State of the estuaries

By Philip Trowbridge, P.E., DES
Watershed Management Bureau and Piscataqua Region Estuaries Partnership

Every three years, the Piscataqua Region Estuaries Partnership publishes a state of the estuaries report that communicates the status and trends of key environmental indicators for the Great Bay and Hampton-Seabrook estuaries and the Piscataqua Region watersheds. The newly-issued 2009 report concludes that the environmental quality of the Piscataqua Region estuaries is declining. Eleven of 12 environmental indicators show negative or cautionary trends – up from seven indicators classified this way in 2006.

The most pressing threats to the estuaries relate to population growth and the associated increases in nutrient loads and non-point source pollution.

- Watershed-wide development has created new impervious surfaces at an average rate of nearly 1,500 acres per year. In 2005, there were 50,351 acres of impervious surfaces in the watershed, which is 7.5 percent of the watershed’s land area. Nine of the 40 subwatersheds contained over 10 percent impervious cover, indicating the potential for degraded water quality and altered stormwater flow.

Land consumption per person, a measure of sprawling growth patterns, continues to increase.

Estuaries, continued on page 3

New pervious pavement demo site unveiled at DES

Have you ever seen rain water disappear straight through asphalt? I have to say that the first time that you do, you think you are looking at an optical illusion. Most of us are more familiar with rain and melting snow pooling and running off of paved or solid surfaces. This runoff is called stormwater and it is considered one of the greatest threats to the quality of our lakes, ponds, rivers and streams that we face today. One of the many advancing technologies to address this stormwater threat is the development of pervious pavement materials using modified forms of concrete, asphalt and pavers.

In an effort to simultaneously highlight and to learn more about these technologies, DES, the New Hampshire Rivers Council, and several other private, non-profit and government agencies joined forces to create a pervious pavement demonstration site at our DES building on 29 Hazen Drive in Concord. The site consists of two pervious concrete walkways, two pervious paver walkways, and six parking places with pervious concrete, pavers and asphalt positioned side-by-side for comparison. The New Hampshire Rivers Council is developing several educational displays and a brochure associated with the site. The site was recently completed and christened with a permeability demonstration held on September 30.

Pervious pavement alternatives allow water from rain or snowmelt to flow through the surface into a stone base, and then infiltrate into the native soils below. This reduces the amount of stormwater and associated pollutants that run...
Our environment – from our breathtaking landscapes to our clean water – is part of what makes New Hampshire such a special place to work and live. That is why as Governor, I have made it a priority to protect and preserve the state’s environment.

A major focus of our efforts has been encouraging businesses to reduce their energy consumption through efficiency and investing in alternative, renewable energy sources. Many New Hampshire businesses understand the importance of “going green,” which helps protect our environment, and increase the bottom line.

As a state, it is important that we continue work with the business community to promote greater energy efficiency, a reduction of waste and other green business practices.

Since 1994, the New Hampshire Pollution Prevention Program has recognized companies that demonstrate sound environmental practices through the Annual Governor’s Award for Pollution Prevention. Over the last 15 years, many New Hampshire businesses have shown some tremendous leadership in reducing their impact on our environment. They have implemented innovative measures to reduce energy consumption, reduce harmful waste and pollution, and have even taken great measures to educate their employees about their impact on the environment.

These businesses have discovered that environmentally friendly practices have also made them more efficient, and therefore, more profitable.

Award winner Southeastern Container in Hudson produces plastic bottles for the Coca-Cola bottling facilities in the Northeast. As part of a corporate strategy to reduce the plant’s environmental footprint in the areas of energy, raw material and natural resource usage, Southeastern Container initiated the Plant Environmental Program. This is a pilot global corporate sustainability program that forms the overall corporate strategy for sustainability programs for the other nine Southeastern Container facilities nationwide.

A few of the projects included in the program include:

- Reducing the volume of greenhouse gases emitted into the atmosphere by installing energy efficient compressed air dryers and re-engineering the circuits eliminated power peaks.
- Purchasing 50 percent of the plant’s electricity from “green” renewable generation resources effective July 2009.
- Designing state of the art energy use monitoring technology to track and trend the electric, natural gas, water and sewer use in order to reduce demand in real-time.
- Educating employees about to the merits of sustainability through an energy fair.

