

NepRWA Wins Major Grant to Battle Bacteria in Partnership with Towns

This past spring NepRWA applied to the Mass. Department of Environmental Protection for funds available under section 319 of the federal Clean Water Act to help clean up nonpoint source pollution, specifically bacterial pollution. We are happy to report that NepRWA's application was one of the lucky few selected for funding.

Despite improvements made to broken sewers contributing to bacterial pollution, often located by NepRWA CWMN volunteers, bacteria levels remain high on many Neponset River tributaries, especially during wet weather. The culprit is non-point source pollution in runoff from streets, sidewalks, yards and septic systems. Bacteria accumulate on streets, yards and soil from dog waste, garbage, and poorly maintained septic systems. Rain washes these pollutants directly into a stream or into town storm drain systems that dump into streams.

The grant funding will allow NepRWA to implement a multi-pronged strategy for cleaning up this pollution in partnership with area towns. In Milton, NepRWA will partner with the DPW to carry out an intensive public education campaign in the neighborhoods along a key section of Pine Tree Brook to teach residents how they can help prevent bacteria from accumulating. We will also construct devices such as an enhanced wetland treatment system, vegetated buffer strips and "bioretention cells" along Pine Tree Brook to help purify the polluted runoff before it reaches the stream.

In Walpole, NepRWA will work with the Board of Health and

the Sewer and Water Commission to conduct an education campaign to encourage residents to better maintain their septic systems. When maintained properly, septic systems are wonderful water recycling machines, cleaning water and recharging it back into the ground where it can replenish flows in the river - unlike sewers, which carry water away to Deer Island. When not maintained, however, septic systems can be a major source of bacteria pollution. In addition to the septic education initiative, NepRWA will work with Walpole to explore the possibility the Town making septic system maintenance easier, more consistent and cheaper through the creation of a septic system "utility" of some kind.

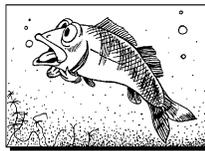
In three towns, which are yet to be determined, NepRWA will conduct detailed monitoring of stormdrain outfalls to help design and prioritize future education and clean up activities. Finally, NepRWA will work with all the towns in the watershed to organize a series of technical workshops for local officials on innovative ways to improve water quality while meeting new state and federal water quality requirements.

NepRWA and the towns will provide in-kind services and matching funds to complete the budget for the project as a whole. Work on the project should get underway in the spring of 2003, and will be completed in phases over the next three years. If you are interested in being involved in one or more aspects of this project, or if you would like to nominate your town to be one of the three locations for the intensive sampling activity, let us know at 781-575-0354 or staff@neponset.org.



Dissolved Oxygen Samplers Needed

What is Dissolved Oxygen?
"Dissolved oxygen" refers to the oxygen stored between water molecules in a river or lake. The amount of oxygen in the water is a primary indicator of water quality and is critical to the health of any river system. Since the majority of aquatic plants and animals need oxygen to survive, the higher the dissolved oxygen the higher the diversity of aquatic organisms. In fact, if dissolved oxygen levels are low enough, fish can "drown."



How does oxygen get into the water?
Oxygen dissolves into a water body wherever water and air meet, a process enhanced by turbulence from waves, rippling water, and algae release oxygen into the water during daylight hours through photosynthesis. Because plants need light to "do" photosynthesis, dissolved oxygen levels tend to be highest in the late afternoon and lowest at dawn.

rapids and waterfalls. Aquatic plants and algae release oxygen into the water during daylight hours through photosynthesis. Because plants need light to "do" photosynthesis, dissolved oxygen levels tend to be highest in the late afternoon and lowest at dawn.

What affects dissolved oxygen levels?
Temperature has a very big affect on oxygen levels because cold water can hold more dissolved oxygen than warm water. Climate can affect oxygen levels in other ways. During dry seasons water levels decrease and the flow rate or discharge of a river is lower. As the water moves more slowly, it becomes less turbulent, so that less air mixes in and the dissolved oxygen level goes down.

