



Interstate Water Report

THE NEWSLETTER OF NEIWPC - THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION

SPECIAL REPORT: KEEPING THE PLANTS IN GOOD HANDS

Maintaining a Well-Trained, High-Caliber Wastewater Workforce is Essential but No Small Challenge in Era of Tight Budgets, Increasingly Sophisticated Facilities, Underappreciation of Industry and Profession, and Graying of Staff

by Stephen Hochbrunn, NEIWPC

This in-depth article, which examines a critical yet often overlooked issue, is also available by itself in a Special Edition of IWR. Contact NEIWPC for a printed version or download a copy at our Web site (www.neiwpc.org).

For weeks this past summer, the Department of Public Works in Manchester, New Hampshire, ran ads for an opening at its wastewater treatment plant. But few candidates responded, and those who did, didn't fit the bill. Finally, the plant's chief operator traveled to another wastewater facility to attempt to convince an operator there to leave his job and take the position in Manchester. The operator eventually took the new job. But to Frank Thomas, head of Manchester's DPW and a NEIWPC Commissioner, the act of near-desperation was a sign of the wastewater industry's times. "It's becoming more of a problem to find qualified candidates," Thomas said. "What we're seeing is people are just not going into the wastewater field."

Thomas is hardly the only one who believes the supply of qualified wastewater workers isn't meeting the demand. Eric

Teittinen, who's managed complex wastewater treatment facilities for more than 30 years and now works for the environmental consulting firm Woodard and Curran, is unequivocal in his assessment of the situation. "There's



PHOTOS BY S. HOCHBRUNN, NEIWPC

A Kid by Comparison: Bob Protivansky may be 31 years old, but he's the youngest operator at the wastewater treatment plant in Rutland, Vermont. At treatment plants across the region, much of the staff is rapidly approaching retirement age, prompting the question: Who will fill their shoes?

CONTAMINATION CONCERNS

Spotlight on Perchlorate Amid Detections in Water Supplies

by Denise Springborg, NEIWPC

Over the last few years, the detection of perchlorate in drinking water supplies and its associated health effects have received growing attention. Perchlorate is used in propellant for rockets, missiles, and fireworks, and has several industrial uses in matches, flares, pyrotechnics, and explosives. So it makes sense that perchlorate contamination might occur in water sources near military bases, fireworks display areas, and blasting zones. And that is exactly where it has been found.

Data collected by EPA through 2004 indicate perchlorate detections in water supplies of over 40 states. If you live in New England, you may have heard about Massachusetts's move toward regulating perchlorate. Massachusetts began addressing perchlorate concerns after it was discovered in the Bourne Water District groundwater supply, located beneath the Massachusetts Military Reservation. However, unlike the situation in California, which was the first state to begin a regulatory standard setting process, perchlorate has only been detected in a handful of Massachusetts drinking water systems. And in most cases, a direct link between the source of contamination and water supply has not been established.

Perchlorate, like other contaminants, may or may not pose a concern to you. Perchlorate can interfere with iodide uptake by the thyroid gland, which may result in decreased production of thyroid hormones. These hormones are needed for prenatal and postnatal growth and development, as well as for normal metabolism and mental function in adults. For this reason, sensitive subpopulations (those considered at most risk) are pregnant and nursing women, children under 12, and people with untreated thyroid disorders. The general public is not considered at risk to very low levels of perchlorate.

But how low is a "very low" level? Scientists are currently reviewing health effects data to answer this question. While there are no federal or state drinking water standards for perchlorate, EPA and several states have recommended health advisory levels. EPA's draft health assessment report recommended a drinking water limit of 1 part per billion (ppb) for sensitive subpopulations. In January 2005, the National Academy of Sciences (NAS) released an assessment of the EPA draft report. NAS findings indicate that higher levels in

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definitely a shortage of skilled, trained people in the wastewater industry," Teittinen said. "There's no question about it."