The reductions from these projects include 385,000 lbs of plastic resin from producing thinner bottles; 2,419,358 lbs of carbon dioxide; 206,609 kilowatt hours; 153,000 gallons of water saved and $71,000 saved annually.

Southeastern Container was also a 2007 Honorable Mention and 2008 Granite Governor’s Award winner due to their implementation of a new energy-efficient heating, ventilating, and air conditioning system to replace an aged existing system.

Two additional companies received honorable mentions for completing substantial pollution prevention initiatives. Those companies are: BAE Systems Information and Electronic Systems Integration Inc. of Nashua and Hitachi Cable of Manchester.

I congratulate all of the award winners for their commitment to green standard operating procedures, and for helping to do their part for our environment. For more information contact the NHPPP by nhppp@des.nh.gov or 1-800-273-9469.

John Lynch, Governor

Forest mgt. practices under revisions

Landowners, natural resource professionals, municipal officials and others were invited to comment on the revised draft of New Hampshire’s keystone forest management document, “Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire.” The revised draft includes new scholarship in the field of natural resources and addresses issues raised by natural resource professionals, landowners and the public. Please see www.goodforestry.org for more info.
The total nitrogen load to the Great Bay Estuary increased by 42 percent in the past five years. In Great Bay, the concentrations of dissolved inorganic nitrogen, a major component of total nitrogen, have increased by 44 percent in the past 28 years. The negative effects of the increasing nutrient loads on the estuary system are evident in the decline of water clarity, eelgrass habitat loss, and failure to meet water quality standards for dissolved oxygen concentrations in tidal rivers.

The negative or cautionary trends for other indicators also are troubling. Oyster and clam populations have increased from historic lows a few years ago, but remain depressed compared to historic abundance. Toxic contaminants affect nearly one-quarter of estuarine sediments, and concentrations of compounds associated with petroleum products are increasing in the tissues of shellfish from the Piscataqua River. However, concentrations of other toxic contaminants in shellfish tissue are declining. Migratory fish returns to the estuary are limited by factors including water quality, passage around dams, and flooding. Bacteria concentrations declined significantly in the 1990s but have more recently leveled off. Water quality standards for swimming and shellfishing are not being met in all geographic areas.

To counteract these trends, the Estuary Partnership and others have worked to conserve land, restore habitats, and eliminate pollution sources in the coastal watershed. Considerable progress has been made toward Estuary Partnership’s land conservation goal of protecting 15 percent of the watershed area by 2010 and salt marsh restoration goal of 300 acres. By the end of 2008, 76,269 acres (11.3 percent of the watershed) were permanently protected from development and 280 acres of salt marsh were restored in New Hampshire. However, despite significant efforts, restoration goals for submerged habitats (oyster reefs and eelgrass) are far below target levels.

The Piscataqua Region estuaries retain many positive attributes and continue to serve important ecological functions. Restoration of habitats and high water quality still can be achieved. However, the increasing pressures of development in the watershed will need to be matched with increasing effort and awareness in order to reduce pollutant loads and protect habitats.

The full report is available on Piscataqua Region Estuaries Partnership’s website, www.prep.unh.edu.

---

604(b) ARRA funding

The US Environmental Protection Agency awards and administers Water Quality Management Planning Grants to the states under the Clean Water Act. Section 604(b) of the act requires 1 percent of each state’s Clean Water State Revolving Fund allotment be used for water quality planning projects. As required by the CWA, at least 40 percent of the total 604(b) allotment, or $158,240, must be allocated to regional planning commissions and appropriate interstate organizations. DES has exceeded this statutory minimum and allocated $220,000, or 56 percent, to regional planning commissions (approximately $24,444 per RPC) and an additional $15,384 to the Connecticut River Joint Commissions, for a total of $235,384 or 60 percent in pass-through funds.

Each of the nine regional planning commissions will work on at least one high priority regional project and two important statewide environmental initiatives.

