The Three Bays Monitor

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Massachusetts Department of Environmental Protection Presents Draft Report of Three Bays Bacteria TMDL

The Massachusetts Department of Environmental Protection (MDEP) hosted a public meeting on November 27th to present its draft report on the Three Bays estuary bacteria total maximum daily loads, or TMDLs, which represents the amount of bacteria the water body can sustain and still meet the water-quality standards for aquatic life, shellfishing and swimming. Alice Rojko, an environmental analyst for the MDEP, led the presentation and discussion, which was well-attended by Three Bays Preservation members.

The objective of this TMDL is to specify reductions in bacterial pollutant loads so that water quality standards for recreational use and shellfish harvesting can be met. The data derived from water samples taken by Three Bays Preservation, the Division of Marine Fisheries, and the School for Marine Science and Technology at UMass Dartmouth (SMAST).

The data in the report indicate that West Bay and Cotuit Bay contain low concentrations of fecal coliform bacteria, while levels of fecal coliform bacteria in excess of the water-quality standards frequently occur in Prince's Cove, Warren's Cove and the tidal channel to North Bay. Analysis of the bacterial loads in the Marstons Mills River indicates that the river is a significant source of bacterial contamination.

The report includes these recommendations to meet the reductions:

- The town of Barnstable should undertake a survey to identify the bacterial sources to the Marstons Mills River.
- The Massachusetts Highway Department should determine the Route 28 roadway drainage area discharging to the Marstons Mills River and install best management structures and/or operational practices to the maximum extent practicable.
- The board of health should continue to focus on finding the sources of bacteria with a "human DNA" signature within these coves.
- The town of Barnstable should quantify the extent to which bacterial contaminants from Warren's Cove contribute to the contamination in Prince's Cove.
- The town of Barnstable should continue to work toward compliance with its stormwater management program in the Three Bays Area.
- Any bacterial testing that is done to determine sources of contamination should consider analytical testing to differentiate anthropogenic versus non-anthropogenic sources to rule out waterfowl/wildlife as the source.
- The salt marsh in the southeast quadrant of North Bay should be investigated by the Board of Health for human sources of fecal coliform.

The report also includes some information on funding sources through grants and other resources that may be available to help underwrite the projects. Additionally, the town of Barnstable announced that it has recently created and filled a part-time position to focus on identifying bacteria source pollution and hopes to begin with a focus on the Three Bays area.

The report is open for public comment until December 21, 2007. It will then be updated and sent to the Environmental Protection Agency (EPA) during the first quarter of 2008 for approval. Once it is approved by the EPA, the TMDL will be established. The town of Barnstable is in control of the next steps.

The public may submit comments about the draft plan no later than Dec. 21 to Alice Rojko, Mass. Dept. of Environmental Protection, 627 Main Street, Worcester MA 01608 or by e-mail to Alice.Rojko@massmail.state.ma.us.

A copy of the Three Bays draft report is available at http://www.mass.gov/dep/water/resources/3bays.pdf.

Down the Drain

Clean water is fundamental to life. Yet many septic systems do not rid sewage of pollutants that may be harmful to human health before discharging the sewage to groundwater—and in some cases before it contaminates drinking water wells.

Silent Spring Institute scientists made this discovery after monitoring—for the first time ever—water for hormone-disrupting chemicals such as natural estrogen and alkylphenols, as well as certain pharmaceuticals, as the water passed from the septic system into the ground. The study looked at a typical septic system on Cape Cod, where septic systems serve more than 85 percent of residential and commercial properties. Two other chemicals the researchers detected indicated the presence of sewage fallout: optical brighteners, which are found in laundry detergents, and caffeine.

The presence of hormone-disrupting chemicals in the environment has been associated with the feminization of male fish and reduced fertility in other wildlife. The scientists note that additional research is needed to determine whether the concentrations typically observed in the environment produce similar adverse effects on the human hormone system. Exposures during critical prenatal and childhood stages of reproductive development may be most critical.

Effects on hormonally responsive cancers are an additional concern. Chemicals that mimic natural estrogen, for example, may contribute to a woman's cumulative lifetime exposure to estrogen, a factor that has been linked to an increased risk of developing breast cancer.

One in every four citizens of the United States relies on septic systems for wastewater treatment. At least a portion of the residents in a number of states—including Delaware, Florida, Maryland, Massachusetts, New Jersey, and New York—also rely on private, shallow groundwater wells for their drinking water. With housing density increasing and lot size shrinking to accommodate population growth, the likelihood is growing that wastewater from a household's or neighboring household's septic system will contaminate a drinking water well.

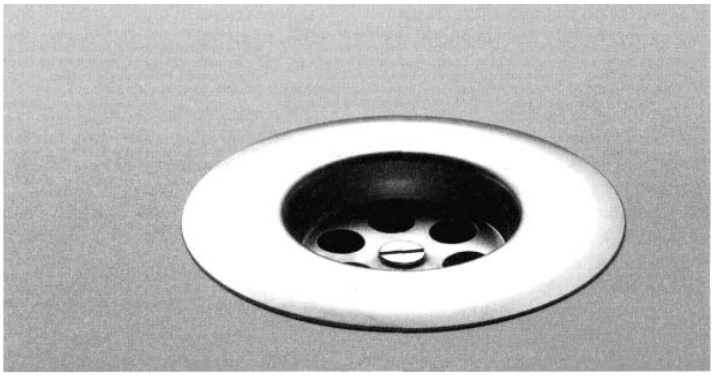
"While septic systems may be effective at preventing bacterial contamination of these water supplies," says Chris Swartz, lead researcher for the study, "our results suggest that these systems do not remove hormone-disrupting chemicals from septic wastewater before they infiltrate into groundwater."

