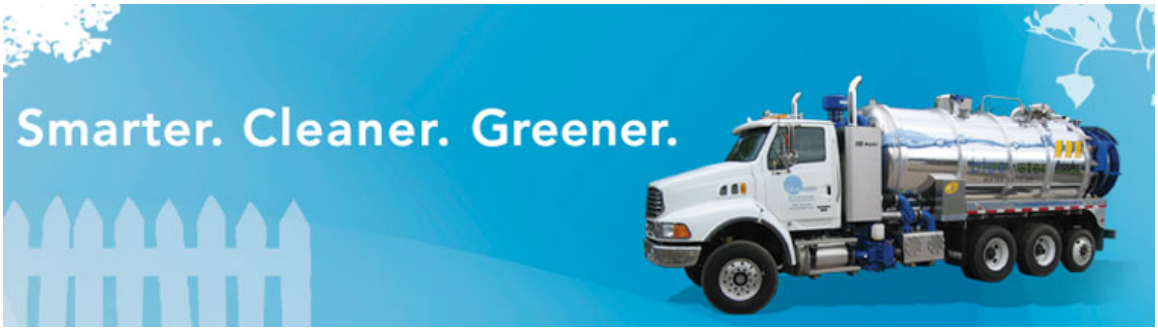

Raining on the drought parade
By Kate Bowditch
November 5, 2007
The Boston Globe

The recent announcement by the US Environmental Protection Agency that dramatic action is needed to stop toxic algae blooms and bring water quality in the Charles River up to standards comes at a key moment for Massachusetts.

The nutrient overloads that are causing the explosive growth of blue-green algae and threatening recreation on the Charles are a symptom of a much larger problem, with even more serious potential consequences. The way we manage water is unsustainable, and if we don't adapt, we may soon be facing not only pollution problems but water shortages and more floods.

As drought, floods, and global warming threaten the viability of urban centers across the southern and western parts of the country, the water-rich Northeast states have enormous potential to grow. The choices the state makes today will determine whether we protect and enhance our wealth of water resources, or whether we follow conventional patterns of growth and infrastructure development and destroy the natural aquatic systems that support us.

Fortunately, innovations in technology, infrastructure, and urban design make it possible to redesign our water resource systems to make them sustainable. Even in our dense urban centers, we can design and build in ways that will protect water resources, cool and clean the air, and improve the pedestrian environment. At the heart of this approach lies one critical idea: make the city function like a natural watershed.

In an undeveloped landscape, most of the rain that falls on the land is absorbed by plants and soils, so lakes and rivers are filled by water that seeps slowly back out of the ground throughout the year. In the city, buildings, streets, sidewalks, and parking lots cover most of the ground so rainfall washes off into gutters, picking up pollution before it is washed out to rivers through underground pipes that flow throughout the city. The result is excessive water pollution, flooding, and loss of natural recharge to the ground. New designs are breaking these conventional urban patterns, creating "green" cities that can absorb rainfall and

filter it into the ground, building up ground water and reducing floods and pollution.

The Charles River Watershed Association has been studying these approaches for a decade. This year we partnered with the City of Boston to develop the region's first pilot "Green Street" project in Dorchester's Peabody Square. The project will use street trees, permeable sidewalks, and rain gardens to filter and recharge rainwater into the ground using vegetation that can survive in an urban setting. Similar concepts are being used in suburban settings, and are at the heart of CRWA's vision for North Allston as Harvard builds its new campus.

The underlying goals - capture rain where it falls and use it to support vegetation and replenish ground water - mesh perfectly with the EPA's call to reduce nutrient loading to the Charles, and with residents' desire to live in a healthy, green environment.

Redesigning management of rainfall is one piece of the puzzle. Our water supplies and sewer systems need a new approach, too. Although 48 communities in Massachusetts get their water through the Massachusetts Water Resource Authority from the Quabbin Reservoir, most others rely on local sources. If these sources are not protected and replenished as we grow, the state will not be far behind Georgia and North Carolina - both of which may soon have to take extreme measures such as rationing water. If growth is accompanied by projects to keep aquifers and rivers clean and full, we will not run out of water.

With over 40 inches a year of rainfall, and perhaps more with climate change, Massachusetts has ample water and could easily support significant growth if resources are properly managed. We already invest millions in water infrastructure every year. Moving forward, these investments need to be directed toward programs that will achieve sustainable water management, creating a healthier urban environment and clean, safe rivers and harbors.

The EPA's report on nutrient pollution in the Charles is a call to action that can't be ignored. Whatever actions we take to reduce greenhouse gas emissions, we are already living with the impact of climate change on water systems: bigger storms, longer droughts, hotter summers. To protect our water wealth, the state needs to move aggressively toward a new approach to water management that treats water as a valuable resource to be used, cleaned, and returned locally so it can support our rivers, keep our wells full, and help fuel future growth.

Kate Bowditch is a surface water hydrologist and directs the Charles River Watershed Association's engineering and science programs.