Innovative land use techniques – The commissions will work with municipalities to apply specific model ordinances and regulations to specific municipalities to address priority water quality issues in their planning regions. The deliverables will include at least one ordinance or regulation adapted to specific municipalities and presented for local adoption.

Innovative permitting and technical assistance initiative – The commissions also will provide technical input to DES in the planning and development of new policies and procedures to achieve superior environmental results, streamline permitting procedures, and improve coordination with other agencies and municipalities.

For more information about the 604(b) ARRA water quality planning projects, please go to www.des.nh.gov and click on the NH RECOVERY icon. See page 6 for more ARRA updates.
Don’t overdose the environment
Safely dispose of unwanted medications

For several years, those people most concerned about environmental pollution, drug abuse and accidental poisonings in New Hampshire have provided specific guidance on how to best dispose of medicine in the home based on the particular interest they represent. Oftentimes, the approach to disposing medicine promoted by these various interests contradicted one another. In 2009, representatives of these interests came together to develop a mutually acceptable approach for disposing of medicine in the home.

The new, agreed-upon guidelines promote removing unneeded medicine from the home by rendering it unusable and disposing of unneeded medicine in an appropriate manner, without flushing the medicine or pouring it down the drain. The guidelines further suggest:

1. Pour medicine into a sealable plastic bag.
2. If the medicine is a solid, add a small amount of water to dissolve it.
3. Add any undesirable substance, such as dirt, coffee grounds or kitty litter, to the liquid medicine in the plastic bag.
4. Seal the bag and immediately dispose of it in the trash for regular pick-up.

The website www.nh.gov/medsafety – a new website created specifically to provide additional information on medicine disposal issues.

Defendant agrees to $40,000 penalty for alleged shoreland and wetlands violations

The Rockingham County Superior Court recently approved a settlement between the State and the defendant, Michael Pantaleo, to resolve violations of the state’s shoreland and wetlands laws. The settlement imposes a $40,000 penalty on Pantaleo; $25,000 of which will be paid to the state and $15,000 of which will be permanently suspended if Pantaleo does not violate the settlement or state environmental laws again within three years of the entry of the settlement agreement.

In its lawsuit, the State alleged that Pantaleo violated the Shoreland Act and state wetlands laws by constructing a retaining wall along Arlington Pond in Salem and by constructing a large stone patio, fire pit, stairway, and other structures all within the zone protected by the Shoreland Act. In order to resolve the lawsuit, Pantaleo restored all of the areas that DES determined were altered without authorization. This included the complete removal of all items that could not be approved.

“Our law abiding citizens are entitled to be assured that structures built in violation of the law will be required to be removed,” said Attorney General Delaney.

“Restoration is an important component of resolving all violations,” said Commissioner Burack. “We cannot allow a penalty for a violation to simply be a cost of doing business.”

Copies of the settlement agreement are available upon request from the state Attorney General’s office.

November 15 is America Recycles Day.
Do your part to reuse, recycle, and buy products made of recycled materials.
Keene Woodstove Change-out Campaign begins

On October 22, DES Commissioner Burack joined officials from the city of Keene, EPA and businesses to kick-off New Hampshire’s first woodstove change-out campaign aimed at improving air quality in the Keene valley. The goal of the campaign is to reduce emissions of wood smoke from old, non-EPA certified woodstoves by replacing them with cleaner burning, certified wood stoves, pellet stoves or gas heating appliances.

The campaign was kicked off at a local woodstove and energy fair. Keene was selected as New Hampshire’s first community for a woodstove change-out program because local air monitoring data indicate levels of particle pollution that sometimes reach or exceed national air quality standards. This happens during winter weather conditions when wood smoke becomes trapped in the valley area of Keene, resulting in poor air quality. Small particles and pollutants in wood smoke are unhealthy to breathe and can cause watery eyes, stuffy noses and chest tightness. Children and older adults, and people with asthma or heart disease are especially vulnerable.