The presence of such a shortage is perhaps the clearest sign that the long underappreciated wastewater treatment industry is entering a profoundly challenging era—where much is at stake. Consider the investment: More than \$113 billion in federal, state, and local monies have been spent building the nation's municipal wastewater treatment plants. Companies have also spent countless millions on industrial wastewater plants, which pretreat the waste generated by manufacturing facilities before sending it into the municipal system. The reward: Rivers that only 25 years ago ran black and foul are now clearer, cleaner, and less of a threat to public health. Swimmers frolic in lakes and bays that were once

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Executive Director
Ronald Poltak

Deputy Director
Susan Sullivan

Established by an Act of Congress in 1947, the New England Interstate Water Pollution Control Commission is a not-for-profit interstate agency that utilizes a variety of strategies to meet the water-related needs of its member states—Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. NEIWPCC coordinates activities and forums that encourage cooperation among the states, educates the public about key water issues, supports scientific research projects, trains environmental professionals, and provides overall leadership in water management and protection. While NEIWPCC's initial emphasis was on surface water protection, the Commission now also devotes substantial attention and resources to such matters as wetlands restoration, nonpoint source pollution, water allocation, and underground storage tanks.

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FROM THE EXECUTIVE DIRECTOR

THE BUDGET CUT THAT CUTS TOO DEEP



Congressional committees with jurisdiction on infrastructure and other water-related environmental issues will soon be making preliminary decisions on the U.S. Environmental Protection Agency's fiscal year 2006 budget. The Bush administration is seeking to cut EPA's budget by \$500 million (from \$8.1 billion to \$7.6 billion). The vast majority of this reduction would be accomplished by a proposed cut of approximately \$360 million to the Clean Water State Revolving Fund Program. The CWSRF Program provides low-interest loans for water pollution control projects, and is the program that states utilize to help local communities repair, replace and construct treatment plants. Since its creation in 1989, it has been the primary source of federal support for clean water infrastructure projects.

Studies by EPA, the Congressional Budget Office, the Government Accounting Office, and the Water Infrastructure Network estimate a water infrastructure gap exceeding \$300 billion over the next 20 years. However, if the CWSRF is funded at the administration's proposed level of \$730 million, NEIWPCC's member states would incur a \$68,623,800 reduction in funding from fiscal 2005 to 2006.

It is critical to gather as much information as possible to educate and, as necessary, defend the value of this program. Working with our governors, the states of the Northeast must work collaboratively to convince Congress and, hopefully the administration, of the importance of this program to the environment and to the achievement of the goals of the Clean Water Act.

The support and commitment of the governors will be vital to the success of this effort. But such support is by no means a sure thing. As there are serious cuts proposed across the width and breadth of state domestic programs, the governors could well have their attention focused on a variety of other important programs. They must be convinced of the need to commit time, effort, and political capital to reducing the cuts to the CWSRF. We at NEIWPCC intend to do all we can to obtain gubernatorial support for this cause.

Failing to replace the necessary funds would signal the beginning of the end for the CWSRF. While it's possible this may be the right approach to take in the long run, it is certainly premature to do so until a long-term, sustainable federal-state infrastructure funding partnership is established. Such a partnership could rely on innovative processes such as a trust fund, which for now exists only as a viable concept.

The proposed cut to the CWSRF cuts too deep, too soon. Communities and states have been left to wonder how they will possibly accomplish the many essential capital-intensive projects needed to improve the quality of our region's water resources and meet Clean Water Act mandates. With so much at stake, the time to work on a strategic coordinated response to the proposed reduction is now—before it's too late.

Sincerely,

Ronald Poltak
NEIWPCC Executive Director

NEW TOOL IN THE WORKS

NEIWPCC Collaborates with Penn State to Create Regional Watershed Model

by Becky Weidman, NEIWPCC

Work has begun on a new NEIWPCC project aimed at helping our member states more effectively implement their Nonpoint Source Pollution and Total Maximum Daily Load programs. In October 2004, EPA awarded NEIWPCC with an Assessment and Watershed Protection Program Grant to calibrate, for regional use, the Generalized Watershed Loading Function with an ArcView geographic information systems interface (better known by its acronym AVGWLFL). Dr. Barry Evans of Pennsylvania State University's Institutes of the Environment has already calibrated the model for Pennsylvania, and is partnering with NEIWPCC to calibrate it to track nonpoint source sediment and nutrient loads for watersheds in New England and New York State.

The AVGWLFL watershed scale model uses hydrology, land cover, soils, topography, weather, pollutant dis-

charges, and other critical watershed-related characteristics to model sediment and nutrient transport within a watershed. A watershed approach that addresses water quality problems is an essential component of states' Nonpoint Source and TMDL programs. A regional AVGWLFL model will provide them with a predictive tool to assist in the development of effective, comprehensive programs for watershed protection and management, while also encouraging the implementation of these programs on a regional, cross-boundary, watershed scale.

It is expected that the calibration of AVGWLFL will be completed by the fall of 2006.

