

February 12, 2004

Dear Friends of the Chesapeake Bay:

I would like to share with you some information about nutrient discharges from Hampton Roads Sanitation District (HRSD) treatment facilities. First and foremost, I want to assure you that I care deeply for the Chesapeake Bay and the environment.

As a scientist with over 30 years' experience addressing environmental issues, I work for the environment every day. That said, I also work for the HRSD ratepayer to ensure that federal Clean Water Act requirements are based on sound scientific principles and that they provide an improved environment for your money. It is easy to just say "removal of nitrogen will mean fewer nutrients in the Bay, and the Bay will be better for it." Unfortunately, the science of eutrophication (nutrient enrichment) is not that simple.

Nitrogen in and of itself has no environmental significance but, under certain environmental conditions, can cause either beneficial impacts or harmful ones. Under the right conditions, nitrogen is one of the key nutrients needed for the production of algae. Algae forms the basis of the food chain and makes estuaries productive habitats for aquatic life. However, under the wrong conditions, excessive nitrogen can create adverse environmental responses such as excessive algae blooms. These blooms can deplete dissolved oxygen in the water or cloud the water, preventing the growth of underwater grasses and harming aquatic life. These adverse responses to nutrients (e.g., low dissolved oxygen or cloudy water) create the environmental problems, not the nitrogen itself.

Scientists have established that numerous conditions can affect the ability of nitrogen to respond adversely in a water body, and these conditions can be different for each water body or even a portion of it. It takes time for algae to consume the nitrogen and grow or bloom. Rivers with very strong currents discourage the growth of algae because it does not have time to bloom. These strong currents are found in the saline portion of the James River (below the confluence with the Chickahominy River).

Furthermore, clear water is also necessary to allow light to penetrate deep into the water column to let the algae grow. Water clouded with excessive sediment limits the ability of light to penetrate deep into the water, and prevents algae from converting nitrogen into more algae. If you have ever used an underwater swimmer's mask in the saline James River, you may have noticed that light only penetrated a few inches due to suspended sediment.

Friends of the Chesapeake Bay  
Page 2  
February 12, 2004

The zone of maximum turbidity (cloudiness) is also located in the saline portion of the James. This zone exists in all estuaries, where some of the suspended sediment settles out. As plants, algae need light and therefore cannot grow in the sedimented saline James River and lower Chesapeake Bay, as it does in areas of the upper Bay.

Controlling suspended sediment in the James River and lower Chesapeake Bay will not be easy. The sources of the suspended sediment are still being investigated. The James River Basin is highly developed with urban, suburban and agricultural activities throughout the watershed. All these activities contribute additional stormwater, which contains both nutrients and sediment. Until now, there have been minimal controls on stormwater; however, this is changing as a result of the federal Chesapeake Bay Program. While source controls throughout the basin are needed, the role of resuspension and the loss of filter feeders such as oysters are also major contributors of turbidity in the water column. Studies to date indicate that controlling the sediment in the James may take decades, assuming it can be done. Until measurable improvements can be made to suspended sediment levels in the saline James River and lower Chesapeake Bay, installing additional nitrogen controls at our facilities would not be a wise use of ratepayers' money, your money.

HRSD is prepared to install nutrient controls at any time science deems it necessary to protect water quality. In fact, no regulatory agency will have to require us; we will do it voluntarily as soon as the science shows it is necessary. As a prime example, HRSD developed and installed a unique nutrient removal technology at two of our treatment facilities during the early phases of the Chesapeake Bay Program, when it appeared that this might have been beneficial. Since then, we have abandoned this approach because the data began to demonstrate that this enhanced level of treatment was unnecessary for our part of the Bay.

The Chesapeake Bay Foundation established the arbitrary rating system of wastewater treatment plants that you referenced in your correspondence. Unfortunately, the oversimplified rating system only considers nitrogen concentrations in plant discharges, yet neglects site-specific factors for each plant, such as tidal flushing through currents, turbidity, discharge volume, and volume ratio to other nutrient loadings such as stormwater runoff. The rating system and its premise are very misleading because of the serious omission of site-specific factors. We believe this does a disservice to Bay cleanup efforts because the public misconceives that putting nutrient controls at all wastewater facilities would restore the Bay. This effort diverts attention from some of the real issues that affect our part of the Bay.

I do not expect you to accept my word as absolute about the role of nutrients in our part of the Bay. Both the scientists from the US EPA Chesapeake Bay Program and the Virginia Department of Environmental Quality (DEQ) support this conclusion. In fact, their studies and efforts first revealed this information. The director of DEQ confirmed this position in a Director's Corner posted on the DEQ Web site. Rich Batuik, the chief scientist for the Chesapeake Bay Program, also concurred with my statements in a recent *Daily Press* article.

Friends of the Chesapeake Bay  
Page 3  
February 12, 2004

I am pleased that you are interested in efforts to restore the Chesapeake Bay and to understand more about the science behind the effort. I encourage you to explore the issues yourself and draw your own conclusions. Most of the data and information are posted on the Chesapeake Bay Program Web site at <http://www.chesapeakebay.net>. I am available to discuss this, or any other information, with you at any time. You can e-mail me at [nleblanc@hrsd.com](mailto:nleblanc@hrsd.com). Again, thank you for your interest.

Sincerely,

Norman LeBlanc  
HRSD Chief of Technical Services

Enclosure