

## **NJ Nutrients and Surface Water Quality Standards News: Management, Research, Enhancement Plan, SWQS Proposals**

Debra Hammond, Chief, Bureau of Water Quality Standards and Assessment, led the NJDEP-sponsored Nutrient Criteria Enhancement Plan and Surface Water Quality Standards Stakeholder Meeting held on January 22, 2009 at the EcoComplex. In December 2008, NJDEP completed its draft Nutrient Criteria Enrichment Plan in response to an EPA recommendation that all states develop nutrient plans to develop numeric nutrient standards or numeric “translators” for implementation of narrative nutrient standards. NJDEP has a numeric total phosphorus (TP) SWQS for lakes, 0.05 mg/L (1974) and 0.1 mg/L for freshwater rivers and streams at MA7CD10 design flow (1981) with narrative nutrient policies added to SWQS in 1985, provision to establish watershed-specific criteria in 2001. In 2002, the Department began assignment of an effluent limit for TP of 0.1 mg/L for dischargers into waterbodies on the 303 (d) List of Impaired Waters (those where TP > 0.1 mg/L).

### **Draft Nutrient Criteria Enrichment Plan Maps Criteria Development**

However, EPA and NJDEP recognize that adverse ecological impacts associated with excessive nutrient loading (cultural eutrophication, harmful algal blooms, fish kills caused by low DO, loss of aquatic habitat and recreational losses, etc.) are a function of many factors such as flow and residence time, water column physical/chemical characteristics, nutrient sources (water column or sediment), morphology, canopy, and presence of suitable substrate. The Department policy and practice has been evolving toward basing the need for discharger effluent TP permit limits on demonstration of actual receiving water impairment due to phosphorus, receiving water TP and natural background conditions. This policy was embodied in the “Exit Ramp” TP Evaluation Studies performed by dischargers. Although only a handful of the NJDEP estimated 30 Exit Ramp Studies performed have resulted in TP permit modifications, NJDEP is utilizing this extensive data in development of a new assessment methodology presented in the draft Nutrient Criteria Enrichment Plan. The Department also uses the Total Maximum Daily Load (TMDL) program to develop site-specific criteria for nutrient indicators shown to be appropriate measures for aquatic life and other designated uses. (e.g., chlorophyll-a in the non-tidal Passaic TMDL)

The Nutrient Criteria Enrichment Plan is envisioned as a “living document” that outlines the strategy for developing and enhancing nutrient criteria in NJ waters organized as freshwater wadeable streams, freshwater non-wadeable rivers, lakes, reservoirs, tidal rivers, estuarine waters, and ocean waters. The strategy is to research the cause and response relationships for nutrients in order to select appropriate indicators of aquatic life use impairment, then develop and adopt new nutrient criteria. Monitoring and data collection will be enhanced for nutrients and response variables to support new assessment methodologies based on ecosystem response variables. The implementation of assessments will occur through Integrated Report Listing/Delisting and TMDLs.

The draft Nutrient Criteria Enrichment Plan and presentation at the January 22 stakeholder meeting can be found on the NJDEP web-site, BWQSA page at [http://www.nj.gov/dep/wms/bwqsa/nutrient\\_criteria.htm](http://www.nj.gov/dep/wms/bwqsa/nutrient_criteria.htm) along with research projects for use of biological measures such as the Trophic Diatom Index at the Division of Science and Research page at <http://www.state.nj.us/dep/dsr/periphyton/index.htm> . The movement of the Department toward evaluation of real water quality problems solved by actual solutions has consistently and strongly been advocated by AEA. AEA will continue to applaud and support NJDEP progress in that direction.

### **Surface Water Quality Standards (SWQS) Proposed Changes**

The Department is working on a concurrent track to propose amendments to the SWQS rule. Last revised in 2006, and extended until March 2009, proposed SWQS amendments will be published in the NJ Register April 2009. A 60 day comment period follows with adoption and publication within 6 months to 1 year.