Becky Weidman is a NEIWPCC Environmental Analyst and coordinator of our Nonpoint Source Workgroup. If you have any questions about this project, please contact her at rweidman@neiwpc.org

INTO THE WILD

Hatchery-Raised Sturgeon Set Free in Cleaner, Healthier Hudson River

by Stephen Hochbrunn, NEIWPC

Before New York Governor George Pataki helped release 89 Atlantic Sturgeon into the Hudson River, he gazed at the river and remembered what it was like when he was a boy, growing up on the family farm in Peekskill, N.Y. "When I was a kid, you'd look out at the river on a hot summer day, and it would look so inviting," he said. "But my parents would say, 'Don't even go near it.' It was just too polluted."

While the Hudson's condition is still far from perfect, intensive efforts to rid the river of pollution have resulted in a significant increase in water quality. To Pataki, the impending fish release was one more good sign. "It illustrates the tremendous progress we've made," he said.

The governor then joined the dozens of others who gathered at Haverstraw Bay County Park on September 29 to carry the sturgeon to their new home. The fish, some as large as four feet in length, ranged from six to ten years old and were the offspring of sturgeon collected from the river more than a decade ago. Until that day last fall, they'd spent their entire lives in captivity, swimming in the waters of a U.S. Fish and Wildlife Service hatchery

commonly sold as "Albany Beef." Sturgeon was so abundant that the fish were stacked like logs on the decks of sloops and steamboats bound for market. However, years of over-fishing culminated in a population decline in the Mid-Atlantic states in the late 1980s, and in 1998, the Atlantic Sturgeon fishery was closed throughout the East Coast.

Although over-fishing greatly reduced the Hudson's sturgeon population, evidence suggests that the river continues to support a small but viable wild Atlantic Sturgeon population. That's encouraging, but to those who work to protect and restore the river and its wildlife, it's not enough. The release of the 89 fish in September was the last in a series of releases last year that brought nearly 350 sturgeon, all from the USFWS hatchery in Lamar, into the Hudson.

New York's DEC and the USFWS initiated the project, but they emphasize it is not a pure "stocking" program. While the releases do increase the sturgeon population, the primary intent of the project is to research the habitat use, movement, homing instincts, and health of both wild and hatchery-raised immature Atlantic

information on the fish and its whereabouts. A number of the fish were also implanted with sonic tags, which emit a signal that allows those tracking the fish to identify their precise location.

"As we monitor the movements of the fish, we learn where their most important habitats are," said Gordon Colvin of NYS DEC's Bureau of Marine Resources. "We can then focus our habitat restoration efforts for sturgeon in those areas." Researchers are also keenly interested in learning where the sturgeon will return to spawn. Although the fish came from Hudson River parents, they were hatched and reared on a tributary of the Susquehanna. Nobody is quite sure which river they'll head for when it comes time to lay their eggs.

One thing is clear: No matter what is done to potentially increase the Hudson's sturgeon population, it will take time. Because it takes about 20 years for a female sturgeon to reach sexual maturity, biologists estimate it may take 40 years or more to re-establish enough mature sturgeon so that the species can withstand the resumption of a limited harvest in the

Hudson. Governor Pataki sounded willing to be patient.

"What we want to do is restore these fish so that these children who are here," he said, nodding toward the Cub Scouts, "can someday put in a fishing line or net and pull in one of these 900-pound fish and say, 'My God, this river is back where it should be.' I don't know if I'm going to be here in 40 years when that happens, but if I am, I want you to wheel me down, put me in a boat, and let me throw in a line."

Among those listening to the governor and helping carry the fish was Ben Cuppett, 5, son of the Hudson River Estuary Program's Scott Cuppett. Young Ben sounded every bit as confident as Pataki about the fish's future.

"I think the fish are going to do good out there," he said. Watching the fish swim briskly away from their human helpers and into the Hudson's current, it was hard to disagree. ♠



New York Governor George Pataki releasing a sturgeon at the Sept. 29 event.



NEIWPC's Amanda Cosman (left) and Rebecca Johnson get some help from a Cub Scout as they set a fish free.

on a tributary of the Susquehanna River in Lamar, Pennsylvania.

The fish were carefully taken out of the large, oxygenated tanks atop the truck that had transported them from the hatchery, and set into eager waiting arms. Sturgeon are ancient fish that have existed since the age of the dinosaurs, and those assisting with the release clearly relished the opportunity to carry such a legendary animal from the truck to the river's edge, to personally set the fish free on its way into the wild.

