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November 14, 2008

Leslie McGeorge
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Water Monitoring and Standards
NJ Department of Environmental Protection
401 East State Street
Trenton, NJ 08625-0402

RE: Informal Comments on the New Jersey's Integrated Water Quality Monitoring and Assessment Report 2008 DRAFT

VIA: EMAIL

Dear Ms. McGeorge,

We welcome your request to submit informal comments on the Integrated Data Report. Clean Ocean Action (herein "COA") is a broad-based coalition of 125 conservation, environmental, fishing, boating, diving, student, surfing, women's, business, service, and community groups. Our goal is to improve the degraded water quality of the marine waters off the New Jersey/New York coast.

COA is encouraged by the greater involvement of the public in the process of acquiring data through the volunteer monitoring program and non-profits and in reviewing the methodology for compiling the report. A formal comment period of the draft report is still needed. We have reviewed much of the report and have made, herein, several recommendations, inquiries, and statements of support. While we have focused primarily on coastal waters, a formal comment period open to others would be beneficial to ensure accurate assessments of inland waters.

Overall, the integrated report provides a useful assessment of New Jersey's waters, however, we have identified several errors and also made suggestions for improvement. The subwatershed and assessment unit approach is an improvement over using waterbodies and is more consistent with management practices. Yet, the term "assessment unit" detaches the concept from the water it represents. We suggest using the term "waterway unit" instead. The detailed summary of NJDEP's monitoring and water quality management provides a comprehensive overview of the various governmental efforts to assess and address water quality problems in New Jersey. A brief review of the status of these programs in meeting their objectives similar to New York's integrated report is needed. The addition of a list of tables and figures for the report would be useful given its extensive length.

Undated data is a serious flaw. Specific data collection dates are necessary in:

- the main report Section 3.2 on page 10,
- Appendix E: Data Sources, and
- Appendix F: The 2008 Methods Document.

The data age, described only as "the most recent five years of readily available data" in Appendix F, is neither clear nor sufficient.

More information is needed on the effectiveness of TMDLs, especially in Section 4.8. How many assessment units have been delisted due to the implementation of TMDLs? Appendix (App.) C provides delisting status, but it is difficult to evaluate simultaneously with the Integrated List. Thus, denoting a change in the status on the Integrated List would be helpful to integrate this information for specific projects. App. J lists the status of TMDLs from the "2006 Integrated Report Two-Year TMDL Schedule," but again it is unclear how this list corresponds to A and C and if these efforts are working or not for specific subwatersheds. App. J is not even referenced in Chapter 4.

Table 4.8-3 provides a useful overview of sublistings by Designated Use in general and Table 4.8-4 is also helpful for comparing the 2006 and 2008 data. More explanation of these summary data tables and graphs would be useful. For example, in Table 4.8-3, why are so many primarily recreational waters on sublist 4, which indicates non-attainment? Is it the timing of the adoption of TMDLs relative to sampling collection periods? The public could benefit from the NJDEP making its evaluations of past TMDLs (or at least a summary of them) in context of current impairments available in future integrated reports. By identifying the reasons TMDLs are effective or not, NJDEP and relevant municipalities can make improvements in the TMDL process and their enforcement and implementation.

More information is needed on management actions and the number of years a unit is on the 303(d) list and sublist 4 and 5 on the Integrated List. The report states that waters listed as sublist 5 and designated as high priority will receive funding, however, its unclear what the management actions are for those ranked lower, or sublisted as 4 and already have TMDLs in place. Also, what is the time limit on how long an assessment unit is on the 303(d) list without having a TMDL completed (or other pollution reduction taken) or being moved to sublist 4 on the Integrated List?

