

US EPA ARCHIVE DOCUMENT

Wednesday May 5, 2004 EMAP Symposium 2004
Discussion Questions for Session on Monitoring to Establish
Nutrient Criteria

1. In freshwater environments (rivers, streams, lakes and reservoirs) the focus is on trying to set numeric criteria for phosphorus. What are the ramifications to these environments for not setting criteria for nitrogen (or other nutrients, e.g., Si)? What are the ramifications to the downstream estuarine and coastal environments?
2. Are nutrient concentrations and loads appropriate endpoints for most systems? EPA also suggests Chlorophyll-a and water clarity as useful indicators of nutrient overload. Are there others, such as dissolved oxygen, eelgrass health, and HAB that might be more useful?
3. If criteria other than nutrients were used as endpoints, how would management programs be affected? Would they add complexity to management, since they are a step or two away from managing nutrients as pollutants?
4. Do you think that limits on nutrients in estuarine environments should be concentration based or loading based? Or are the two easily translatable?
5. What should be the spatial scale of management for nutrient criteria, stream reach, whole lake, whole estuary, or subsystems of these larger systems?
6. What should be the temporal scale of management for nutrient criteria, annual or seasonal?
7. What are the advantages, disadvantages and application criteria of reference approaches to setting criteria or loading limit values? Are criteria based on the cleanest, reference systems going to be technically attainable?

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8. What are the advantages, disadvantages and application criteria of stressor-response approaches to setting criteria or loading limit values?
9. What are the advantages, disadvantages and application criteria for developing empirical stressor-response models for setting criteria or loading limit values?
10. What are the advantages, disadvantages and application criteria for developing coupled hydrodynamic-water quality (stressor-response) models for setting criteria or loading limit values?
11. Nutrient criteria development on the freshwater side is progressing at a relatively brisk pace. However, estuarine nutrient limit development lags behind. One of the reasons given is that the dynamics of estuaries are so complicated that each estuary needs its own specific nutrient loading limits (i.e., Site Specific Nutrient Criteria) and that limits set for one estuary will not be transferable to other estuaries? Is this true? If not, what factors are needed to extrapolate loading limits from one estuary to another?