Fish and other aquatic animals remove oxygen from the water as they "breathe" and bacteria consume oxygen as they decompose leaves and organic matter in the water. Even plants consume oxygen at night when they are not photosynthesizing. Humans can cause oxygen levels to plummet when we add excess organic matter or nutrients like leaves, grass clippings, fertilizer, and sewage to the stream. This causes a burst of decomposition by bacteria that can rapidly consume all the available oxygen. Actions that increase water temperature, such as cutting down trees that shade the stream and dumping runoff from 100 degree asphalt into the stream can also contribute to the problem.

As dissolved oxygen levels decrease, dramatic changes in the types and amounts of aquatic organisms found living in the water can occur. Prolonged low levels of dissolved oxygen may not directly kill an organism but can increase its susceptibility to other environmental stresses. Ultimately, species that need high levels of dissolved oxygen such as mayfly nymphs, stonefly nymphs, caddisfly larvae, pike, trout, and bass will move out or die. They will be replaced by organisms such as sludge worms, blackfly larvae, and leeches, which can tolerate lower dissolved oxygen levels, and in many cases higher levels of other types of pollution as well.

What can I do?
In September, under new grants from the State's Department of Environmental Protection and the Executive Office of Environmental Affairs, NepRWA will begin to sample dissolved oxygen levels at CWMN sites throughout the watershed. NepRWA is looking for volunteers who can dedicate three hours to sampling oxygen on the fourth Wednesday of every other month. Dissolved oxygen sampling must occur between the hours of 6 - 10 AM. Interested in sampling this critical parameter? Call the NepRWA office today!

Clean Water Act Anniversary Events

Sept. 20 Watershed Conservation 2002
Learn about a variety of issues affecting watersheds today. This conference will be held at the University of Massachusetts at Amherst. To learn more visit www.yearofcleanwater.org.

Oct. 12 Events Celebrating the Clean Water Act
These three events are designed to provide information about water issues and water conservation, give participants a chance to learn about waterways in their neighborhood, and give people a chance to meet other fun, environmentally-minded people. The day is co-sponsored by the Boston Chapter of the Appalachian Mountain Club (AMC) and the Public Education Committee of the New England Water Environment Association (NEWEA). All ages are welcome! Registration is required. Please contact [Vonnie Reis](mailto:Vonnie_Reis@yahoo.com) at Vonnie_Reis@yahoo.com.

Trip #1 - Boston Harbor Islands, 9 AM - 2 PM
Join us on a tour of the Boston Harbor Islands with a picnic on Georges Island. Guest Speaker from the MWRA will discuss the state of Boston Harbor, Deer Island Wastewater Treatment Plant, and other pertinent issues. Please bring lunch and ferry fare.

Trip #2 - Walk Along the Charles, 10 AM - 2 PM
Leisurely walk along the Charles River with a picnic and info session. Learn how this Boston landmark is impacted by urban development and what is being done to protect it. Guest Speaker will be from the Charles River Watershed.

Trip #3 - Walk through Middlesex Fells, 10 AM - 2 PM
Short hike through this quiet gem in the middle of urbanization. Guest Speakers from Friends of the Fells and the Mystic River Watershed Association will discuss the Mystic River Watershed and how areas like the Fells are being preserved for future generations. Please bring lunch.

Oct. 18 National Water Monitoring Day
Across the country volunteers will sample for a core set of water quality parameters (Temperature, pH, Water Clarity, Dissolved Oxygen) using an inexpensive National Water Monitoring Day test kit. To get involved visit the National Water Monitoring Day Web page, www.yearofcleanwater.org.

Oct. 19 Neponset Estuary
Work with the Friends of the Neponset Estuary to clean up debris along a section of the Neponset Estuary in Quincy. Interested? Call Maggie at 781-575-0354.

Please join NepRWA and the Captain Forbes House Museum in Celebrating

River Art 2002

8th Annual Juried Showing of Plein Air Art of the Neponset River Watershed

Opening Festival and Fall Family Day
Sunday, September 29, 2002
Noon - 4 PM

Captain Forbes House Museum
215 Adams Street, Milton

Plein Air Art Exhibition • Artist Demonstrations
Children's Art Exhibition • Children's Arts and Crafts
Nature Walks • Refreshments • Music

Special Thanks to:
Boston Frame Works, Brookline
The Frame Gallery, Norwood