"It was pretty exhilarating," said Erin Crotty, Commissioner of New York's Department of Environmental Conservation at the time of the sturgeon release. (She left the post Feb. 2.) "They are extraordinary creatures."

Among the crowd assisting in the release were two dozen Cub Scouts and several NEIWPC staff members who work in New York State for the Hudson River Estuary Program. "It was amazing," said Rebecca Johnson, a NEIWPC Environmental Analyst. "I think the best part of the day was seeing the kids helping out, carrying the fish with big smiles on their faces."

Not long ago, the experience of carrying a sturgeon would hardly have been unique. Historically, the fish was a major food source in the Hudson Valley and was



Former NYS DEC Commissioner Erin Crotty carries a sturgeon to its new home.

Sturgeon in the Hudson. All of the hatchery fish, along with wild fish captured by DEC and NEIWPC staff, were outfitted with tags that request anyone who captures them incidentally to contact USFWS and provide

woefully and shamefully polluted. But to continue to protect these waters, to ensure that the massive investment in wastewater facilities continues to reap benefits, the plants must be in good hands. A competent, reliable workforce must be attained and maintained.

It won't be easy. While industry experts observe labor shortages, plants are becoming increasingly sophisticated, meaning wastewater workers need a much higher level of skills and knowledge. "Education and training have now become vastly more important," said Don Pottle, a private training consultant who developed and, for years, coordinated the wastewater treatment program at UMass-Lowell.

Where will the training come from? NEIWPCC and others offer important programs, but the federal government no longer plays any direct role in wastewater training, many states are reducing their involvement, and wastewater programs at community colleges have all but disappeared. All this while waves of workers at wastewater plants throughout New England and New York State prepare to head into retirement, creating more job openings, more need for qualified workers.

Long gone are the days when a dignitary's wayward nephew could be found running a town's plant because that's where he could be hidden and do the least harm. The industry has come a long, long way. But the story isn't over. And the next chapter may not be an easy read.

A REVEALING LOOK

A visit in September 2004 to the wastewater treatment plant in Rutland, Vt., revealed much about the workforce issues facing the industry. No road signs pointed to the facility, which lay behind worn barbed wire and ragged hedges on a road just off the main highway. In a large room filled with tables, chairs, several annoying flies, and 18 students, NEIWPCC's Chuck Conway conducted a two-day session entitled "Basic Wastewater Treatment with Applied Math." Conway kept the mood light as he posed tough math questions to the group.

"You guys work on the answers to numbers two and three. I'll show you how to do number one, the easy one," said Conway, NEIWPCC's manager of training operations. "When you get to my age, you have to get some gimmes."

The class chuckled, then listened as Conway performed his mathematical gyrations. Before joining NEIWPCC in 1998, Conway spent 28 years with the U.S. Environmental Protection Agency, and coordinated the development of its 104(g) program, which provides on-site technical support to operators at small publicly-owned wastewater treatment plants. (The name is derived from Section 104(g) of the Clean Water Act, which authorizes funding for the program.)

Conway's not surprised that many people aren't aware of the field, let alone the good job opportunities within it. "Look, even town officials sometimes don't have any idea of where their wastewater treatment plant is," Conway said. "This, despite it being probably the most expensive piece of municipal infrastructure. It costs more than schools, fire houses, or anything else."

Most young people are similarly unfamiliar with the wastewater field. Conway said his students are seldom young—in some cases, "they're almost as old as me," he joked. (He's 61.) At the Rutland class, though, two seats were taken by two indisputably young persons: Eddie Bartlett, 20, and A.J. Wright, 21. Both are working at wastewater treatment plants in Vermont, and said they're doing so in part because the work "runs in the family," as Bartlett put it.

Being young didn't hurt their job prospects either. Wright works at a small plant in Wilmington, and he said the managers there clearly wanted to add a fresher face. "They were looking for someone willing to stay for a

while," Wright said. "They wanted someone who was trainable."

The need for young, trainable talent is real. Visit any wastewater treatment plant in NEIWPCC's member states and you'll most likely find operators who grew up listening to Elvis, not Eminem. The majority of the plants were built or significantly upgraded shortly after the passage of the Clean Water Act in 1972, which required municipal wastewater treatment plants to provide increased secondary treatment of pollutants. The boom in construction led to a surge in hiring of people to run the plants.

Once on the job, many operators stayed. Several decades later, they're deciding it's time to go. "A lot of those folks hired to run plants in the 1970s and '80s are retiring, and there's not enough qualified people coming up to fill those vacancies," Woodard and Curran's Teittinen said.

