**TO:** Turf Fertilizer Stakeholders

**FROM:** Clair Ryan, New England Interstate Water Pollution Control Commission

**RE:** Comments received on Interim Final Report to the New England and New York State Environmental Agency Commissioners: Regional Clean Water Guidelines for Turf Fertilizer Formulated and Used on Urban Turf

**DATE:** January 7, 2014

NEIWPCC would like to kindly thank all stakeholders who submitted comments following the release of the Northeast Voluntary Turf Fertilizer Initiative interim final report to the New England and New York State environmental agency commissioners. The comments were largely confined to certain aspects of the report, as described below. On behalf of NEIWPCC and the project advisory team, I have described our response to the comments and any changes made as a result of the feedback.

## Biosolids-Based Products and Phosphorus

We received comments that we did not adequately consider the environmental benefits of nutrient recovery and recycling through removal of nutrients by wastewater treatment plants and the conversion of wastewater residuals to fertilizers. We agree that the benefits are real, but they do not diminish the potential for nutrient loss and harm to receiving waters if lawn managers apply biosolids-based fertilizers containing phosphorus to soils already high in phosphorus. We therefore stand by our recommendation to not use products containing phosphorus—whatever their origin—on phosphorus-rich soils, even though this may disproportionately impact producers and users of organic, natural organic and biosolids-based products who cannot remove phosphorus from their products. We have added a line to the report acknowledging that there may be negative consequences to wastewater facilities' nutrient reclamation operations if these guidelines are widely implemented.

## Annual Limit for Total Nitrogen Application

Some commenters questioned how the annual nitrogen limit in Regional Guideline 9 was derived and whether the limit is supported in scientific literature. This annual limit was adopted from a state law passed in New Jersey in 2011. A significant amount of research underpinned the development of that law, which was described to our project advisory group by representatives of the Chesapeake Bay Program (CBP) and by participants in our stakeholder meetings. An expert panel convened by the CBP conducted a literature review of turf fertilization studies that focused on nitrogen loss; the panel observed a threshold at an application rate of 130 pounds per acre (approximately 3 pounds per 1,000 square feet). Application rates above that threshold resulted in significant nitrogen loss, while

application rates below the threshold generally did not. The stakeholders who attended our public meetings generally agreed that 3.25 pounds of total nitrogen per 1,000 square feet per year is adequate to produce healthy turf in areas receiving low-to-moderate foot traffic in a lawn or landscape setting. Many stakeholders also supported the 3.25 pound limit as a means of creating consistency with the region's existing state laws, in which such a limit is stipulated. We acknowledge that there are likely some cases where more nitrogen has been habitually applied to turf and where cutting back to the recommended annual rate will cause some deterioration in turf appearance; such cases highlight the need to balance landowner expectations with environmental risk.

**Environmentally Sensitive Areas**

Some commenters wrote that the definition of environmentally sensitive areas is overly vague. We admit that our definition is general and that further work is needed to further define and delineate environmentally sensitive areas, particularly on a local level. The identification of "critical source areas" of pollutants in sensitive watersheds based on landscape characteristics and land use is a tremendously complex exercise, but it is one that is being undertaken by environmental agencies and programs in many areas within the region. Readers of the guidelines who are unsure if their property is environmentally sensitive due to steep slopes, sandy soil, or proximity to an impaired water body can reasonably be expected to seek guidance from a university extension, expert landscaper, local watershed group, or other experienced entity.

We understand that adhering to the low nitrogen application rates in Regional Guidelines 12 and 13 for environmentally sensitive areas may be challenging. Applicators may need to employ different spreader settings or use different spreading equipment that may be hard to find. However, the "spoon feeding" approach for environmentally sensitive areas where fertilization is necessary is widely supported by extension agronomists.

We believe that it is appropriate to use proximity to an impaired or sensitive water body as a criterion for environmental sensitivity. Although one commenter correctly pointed out that proximity to a water body does not increase the likelihood of nutrient runoff or leaching from a site, it does increase the probability that any nutrients that do run off or leach will have a negative impact on the nearby water body.

