

Mercury in High Schools

THE BAY PATH CASE STUDY - June 2002

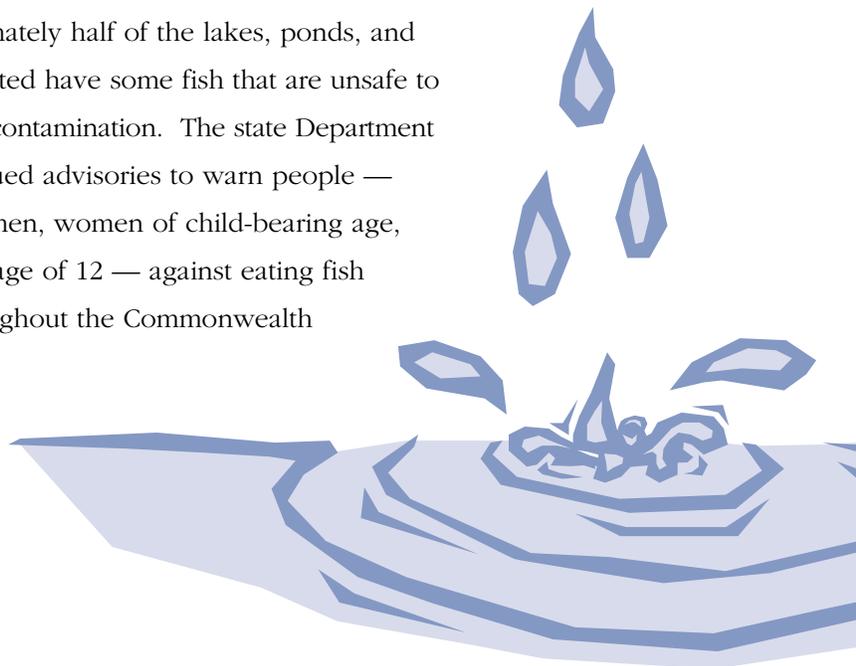
Unfortunately, unlike many other pollutants, mercury does not degrade into something harmless once it mixes with air or water.

In 2001 and 2002, the Massachusetts Department of Environmental Protection (DEP), in conjunction with the Executive Office of Environmental Affairs (EOEA), sponsored a pilot project to support schools interested in removing mercury from school buildings and in educating faculty, staff and students about the hazards of mercury. Specifically, the Commonwealth was interested in assisting programs at schools willing to:

- educate students, faculty and staff about the potential hazards of mercury
- identify and remove all mercury products from the school and replace them with non-mercury alternatives
- adopt a policy of purchasing only non-mercury products wherever possible

The health hazards and environmental problems associated with mercury are well-known and well-documented. Nervous system damage, liver damage, kidney damage, muscle tremors, impaired coordination and mental disturbances all have been associated with mercury exposure in humans.

Mercury emitted to the air from trash incinerators and power plants can fall to the ground with the rain and snow. In lakes and ponds, this leads to elevated levels of mercury in fish that inhabit these water bodies. Eating fish contaminated with mercury can be harmful to humans, and especially developing fetuses. In Massachusetts, approximately half of the lakes, ponds, and rivers that have been tested have some fish that are unsafe to eat because of mercury contamination. The state Department of Public Health has issued advisories to warn people — especially pregnant women, women of child-bearing age, and children under the age of 12 — against eating fish from water bodies throughout the Commonwealth and certain marine fish.



Unfortunately, unlike many other pollutants, mercury does not degrade into something harmless once it mixes with air or water. In fact, mercury persists in the environment for long periods of time, and bioaccumulates, meaning its concentrations and harmful effects only *increase* as it moves up the food chain.

Mercury spilled in a school poses risks beyond those to the students and teachers in the room at the time of the incident.

Schools were selected as a target audience for outreach and education about mercury for two reasons:

First, **schools are potential sources of mercury emissions and exposure.** Elemental mercury is often used in science classrooms for experiments and instructional purposes. In addition, most schools use fluorescent lights, mercury laboratory thermometers, mercury fever thermometers, mercury barometers and other common items that contain mercury. Children are particularly susceptible to the potential negative health affects associated with mercury exposure, so a mercury spill in a school is of special concern.

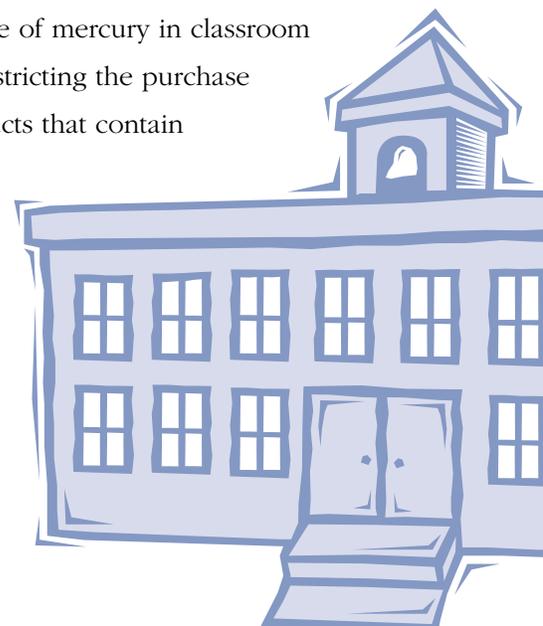
Second, **schools provide an excellent opportunity to educate teachers, students, staff and parents about the toxic properties of mercury.** Through formal curricula taught in the classroom and through policies that restrict the purchase and use

of products that contain mercury, schools can deliver the message to adults and children alike about the hazards of mercury.

