

## PROGRESS ON EPA'S WATER QUALITY CRITERIA FOR NUTRIENTS

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Across the nation, nutrients are reported frequently as a cause of impairment of surface waters. For example, in EPA's 1998 National Water Quality Inventory, nutrients were identified as contributing to impairment in 30% of the streams reported as impaired and 44% of the lakes reported as impaired.. Under Section 303(c) of the Clean Water Act, States are required to develop criteria for those pollutants that could cause or contribute to impairment of surface waters.

Development of water quality criteria for nutrients poses substantial technical challenges. EPA's established methods for deriving water quality criteria are based on measuring the toxic effects of individual pollutants in the laboratory and converting those data into criteria to protect specific uses of surface waters. These methods are not applicable to nutrients that may exert their adverse impacts indirectly through effects of excessive algal growth on dissolved oxygen, community composition, and aesthetics. EPA's proposed method for deriving nutrient criteria relies on identifying appropriate background levels of nutrients. The premise of this approach is that by setting the criteria at a level approximating "least impacted" conditions, any possible uses will be protected. EPA's criteria recommendations include both causal (total nitrogen and total phosphorus) and response variables (turbidity and chlorophyll *a*). These values are ecoregionally-based and vary by water body type, with different criteria in each region of the country for rivers and streams, lakes and reservoirs, estuarine and coastal systems, and wetlands..

EPA's effort to develop recommendations for surface water quality criteria for nutrients is in its third year. Technical guidance manuals outlining how to develop nutrient criteria were published in 2000. Publication of EPA's first sets of criteria recommendations is expected early in 2001. Once EPA's publishes its criteria recommendations, States will be obliged to adopt nutrient criteria of their own within four years. In developing their criteria, States may adopt EPA's recommendations directly, adopt criteria derived from EPA's recommendations but adjusted to better reflect State-specific conditions, or adopt other scientifically defensible criteria. Criteria developed by States are subject to EPA review and approval, and EPA has the authority to promulgate Federal criteria for States that either fail to act or adopt inappropriate criteria.

Water quality criteria for nutrients will provide a quantitative basis for determining whether a water body is impaired due to nutrients. In addition, for those water bodies that are found to be impaired due to nutrients, these criteria will serve as a basis for calculating appropriate total maximum daily loads (TMDLs). By adopting numeric water quality-based nutrient criteria, States and Tribes will be better able to identify waters where nutrients are a problem, implement control measures, and evaluate the success of nutrient management efforts.

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