Stakeholders representing regional environmental programs expressed concern that the nitrogen application limits for extremely sensitive areas such as coastal Long Island and Cape Cod do not go far enough. They contend that many residents in these watersheds maintain lawns to their satisfaction through atmospheric deposition of nitrogen, recycling of clippings, and integration of nitrogen-fixing plants into the turf, and that our guidelines might encourage these residents to fertilize, resulting in a net increase in nitrogen use and runoff/leaching potential. They feel our recommendation may undercut the message of

some local outreach and education efforts, particularly in areas where lawns dominate the landscape, to encourage lawn managers to cease all use of chemical fertilizer. We believe that evidence from runoff and leaching studies adequately shows that the use of products containing a high proportion of slow-release nitrogen at a conservative rate, while incorporating best application practices, carries very little risk of substantial runoff or leaching, even in sensitive areas. Therefore, we have not changed the nitrogen application limits in response to this concern. We have, however, incorporated new language into the report explaining that the guidelines are not intended to encourage nitrogen fertilization when passive means of nitrogen addition have proven adequate to meet expectations, nor are the guidelines intended to undermine or override local efforts that may call for a more conservative approach.

**Avoidance of Fertilization Before a Rain Event**

Regional Guideline 18 advises applicators not to apply fertilizer before a major rain event—either a thunderstorm or downpour or a sustained rain of more than one inch in a 24-hour period. One commenter correctly noted that weather in our region can be notoriously hard to predict, particularly during the summer, and that our guideline does not specify what probability of precipitation would constitute sufficient evidence of an impending major rain event. We amended the narrative preceding this guideline to explain that turf managers should seek to apply fertilizer when the forecast shows a 75 percent (or higher) likelihood of a 48-hour dry spell (or only minor rain). We understand this guideline will be difficult for lawn care professionals to implement as their schedules must accommodate multiple customers, but it is important to bear in mind that fertilizing before a major rain event not only increases the likelihood of environmental damage but also wastes time and product.

**Timing and Frequency of Application**

Regional Guideline 21 provides tables indicating potential fertilizer regimes, adapted from the UMass Extension Center for Agriculture's 2013 Best Management Practices for Lawn and Landscape Turf manual. These tables were modified significantly from the interim final report to improve technical accuracy. The tables describe various fertilization timing regimes, depending on the environmental sensitivity of the location and how many applications the turf manager chooses to do—from a single annual application to a maximum of four per year. A commenter from the lawn care industry wrote that it shouldn't matter how many applications are done, as long as the annual total nitrogen limit is observed (i.e., six very small applications using best practices pose no more environmental risk than three or four slightly larger ones). While this is true, the table and, by inference, our guidelines take into account that it is uncommon for homeowners or even professional lawn managers to do more than four applications a year. Most fertilizer labels

provide instructions based on four applications; furthermore, market research has shown that homeowners rarely make four applications, usually doing only one or two. That said, our guideline is not meant to prescribe a specific application regime nor is it intended to discourage more frequent small applications where the guidelines for annual limits are observed. If a municipality or state inquired about how to incorporate our guidelines into regulations, we would recommend that they not regulate fertilizer timing (beyond prohibiting winter application).

**Recommended Irrigation Following Fertilization**

Regional Guideline 26 in the interim final document recommended as much as one inch of water be used to water in fertilizer. Many commenters suggested that this was too much water and could potentially drive fertilizer nitrogen past the root zone. We have adjusted this guideline to recommend one-quarter to one-third of an inch of water be applied following fertilization.

**Mow Height**

Regional Guideline 27 recommends that lawn managers mow their lawns to approximately three inches in length. Some commenters wrote that the ideal mow height depends on grass species and turf use, and that for some species, a three-inch cut might result in a loss of turf density. While this is correct, not all lawn managers know what species they are mowing nor can they easily find out. Moreover, there is some disagreement among agronomists in industry and university extensions about ideal mow height or range of mow heights. Therefore, we recommend three inches as a generally appropriate guideline that should be considered along with landowner preference and with an adaptive approach in mind (i.e. if, following a season of mowing to three inches, the manager sees a notable decrease in turf density, he or she should consider overseeding and mowing to a slightly lower height). Our recommendation is not intended to be an absolute prescription. If a municipality or state inquired about how to incorporate our guidelines into regulations, we would recommend that they not regulate mow height.