Wood is a renewable resource and plentiful in New Hampshire, and as such should be encouraged as a fuel source as long as it is harvested in a sustainable manner. However, older wood-burning devices are dirtier and less efficient when it comes to fuel combustion. Replacing older models with certified, more efficient stoves results in less fuel being burned for more heat. Many new stoves use one-third less fuel than older ones, saving the homeowner money and creating a healthier and safer home environment.

Through the campaign, Keene homeowners with older woodstoves are being offered a $1,000 rebate toward the purchase of a new certified wood stove, pellet stove or gas heating appliance. The city’s goal is to replace 100 old stoves. In addition, the program is providing up to $175 to homeowners to replace catalysts on EPA-certified catalytic wood stoves.

“This is a great opportunity for homeowners and residents of Keene,” noted Commissioner Burack during the kick-off event. “This effort will help stimulate the local economy, and it complements our department’s work on climate change by increasing energy efficiency, reducing fuel usage, and improving overall air quality.”

The Keene Woodstove Changeout Campaign is a cooperative effort between DES and the city of Keene, with support from EPA, the Hearth Patio and Barbeque Association, and participating local woodstove dealers. Funding is being provided by EPA and an environmental settlement with American Electric Power Company. The campaign runs through January 29, 2010, or until funding runs out. For more information, visit www.des.nh.gov and search the A to Z List for “woodstove changeout” or go to www.ci.keene.nh.us. If you are a Keene homeowner and would like to apply for a rebate voucher, contact Corey Canning at corey.canning@des.nh.gov or call (603) 352-5474.

Summer’s air quality enhanced by rainy weather

According to data collected by DES between April and September at statewide air monitoring stations, there were only two days when ozone monitors recorded concentrations in the unhealthy for sensitive group range, compared to eight days in 2008. Throughout New England, there were 11 unhealthy days this season, compared to 28 in 2008. This decrease in the number of days with poor air quality is related to the cool, wet summer experienced throughout the region.

Last year, EPA made the ozone standard more stringent. Ground-level ozone is the main ingredient in summertime smog. Ozone levels are considered unhealthy for sensitive groups if the average concentration exceeds 0.075 parts per million for an eight-hour period. The highest eight-hour average this summer was 0.084 ppm recorded at Odiorne State Park in Rye on August 18.

Over the last several decades, New Hampshire has experienced a decreasing number of unhealthy ozone days, partially due to the substantial decrease in air pollution emissions from all sources, notably power plants and new cars. In 1983, New Hampshire had 18 unhealthy days compared with the two this summer, an 89 percent decrease after adjusting to the 2008 standard.

DES monitors air pollutant levels year-round. To find today’s levels, please go to www.airquality.nh.gov, or to receive daily air quality forecasts sign up at www.enviroflash.info.
Cleaning up leaking USTs

DES is putting to good use the $1.28 million American Recovery and Reinvestment Act (ARRA) grant it received in July to address leaking underground storage tanks. Since receipt of the funding, DES has removed nine tanks and 1,200 tons of contaminated soil, and has completed a contaminated soil delineation on one site and a groundwater monitoring round. Work has been initiated or completed at nine sites and an additional five sites will be added by the end of the year. New Hampshire was the first of the New England states to complete leaking underground storage tank related stimulus projects. Stimulus related projects facilitated the reopening of a store in Plainfield, resulted in progress in cleaning up a tax deeded property, removed an elderly landowner’s out-of-service underground storage tanks and funded a key contaminated site remedial action. DES has additional funding available for qualified projects.

The following are examples of completed UST ARRA grant projects.

Lido Service Station, Plaistow. Groundwater contamination from the former Lido Service Station site in Plaistow has impacted more than two dozen private water supply wells over the last several years. Currently there are 19 water supplies in the site vicinity that still have point of entry treatment systems installed to treat contaminated drinking water.

The first of two planned phases of cleanup activities included the removal of 1,200 tons of contaminated soil located on two parcels. The second phase of remedial work will include in-situ chemical oxidation of the gasoline contamination using the piping network that was installed during the soil excavation. The chemical oxidation effort will accelerate groundwater restoration in the immediate vicinity of the site. Both phases are needed to remove the source of groundwater contamination and restore the use of the groundwater resource.