Similar to the 2004 and 2006 reports, almost all of the NJ's coastal waters are impaired for dissolved oxygen (D.O.). There needs to be more frequent testing of bottom waters for D.O. Why have not more intensive studies on the frequency and duration of low dissolved oxygen been conducted to date? Low D.O. in bottom NJ coastal waters has long been known as a problem since the 1970's and since the 2000 NJDEP Assessment Report that first examined D.O. levels as an impairment of aquatic life use. We look forward to the results of the benthic impact study and development of marine indicators. The Rutger's glider proposed for future use is promising to obtain more D.O. data over a larger area. COA encourages NJDEP to ensure that the accuracy and precision of the glider data is adequate for research goals and that sufficient water depths are obtained. Because D.O. levels in coastal areas are known to decrease during the night, COA recommends that measurements be made during both day and night. Tidal cycles,

and potential wind-driven upwelling, also need to be considered in developing the study design. We also urge the NJDEP to develop alternative data collection options, in case funding for the gliders does not become available.

Correction is needed for map of pH impairment. As we mentioned in the meeting, the report shows that coastal waters exceeded the pH criteria on page 32.

COA strongly encourages the NJDEP to measure pH as part of the NJ Coastal Monitoring Network. The NJ Surface Water Quality criteria (SWQ) indicate that "natural conditions" are the criteria for marine waters. It is essential that NJ provide a numerical range of pH for coastal waters, with the appropriate exceptions made for waters surrounded by the pinelands. How does the state currently determine what the natural conditions are? How does the state know if the pH levels are being altered by human activities, if coastal waters are not tested? The NY SWQ states that for marine waters "The normal range shall not be extended by more than one-tenth (0.1) of a pH. unit." This too does not provide an explanation of how a normal range is determined. In CA and WA, the SWQ pH standard is 7.0-8.5 for marine waters. The pH of seawater is known to range from 7.5 to 8.4 and is more variable in coastal waters. Analysis of pH could help establish a norm for coastal waters and aid in the identification of acidic pollution to coastal waters. The pH test is cheap and easy to perform using a pH meter and could be collected simultaneously with other data collection efforts.

Acidification of ocean and coastal waters is a serious concern for multiple reasons. Carbon dioxide emissions that have already reduced global ocean pH by 0.1 to an average of 8.1, since the industrial revolution, are projected to continue to reduce the average pH to 7.6 by the end of the century.[1] Acid rain and atmospheric deposition of nitrogen, resulting from fossil fuel emissions and agricultural activities, also impacts the pH of coastal waters.[2] "The release of sulfur and nitrogen into the atmosphere by power plants and agricultural activities plays a minor role in making the ocean more acidic on a global scale, but the impact is greatly amplified in the shallower waters of the coastal ocean."[3] In addition, the millions of gallons of wastewater from NJ that are discharged to the ocean and its tributaries each day have lower pH than ambient coastal waters. The pH of coastal waters is an important factor that affects phytoplankton community composition and dynamics.[4] Acidification of coastal waters are also expected to be detrimental to many organisms important to the marine food web that depend on calcium carbonate for their shells or structure, including "corals, coralline algae, foraminifera, pteropods,

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[1] Ocean Acidification: Another Undesired Side Effect Of Fossil Fuel-burning, Science Daily, May 24, 2008 (last visited Sept. 26, 2008) http://www.sciencedaily.com/releases/2008/05/080521105251.htm

[2] Impact of anthropogenic atmospheric nitrogen and sulfur deposition on ocean acidification and the inorganic carbon system, Scott C. Doney, Natalie Mahowald, Ivan Lima, Richard A. Feely, Fred T. Mackenzie, Jean-Francois Lamarque, and Phil J. Rasch, Proceedings of the National Academy of Science of the USA, Sept. 11, 2007, 104 (37) p.14580-14585.

[3] Acid Rain Has a Disproportionate Impact on Coastal Waters, Research Suggests Sulfur, Nitrogen Emissions Play a Role in Changing Chemistry Near the Coast, WHOI Media Release, 2007 (last visited Sept. 25, 2008). http://www.whoi.edu/page.do?pid=7545&tid=282&cid=31286&ct=162)

[4] Review: Effects of pH on coastal marine phytoplankton, Ken Hinga, Marine Ecological Progress Series, 2002, 238, p. 281-300.

and coccolithophores."[5] NJ coastal waters contain many of these critical creatures in addition to the well-known mussels, oysters, and clams that make shells out of calcium carbonate.

Corrections are needed for pathogen impairments and recreational waters map.