Input was sought from stakeholders in 2007. AEA and many individual members submitted recommendations. Debra Hammond discussed proposed SWQS amendments for nutrients emanating from the Nutrient Criteria Enhancement Plan and outlined other major amendments, several of which were advocated by AEA.

#### *Proposed Amendments Nutrient SWQS*

- Nutrients shall not be allowed in concentrations that render the waters unsuitable for the existing or designated uses, except as due to natural conditions
- Allow the Department to develop watershed-specific translators. Such translators may be developed through the TMDL process and may supplement, supersede, or replace the proposed numeric criteria
- Water quality-based effluent limits will be established, in addition to or more stringent than the effluent standard, as necessary to meet a wasteload allocation established through the TMDL or to meet the criteria.
- Moves the algal biostimulation assay to determine the limiting nutrient to NJPDES rules.
- If the Department determines that concentrations of nutrients render the waters unsuitable for the existing or designated uses; criteria in i or ii below apply unless watershed-specific translators are established
  - o Lakes: Phosphorus concentrations shall not exceed 0.05 mg/L as Total P
  - o Non-tidal Streams: Phosphorus concentrations shall not exceed 0.1 mg/L as Total P

#### *NJDEP Nutrient Philosophy*

NJDEP intention, as expressed by Debra, is to START with an assessment that directly correlates ecosystem response variables, phosphorus enrichment and designated use impairment. The data requirements for physical, chemical, biological parameters, indicators (pH, DO, Trophic Diatom Index), supporting data (flow, TSS, DOC, etc) and

the conditions for sampling will be included in the 2010 Integrated Report and Methods Document. Thus the 2010 Impaired Waters List will be based on use impairment rather than TP concentration.

However, policy and practice for all waterbodies currently on the 303 (d) List for Phosphorus (concentration > 0.1 mg/L) will remain on the list until a new assessment determines that nutrients are NOT rendering the waterbody unsuitable for designated uses.

#### *Additional Major Proposed SWQS Amendments*

Several proposed amendments were listed briefly by Debra. Again the Department is to be largely commended for clarifications and new policies.

- A new policy is proposed to evaluate the need to impose a WQBEL for TDS or Nitrate only for dischargers upstream of a potable water intake or waterbodies listed as Impaired for TDS or Nitrate.

- Clarify antidegradation policy with a new provision that the antidegradation policies of the DRBC main-stem Delaware Special Protection Waters are as contained in DRBC regulations

- New policy to encourage/require wastewater reuse.

- Propose new pH criteria of 4.5 to 7.5 for freshwaters of the Lower Delaware River Basin, Lower Raritan River Basin and Atlantic Coastal Waters

- Replace summer seasonal average temperature criteria for all FW2 waters with weekly and daily maximum criteria.

- Amend stream classification tables based on trout sampling, new pH criteria and reclassify FW2-NT/SE waters to either fresh or saline.

- Update saltwater cyanide criteria based on updated toxicity data

- A new provision to update criteria automatically with site-specific criteria developed through the TMDL process or using updated toxicity data available through a new or revised MCL, revised carcinogenic slope factor/reference dose in IRIS for existing human health criteria.

- Integrated Water Quality Monitoring and Assessment Methods to be incorporated by reference into SWQS

- Amend Water Quality-Based Effluent Limits (WQBEL) to indicate that they be established in accordance with NJPDES rules at N.J.A.C. 7:14A.

- The Biotic Ligand Model (BLM) has not been proposed as the freshwater copper standard but dischargers may use BLM for consideration by the Department.

#### *Review and Consider Proposed SWQS, Then Comment*

AEA will be taking a hard look at the actual proposals, reviewing basis and background provided by NJDEP and preparing comments. All stakeholders are encouraged to do the same. AEA through Ellen and Karen continue to work with NJDEP on issues of concern to us all.