Maplehurst Hotel, Bethlehem. DES removed an UST and waste oil drum at the Maplehurst Hotel in Bethlehem. The tank was last used in the early 1980s. DES has also agreed to work with the town to address asbestos associated with the former hotel’s boiler. The work should help the town with demolition of the property for redevelopment.

Meriden Deli Mart, Plainfield. DES removed three USTs from the Meriden Deli Mart in Plainfield, which was a foreclosure property. The tank removal was essential for moving the property out of foreclosure and back into productive use. In addition to the tank removal, DES expedited the approval of the replacement tank design. The Deli Mart reopened this fall.

Hank’s General Store, Carroll. DES removed two 20-year-old USTs, the pump island and contaminated soil from the former Hank’s General Store in Carroll. This business has been closed since 2005 and removal of the tanks will help facilitate efforts to reopen the business.

Tinkham’s Store, Enfield. DES removed three USTs and the pump island from the former Tinkham’s Store in Enfield. The tanks were last used in 2002. The tank removals should facilitate the resale of the property by the elderly tank owners.

To nominate projects for assistance or for more information on current/planned ARRA UST grant projects, please contact Gary Lynn, Petroleum Remediation Program Supervisor, at (603) 271-8873.

Reducing diesel emissions from heavy-duty equipment

DES is currently overseeing the implementation of 19 projects by 16 grant recipients selected by DES for funding under the American Recovery and Reinvestment Act (ARRA) through the Diesel Emission Reduction Act (DERA). The purpose of the projects is to reduce air pollution from diesel engines and create jobs in New Hampshire. Collectively, the 16 recipients will receive approximately $1.5 million in ARRA-DERA funding, which will leverage an almost equal investment of matching funds for a total value of diesel emission reduction projects in excess of $2.9 million.

Project recipients include long-haul trucking firms, construction firms, transit bus operators, an energy delivery company, a school district, a marine excursion company, NH Dept. of Transportation, and four municipal public works departments. Project types range from vehicle replacement and equipment re-powering to installation of idling-reduction technologies. As of October 2009, nine of the 19 projects have been approved by Governor and Council and diesel emissions reductions are underway. These include: a $270,000 grant for C&J Transit of Portsmouth to replace one transit coach and 10 transit coach auxiliary heaters; a $141,000 grant to replace two engines on a Granite State Whale Watch vessel; $110,000 for SAU 20 to replace two school buses and eight engine preheaters; and four other projects.

For more information regarding the ARRA-DERA program, please contact Tom Fargo at (603) 271-1378 or thomas.fargo@des.nh.gov.
Storm knock your power out? Beware of carbon monoxide

Do you use a backup generator or other auxiliary heat source during power outages? Last year’s ice storm resulted in 70 carbon monoxide encounters, including four deaths, identified by the NH Division of Public Health Services. The majority of these incidents were related to the use of emergency generators. Keep these tips in mind:

• Don’t use anything indoors that burns fuel, such as gasoline-powered generators, camp stoves and lanterns, or charcoal grills – they all give off carbon monoxide – a colorless, odorless gas. It can kill you.

• Opening doors and windows or using fans won’t prevent a buildup of carbon monoxide.

• Know the warning signs of CO poisoning, which include headaches, exhaustion, drowsiness, dizziness, vomiting and chest pain. If you or those around you exhibit these symptoms, get to fresh air immediately and call 911!

Before the lights go out …

• Have your furnace, gas and/or kerosene appliances inspected, cleaned and tuned annually. Have your water heater and gas furnace exhausts checked to make sure they aren’t blocked.

• Install carbon monoxide detectors in your home, now!

Live free and pay: The costs of non-compliance

By Kerry Barnsley, Legal Unit

Do you know how much it costs to comply with routine water sampling requirements? Do you know how much it costs to not comply with those requirements? The owners of one local restaurant are discovering the answer to that last question the hard way.

The state and federal Safe Drinking Water Acts establish a comprehensive drinking water protection program for all customers of public water systems. Water quality monitoring is an essential component of the program. Clear water that tastes fine may still contain biological or chemical contaminants that can be harmful to humans and pets and that can only be detected through laboratory analyses.

