

Future Revisions of the Texas Surface Water Quality Standards: Nutrients

Many states have reported that excess nutrients frequently cause excessive aquatic vegetation that impairs water quality uses. EPA required states to demonstrate progress in developing numerical criteria for nutrients by the end of 2004. TCEQ staff, in coordination with an advisory group, are developing nutrient criteria options for the agency to consider as potential new water quality standards.

Current Status of Nutrient Impacts and Regulation in Texas

- Nutrient enrichment from nitrogen and phosphorus can cause excessive growth of:
 - Large rooted aquatic plants in shallow waters.
 - Algae attached to the bottom, and algae floating in mats on top of the water.
 - Microscopic algae in open waters that can bloom and cause a "pea soup" appearance.
- Major sources of nutrients in Texas:
 - Municipal wastewater discharges and storm water runoff.
 - Agriculture: Runoff from (1) confined animal feeding operations and (2) cultivation.
- TCEQ water quality management and regulatory actions related to nutrients:
 - The Texas Water Quality Standards have narrative but not numerical nutrient criteria.
 - About 30 municipal wastewater permits now have effluent limits for phosphorus.
 - 8 water bodies have "watershed rules" with nutrient controls for wastewater discharges.
 - In the 2004 Water Quality Inventory, many water bodies have a nutrient-related concern.
 - The North Bosque River is the only water bodies listed for nutrient impairment in the 303 (d) list.

EPA Policy

- EPA was requiring numerical nutrient criteria in water quality standards, initially by 12-31-04.
- Flexibility in the schedule is allowed if states are showing substantial progress.
- States are requested to establish and update a nutrient development plan.
- States can be afforded more explicit flexibility in nutrient criteria development plans.
- EPA has "default" regional criteria as concentrations of nitrogen and phosphorus in water.
- EPA's regional criteria are stringent; up to half of Texas water bodies don't meet them.

TCEQ Initial Steps for Nutrient Development

- TCEQ staff are developing and evaluating several alternatives for agency/public consideration.
- A nutrient development plan was submitted to EPA in Nov. 2001 and revised Dec. 2004.
- The TCEQ plan targets development of preliminary draft criteria for selected reservoirs in 2005.

- Selected draft criteria can be considered for the next major standards revision.
- Database development and evaluations are conducted by USGS and refined by TCEQ.
- TCEQ advisory group: river authorities, agriculture, industry, cities, environmentalists, agencies.
- The advisory group has met four times since May 2002.

TCEQ Staff Preliminary Approach

- Criteria are tailored individually for about 25 reservoirs selected as "relatively unimpacted."
- Criteria are expressed in terms of the amount of phytoplankton algae (chlorophyll a).
- The criteria are based on natural conditions, with an allowance for natural variability.
- Similar criteria to address a small number of impacted reservoirs are also under development.
- Similar evaluations of rivers and estuaries are underway for later consideration.

Other Alternatives

- Use-based approach to developing criteria.
- Uses of interest include aquatic recreation (aesthetics), drinking water, fishing.
- Use-based and antidegradation criteria might be blended with TCEQ staff's criteria based on historical conditions.
- Antidegradation approach to developing criteria to restore impaired reservoirs.