And since groundwater feeds many drinking water supplies, Swartz adds, further research is needed to determine the extent and potential effects of drinking water contamination. Previous research on hormone disruptors focused on surface waters receiving discharge from wastewater treatment plants. This study was the first to directly link the infiltration of these hormone disruptors into groundwater—and therefore residential well water—from onsite treatment systems.

"Our findings should encourage communities to consider more restrictive land use policies to protect their public and private drinking water supply wells," Swartz says. "Communities may also consider replacing onsite septic wastewater treatment systems with improved onsite technologies or centralized wastewater treatment plants, at least in densely populated areas that rely on shallow groundwater as a drinking water source."

The study appeared in the August 15, 2006, issue of *Environmental Science & Technology*.

Reprinted from *Silent Spring Review*, Summer 2007, published by Silent Spring Institute, a nonprofit research organization dedicated to studying the environment and women's health, especially breast cancer. For more information, please visit www.silentspring.org.



Three Bays Preservation holds annual Volunteer Appreciation Event

Three Bays Preservation held its annual volunteer appreciation event on December 7, 2007, to honor the work of all its dedicated volunteers. More than 30 water-quality monitoring volunteers and several Three Bays board members attended the event, which was held at the Three Bays Preservation office in Osterville.

"We are very grateful for the dedication of these volunteers" said Three Bays Executive Director Lindsey Counsell. "Without the collective efforts of our volunteers, we would be unable to collect the quality scientific data that we do. Additionally, our board brings a vast collection of backgrounds together to guide us in all aspects of our mission."

Twenty-one volunteers from Three Bays Preservation collected samples at 25 sites throughout the Three Bays estuary during the summer months. Water samples are collected simultaneously at each test site, with the goal of encountering consistent weather and tide conditions at all locations. These water samples are transported to the lab at the School for Marine Science and Technology at the University of Massachusetts, Dartmouth, where they are tested for nitrogen, phosphorus, salinity, temperature and dissolved oxygen, among other qualities.

The data derived from the water samples collected by these volunteers over the past eight years were instrumental in the creation of the Massachusetts Estuaries Report, which was presented to the public in December of 2006, and outlined the total maximum daily loads (TMDLs), which is a calculation of the maximum pollution that a water body can accept and still meet the state's water quality standards for public health and healthy ecosystems, for the Three Bays estuary.

A sampling of Three Bays Preservation's Volunteers

New Pension Bill Allows Tax-Free Charitable Contributions from your IRA

Under the Pension Protection Act, taxpayers over the age of 70 1/2 have until the end of this month to transfer up to $100,000 from an IRA account to qualified charities without paying federal income tax on the donation. The act is only valid until December 31, 2007.

Because the distribution is not included in taxable income, donors cannot claim a tax deduction for the charitable contribution. Transfers may not be used for donor-advised funds or private foundations, but may be used to establish an endowment for a charitable organization.

If you are considering making a gift under the Pension Protection Act, please be sure to consult your financial planner to ensure your gift falls within the designated guidelines.

Annual Appeal Under Way!

The Three Bays Preservation Annual Appeal is now under way. Please remember that our Annual Appeal helps to fund most of our annual operating budget for our educational outreach efforts and water-quality monitoring program. Thank you to everyone that has already sent in a contribution.

If you would like to donate a gift of appreciated stock, or have any questions about the Annual Appeal, please call the Three Bays Preservation office at 508-420-0780. Three Bays Preservation is a 501 (c)3 non-profit organization, and your donation is tax-deductible to the extent allowed by law.

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Three Bays Preservation participates in Massachusetts Oceans Day

Massachusetts Oceans Day was held on Thursday, November 15, 2007, at the Massachusetts State House in Boston. The event, hosted by Sen. Robert O'Leary, co-sponsor of the Massachusetts Ocean Act, was an educational showcase of the Bay State's ocean heritage, and the way better management will help protect our coastal and ocean resources.

Developed in consultation with scientists, environmentalists, fishing interests and other key stakeholders, the Massachusetts Oceans Act, if passed, will implement a comprehensive plan for balancing commercial use, personal recreation and the protection of critical ocean species. Rep. Frank Smizik of Brookline, the House chairman for the Environment, Natural Resources and Agriculture Committee and a supporter of the bill, noted, "It's always a question of educating members. A lot of people don't have oceans in their district." The bill passed unanimously in the Senate and is awaiting action in the House Ways and Means Committee.

The event featured several speakers, including keynote speaker Leon Panetta, former chief of staff to President Clinton. "If you don't pass some kind of comprehensive management plan, then the alternative is chaos," said Panetta. "This act would provide the most comprehensive approach in the nation in dealing with ocean planning. I think it will set a precedent for the rest of the country if we could get this adopted. Your coastline, like many other coastlines, is now facing a maze of conflicting efforts."

In addition to the speakers, the event featured an educational exhibit representing more than 35 environmental, science and recreational organizations, including Three Bays Preservation.

To learn more about the Massachusetts Ocean Act, please visit: http://www.massoceanaction.org/.

Mass Oceans Day Exhibitors at the State House

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Happy Holidays from the Three Bays Preservation, Inc. Staff

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