Public water systems in New Hampshire are classified by their size and by the type of population they serve, and each type has different testing requirements. Transient systems, such as restaurants, campgrounds, and gas stations that serve coffee, have the smallest number of testing requirements. A year-round restaurant in New Hampshire must take four routine bacteria samples and one nitrate sample annually. Every three years such a transient system must test for nitrates. Every system is given a Master Sampling Schedule by the DES Drinking Water and Groundwater Bureau (DWGB) and can access that schedule online. The DWGB provides the required sampling forms and a “primer” on monitoring requirements to every new public water system, and provides ongoing assistance to any system that requests help. The DWGB also sends reminder postcards when test results have not been received about two-thirds of the way through a compliance period, and sends Notices of Violation when test results are not received by the deadline for that compliance period.

Many laboratories are accredited to perform the required bacteria and nitrate/nitrite analyses. The DES lab charges $72 per year to analyze four bacteria samples and a nitrite/nitrate sample. The DES lab will send sampling bottles for free to systems that use the lab for their testing requirements, and will forward the test results to DWGB electronically to ensure timely and accurate reporting.

The owners of one local restaurant are now facing administrative fines due to non-compliance. Rather than spend $72 a year to have the DES lab analyze samples for the required routine testing, the owners chose to risk the health of their customers by ignoring their water sampling schedule, ignoring the DWGB reminders and Notices of Violation, and ultimately ignoring an Administrative Order that required them to take corrective action. Failing to slide five bottles a year under the tap and submit them for testing may ultimately cost the owners tens of thousands of dollars.

Follow DES news at twitter.com/nhdes.

DES on Twitter
Commissioner's Column  
continued from page 1

Two DES handbooks recognized for excellence

The DES Innovative Land Use Planning Techniques: A Handbook for Sustainable Development and the Making Your Business Greener Workbook were both recognized with awards of excellence this fall.

The Innovative Land Use handbook was awarded the 2009 Northern New England Chapter of the American Planning Association’s “Project of the Year,” at the association’s annual conference. Making Your Business Greener Workbook received the National Pollution Prevention Roundtable’s 2009 Most Valuable Pollution Prevention Award, in the Publication Category, which was presented at a National Pollution Prevention Roundtable awards ceremony in Washington, DC. Both documents are available through the DES website at www.des.nh.gov, under “Publications.”

Tom Burack, Commissioner

off the surface and protects nearby surface waters from stormwater pollution. It also decreases the volume of runoff that might otherwise lead to flooding and erosion. This demonstration area provides an opportunity for people to learn about the importance of stormwater management and see real life examples of innovative stormwater management strategies in action.

DES has been committed to building partnerships in our environmental protection efforts. Evidence of these efforts can be found in the list of stakeholders that contributed to the completion of this project. This project began in the DES Shoreland Program as a way to communicate with and educate applicants about provisions in the updated Comprehensive Shoreland Protection Act on impervious surfaces, and credits available for using pervious technologies. Planning for this project was a group effort of several DES programs, including the Shoreland Program, the Alteration of Terrain Program, and the Watershed Assistance Section, as well as the New Hampshire Rivers Council, and the University of New Hampshire Stormwater Center. The project could not have come to fruition, however, without the donations of time and materials from the following partners: McIninch Foundation, primary funding; a state of New Hampshire Conservation Committee grant (Moose Plate Grant); Nicolock, donations of labor and pervious pavers; Pike Industries, donations of labor and pervious asphalt; Northern New England Concrete Promotion Association, donations of labor and pervious concrete; Concord Sand and Gravel, donations of materials; Dirt Doctors, donations of labor; and NH Dept. of Transportation, site work.

We at DES are as curious as the next person to observe how these pervious surfaces operate, see how they perform in New Hampshire’s harsh weather, and compare each side-by-side, and with the existing impervious conventional asphalt. A further advantage of the demonstration site will be our staff’s ability to not only discuss imperious surface options with permit applicants, but to walk with them out to the front of our building to get a look and feel for them.

Tom Burack, Commissioner