This case study about Bay Path Regional Vocational Technical High School in Charlton, Massachusetts is one example of how a high school has chosen to eliminate the use and future purchase of mercury-containing products. Mercury spilled in a school poses risks beyond those to the students and teachers in the room at the time of the incident. Other potential effects of mercury spilled in a school and not cleaned up properly and immediately include:

- it can be tracked to other parts of the school and even to homes on students' shoes, resulting in mercury exposure to individuals beyond the area of the spill
- it can costs thousands to hundreds of thousands of dollars to clean up, since it must be treated as a hazardous waste
- it may result in liability claims against the school if students are exposed

Bay Path is one school that has made the decision to protect the health of students, faculty and staff, the environment, and the school's budget by eliminating the use of mercury in classroom instruction and restricting the purchase of common products that contain mercury. We hope this case study will inspire other schools to do the same.



When the 14-member School Committee of Bay Path Regional Vocational Technical High School, located in Charlton, Massachusetts, voted unanimously to adopt a mercury-free purchasing resolution for the high school in June 2001, Business Manager John Lafleche was pleased. For several months, Mr. Lafleche had been championing the effort to rid the school of mercury in its vocational shops, science labs and health department, and to make Bay Path the first high school in the state to adopt a mercury-free purchasing policy. As the Business Manager, Lafleche will oversee the new policy requiring that the school buy only mercury-free products to the greatest extent possible.

“We really need consumers to drive the change (toward mercury-free products), and hopefully we are doing our part by not buying any more mercury products here at Bay Path,” he said.

The road to the School Committee’s adoption of the new policy began about eight months earlier, just after a presentation on the Right-to-Know law during a staff professional development day in the fall of 2000. John Alphin of the South Central Recycling Association of Massachusetts, Inc. (SCRAM), who gave the presentation, mentioned to Lafleche that a state-sponsored pilot program had been developed to assist schools who were interested in educating students, faculty and staff about the potential hazards of mercury; identifying and removing all mercury products from the school and replacing them with non-mercury alternatives; and adopting a policy of purchasing only mercury-free products wherever possible. Grant money provided by the Massachusetts Executive Office of Environmental

Affairs (EOEA) and the Department of Environmental Protection (DEP) was available to schools that were interested. It wasn’t long before Lafleche expressed Bay Path’s interest.



John Lafleche, Bay Path Business Manager, and John Alphin, SCRAM, in front of SCRAM's mercury display.

“Early on, we got a mercury spill kit, and as it turned out, we needed it within five or six weeks, when a thermometer broke in the health unit,” says Lafleche. “It could have been a big problem, but we knew what to do and were able to handle it properly.”

With the backing of the school’s Health and Safety Committee and the Superintendent Steven Mandoor, Lafleche enlisted the cooperation of the various vocational shop teachers in allowing a comprehensive assessment of the school for mercury-containing products. The assessment, conducted by Lafleche, John Alphin of SCRAM, Bay Path Building Superintendent Tony Fulginiti and Karen Thomas of the Northeast Waste Management Officials’ Association



(NEWMOA) who is implementing one of DEP's mercury pollution prevention pilot programs, collected the following mercury-containing items, which together contained approximately 10 pounds of mercury:

- 3 jars of elemental mercury
- 14 lab thermometers
- 26 fever thermometers, used in the health care assistance training unit
- 60 thermostats from the heating, ventilation and air conditioning (HVAC) lab
- 1 U-tube from the HVAC lab
- 1 gauge
- 587 used fluorescent lamps

Building Superintendent Fulginiti was responsible for managing the proper collection and storage of the collected items until they could be taken away for recycling. Fulginiti oversaw the careful collection of the individual items, their placement in a sealed 5-gallon container or cardboard box for the bulbs, and proper labeling of the containers in accordance with state universal and hazardous waste regulations. With the assistance of the state pilot program, Fulginiti contacted a company that recycles mercury and made arrangements for the containers to be picked up.

Lafleche cites two reasons why enlisting the support of the shop teachers and other staff at Bay Path was relatively easy. First, the state pilot program identified and purchased the non-mercury products to replace those that were removed during the assessment; for example, new electronic thermostats were purchased to replace the traditional mercury thermostats.

Second, in most cases, industries are moving away from using mercury-containing products, so the instructors felt it would benefit the students to learn about the new products. However, in one particular case, the HVAC instructor suggested keeping two older mercury thermostats in special containers so the students can look at them and learn to recognize and properly handle mercury thermostats when they come across them in their future jobs.

When initially discussing the resolution to restrict the purchase of mercury-containing products, the School Committee expressed concerns about whether such a policy might affect the quality of education and instruction the students would receive. Says Lafleche, "Once they found that the educational components weren't going to be compromised, they were comfortable with it."

The move toward mercury-free operations and instruction is just one part of a comprehensive environmental program that has developed at Bay Path. In the summer of 2001, the school underwent a major asbestos removal project, and plans are underway to connect the school to the municipal wastewater treatment plant, allowing for the dismantling of the school's own inadequate sewage treatment facility. Students and staff also are working on projects to prevent pollution of the school's water supply which comes from wells on the property.

"This (mercury) project fit very nicely into our larger environmental awareness program," said Lafleche.

"It's a good feeling to know that we are doing something to get mercury out of the environment."