According to a U.S. Department of Labor report, the median annual income of the top 10 percent of water and wastewater treatment plant operators exceeds \$52,000.

Even if they're not ready to retire, older workers may prefer the "old ways" and be less than enthusiastic about embracing and learning new computer-driven equipment. That's what Teittinen's firm encountered while looking into working with Lawrence, Mass., on upgrading its plant. "When we talked to the operators there, who'd been there for some 30 years, they were basically overwhelmed by the thought of the new technologies," Teittinen said. "I suspect what's going to happen is a lot of these people are going to say 'Hey, I'm going to transfer to the highway group' rather than be faced with upgrading their skills."

At the plant in Rutland, much of the workforce is going or has already gone gray, with one exception. Sitting in a break room across from the training room was Bob Protivansky, an assistant chief operator. He's been working at the facility for five years. At 31 years old, he's the plant's youngest operator. "He's the baby," said Gregg Casey, 56, a colleague of Protivansky's who was working with him that day.

Unlike Bartlett and Wright, Protivansky has no family connection to the industry. "When the city of Rutland hired me, I assumed I'd be a truck driver," he said. Instead Protivansky found himself working at the wastewater plant as a custodian, and he's been climbing the organizational ladder ever since. He seemed content, and for good reason. The benefits that come with a municipal job—the health insurance, overtime, holiday pay, etc.—have long been one of the major appeals of working in wastewater.

The pay isn't bad either. According to the U.S. Department of Labor's latest Occupational Outlook Handbook, the median annual earnings of water and liquid waste treatment plant and system operators were \$33,390 in 2002, with the highest 10 percent earning more than \$52,110. Of course, the handbook also states that operators "may be exposed to noise from machinery and to unpleasant odors." In Rutland, an acrid smell permeated even the classroom, and there was no escaping its presence when walking around the complex of tanks and channels flowing with murky brown, bubbling water. But operators say you get used to it, and they prefer to focus on the positives.

"They can't outsource these jobs. They would if they could, but they can't, so they won't," Casey said. No doubt, the job security is attractive—once hired, seldom

fired. And while the new technologically sophisticated equipment may be disliked by some veteran operators, it also further enhances job security—master a plant's SCADA (supervisory control and data acquisition) system and your shoes are that much harder to fill.

The complex equipment also means many plants can run on an automated basis overnight, meaning new employees are less likely to be stuck working overnight, one of the traditional drawbacks to the occupation among young people. "It's hard to raise a family while working a third shift," Casey said.

Despite the benefits of the job, the two Rutland operators understand it's not for everyone. And they, like so many other industry experts, claim there's a shortage in qualified workers. "Almost everybody else here was hired 19 years ago," Protivansky said. When asked whether the plant could possibly replace those older workers with current staff, Protivansky slowly shook his head from side to side. "We're going to have a problem here in six or seven years," he said.

MAKING THE GRADE (OR NOT)

Casey's concern stems in part from his awareness of the work—and study—that it takes to learn his trade and progress within the field. After the sudden increase in plant construction in the 1970s, all of NEIWPCC's member states developed wastewater operator certification programs. The programs require operators to pass rigorous exams and meet education and experience requirements to achieve various certification grades.

In Vermont, as in other states, individuals' grade levels have a direct bearing on what type of plant they can work at, what they can do at a facility, and how much they're paid for it. That's because the same scale that applies to operators applies to plants; facilities that treat a minimal flow of wastewater with simple processes are Grade 1s, while at the other end of the scale are Grade 5s—ultra-complex, high-flow plants. To be a chief operator at a facility, you must have the same level license as the grade of the facility. In other words, unless you have a Grade 3 certificate, you can't run the show at a Grade 3 plant.

The process helps ensure plants are in qualified hands. It also means that those aspiring to enter the field, or climb within it, must be willing to hit the books, put in the hours at a plant, and be patient. Nobody becomes a plant manager overnight. Protivansky has his Grade 3 license, but he'll need a Grade 5 before he can be a chief operator in Rutland, a Grade 5 plant. As for Bartlett and Wright—the young students in Conway's class—they were already certified in Vermont as Grade 1 operators, and were taking Conway's class to prepare for the exam for Grade 2, the next step up the certification ladder. They didn't like their chances.

"Neither of us passed the first time we took the Grade 1 exam," Wright said. "My boss basically says 'We're going to send you to the exam, but we know you're probably not going to pass. We're sending you so you can get a handle on what you need to know.'"