- Raritan Bay and Sandy Hook Bay are not shown as impaired for pathogens on map Fig 4.8-10, page 70 and needs to be corrected. However, on List 303(d), Raritan Bay is listed as impaired for both enterococci and total coliforms, and Sandy Hook is impaired for total coliforms. On the map on page 58, both bays are shown correctly as impaired for shellfish.
- The northern part of shore (Sea Bright – Belmar) are shown as yellow and "not assessed" on the recreational map 4.3-2 p. 43, however, Monmouth County has routinely tested the beaches in this region.
- Barnegat Bay Central (Rt 37 – Brngt inlet) is listed as Sublist 5 for recreation and is on list 303(d) for enterococci, and yet, is shown as attained on the recreational map on p. 43.

Corrections are also needed for the 303(d) list and the Integrated List for Prohibited Shellfish Areas. The 303(d) list should include the northern Atlantic Coast from Sandy Hook to Metedeconk River based on shellfish growing water classifications maps from 2002, 2004, 2006-2008 that show this region as Prohibited Area. And yet, these areas are on NJDEP's Integrated Report List (App. A) sublist 2 and not 5. What data supports this listing? The Assessment Units that fall in this range include Atlantic Coast (Navesink to Whale Pond, Whale Pond to Shark River, Shark River to Manasquan, and Manasaquan to Herring Island) Inshore and Offshore. While the prohibited shellfish areas do not fully extend to 3 miles, these regions do cover the inshore/nearshore, and significant portions of the offshore assessment units. It is wrong to show these areas as "attained" on the map p. 58 and not impaired for shellfish use in the integrated report lists.

The reasons for the replacement of PCBs, PAHs, and pesticides with specific compounds are not clear. In addition, the following sentence should be edited so that it clearly explains what each parameter is being replaced with: "Where appropriate, the 2006 listings for "pesticides" and "PAHs" [and "PCBs"] were renamed to DDD, DDE, DDT, dieldrin, chlordane, benzo(a) pyrene, heptachlor epoxide and hexachlorobenzene." What was the scientific basis for the change? How well do the specific compounds indicate the total parameters? Was the change due to budget limitations? How does this affect future water quality testing requirements? Total PCBs, PAHs, and pesticides provide a more robust assessment of water quality and should be supplemented by individual compounds if necessary, not replaced.

COA supports NJDEP's efforts to improve data collection and management and accessibility and to use GIS to aid in identifying pollution sources. The on-going improvements to the process for data submission will certainly aid government agencies, academia, and non-profits and increase the quality and amount of data available. The NJDEP has extensive, valuable environmental data. However, it has been difficult for the public to find and access. Improving electronic access to data is critical. An inventory of all available NJ water quality data on NJDEP's website is necessary, as EPA's online programs to access data can be cumbersome and currently does not have data inventories.

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[5] Ocean Acidification: Another Undesired Side Effect Of Fossil Fuel-burning, Science Daily, May 24, 2008 (last visited Sept. 26, 2008) http://www.sciencedaily.com/releases/2008/05/080521105251.htm

Take Advantage and Maximize Research by Non-Government Sources. Given the economic downturn, now more than ever we encourage the state to become more proactive and inclusive in gathering and utilizing data from non-governmental sources. This would be essential for research and programs funded with state or federal resources. All efforts should be made to identify appropriate research and monitoring activities in the region and seek to ensure data is collected in a manner that would ensure its inclusion and use in environmental assessments including this Integrated Water Quality Report. For efficiency, the state should provide information on data needs and collection requirements on the DEP website so that researchers can incorporate them into the study plan. The state would also review projects' methodology and make recommendations to researchers or data collectors to modify projects if feasible to allow information to be included in DEP assessments. This would range from volunteer and scholastic projects to academia to research facilities. Of course, quality assurance and quality control programs would need to be enhanced to ensure protocol and methodologies and collection of data meets state guideline and requirements. However, these efforts would likely be less costly than the state conducting the research. Expanding and extending the usefulness of data should be a priority.

As mentioned in our comments on the 303(d) list, we request a meeting with the NJDEP to discuss our concerns about water quality issues in New Jersey.

Sincerely,

Cindy Zipf
Executive Director

Heather Saffert, PhD
Staff Scientist