient source could be considered. Third, the issue seems too complex to resolve within the designated time frame. The proposed equations are questionable and need to be carefully considered before adoption. For example, can an equation as simple as Equation 1 reasonably predict dissolved oxygen concentration? What about the impacts of sediment oxygen demand, mixing conditions, and algal growth, for example? What would be the error bar for the DO calculated, and, therefore, the error bar for the nitrogen load predicted by Equation 2 for the input value of DO? How important are these considerations? And fourth, equivalency should mean that the N load reduction that cannot be economically met by one source has to be accommodated somewhere else in the same river reach so that total N load required in the tributary is met. How is this to be factored into any strategy for a tributary and its load producers?

In summary, the determination of a scientifically acceptable approach for nitrogen and phosphorus trading is not trivial, and perhaps not genuinely possible, and a decision regarding the best solution may take considerably more time than has been allotted. The selected time frame for the review is very restrictive and somewhat unwise. There is a significant risk that a detrimental policy will be established given the time frame and pressure to reach a decision.