This expectation of failure is not surprising when you look at wastewater exam passing rates. Consider the case in Massachusetts, where NEIWPCC recently assumed responsibility for conducting the tests. The exams are held twice a year, with ten different tests being offered. (In grades 1-4, municipal and industrial operators take separate tests, while in grades 5-6, there is one combined exam for both.) In November 2004, a total of 452 people took the tests, with 201 passing or 49 percent. In May 2004, the overall passing rate was slightly lower—48 percent. A law school with that kind of passing rate on bar exams would be in deep trouble. Massachusetts officials say they aren't worried.

"We've always been in and around 50 percent," said Tom Bienkiewicz, an environmental engineer with

the Massachusetts Department of Environmental Protection and executive secretary to the state's Board of Certification of Wastewater Treatment Plant Operators. "Usually on the lower levels we do see a good passing rate. It's when they get to the higher levels, things change."

An analysis of recent results in Massachusetts shows that Bienkiewicz is right on both counts (see chart). Typically, about half the people who take the exams pass, and often—though not always—the passing rate drops as operators tackle the tougher tests at higher grades.

"The exams are very challenging," said Don Pottle, who not only started the UMass-Lowell wastewater program, but was also on the committee that put together Massachusetts's certification program in 1974. "Yes, the questions are multiple choice, but they are not easy. For a person coming in off the street with just a high school degree, or even with a college degree, and not having specific training, the chances of passing are very low."

For an industry in need of qualified help, though, the low passing rate in Massachusetts and in other states cannot be seen as a good sign—unless you assume that the people who aren't passing are those who would be better off not entering the field at all or at least not progressing beyond their current grade. True, some may be taking the same approach as Wright—taking an exam to find out what to know for the next time. But is that efficient? There's a fee for each exam, and whoever's picking up the tab would probably rather not pay for repeat performances.

Industry experts insist the low passing rate is not an indication of the caliber of people that the field attracts. "Certification did two things," Pottle said. "It greatly enhanced the job of working at a treatment plant and at the same time the salary went up dramatically. It is no longer looked on with disfavor to work at a wastewater treatment plant. It takes a dedicated, skilled person to understand the complexities and nuances." Others point out that, because it's such an unusual field to get into—even bizarre, as one put it—only a person very committed to it would even try.

If that's the case, why did five of the seven people who took Massachusetts's Grade 1 exam in November fail to pass? Tom Bienkiewicz is hardly losing sleep searching for the answer. But when asked how to raise the passing rate, without making the exams any easier, he offered a simple, plainspoken observation. "I think additional training opportunities for operators are a big need." Few would disagree.

NEW ERA, NEW NEED

Not long ago, anyone looking for training in wastewater treatment could turn to federal and state government-sponsored programs that emerged after the passing of the Clean Water Act in 1972. In one of the more significant and symbolic government investments in wastewater training, EPA provided funds for the construction of state training centers, including \$2.5 million for centers in five New England states. Courses offered at the centers, some of which were built at existing treatment plants, include everything from basic entry-level training to advanced lab analysis. But many centers, including those in Connecticut, Maine, and Vermont, have been closed by cash-strapped states that perceive more urgent priorities. In Massachusetts, courses continue to be held at the training center in Milbury, but only because it's now being run by the Upper Blackstone Water Pollution Abatement District in Milbury; the state no longer provides any support. Even in those states that continue to operate the centers, such as New Hampshire, the money for programs is limited.

Massachusetts Wastewater Operator Exams Percentage Passing Rates

	May 2003	Nov. 2003	May 2004	Nov. 2004
Grade 2 – Municipal	60	81	42	74
Grade 4 – Municipal	59	72	44	43
Grade 6 – Combined (Industrial and Municipal)	28	27	34	40
All Grades	51	54	48	49

"We try to keep it cheap, and we use a lot of volunteers," said George Neill, head of the operations section at the N.H. Department of Environmental Services' Wastewater Engineering Bureau. "For example, we'll find engineers who are willing to lead training sessions for free, because it helps them meet their training credit requirements. If it's a five-hour course they're leading, we'll give them ten hours worth of training credits to do it, as a little incentive." (This practice of doubling trainers' credits is actually common in many professions; it's assumed that trainers put in at least as many hours preparing for a class as they do in conducting it.)

But volunteer help and cost-cutting measures are not always enough, and states increasingly are pulling out of the training game. Connecticut hasn't offered training courses for years, and has long since closed the doors on its exemplary and much-envied training center in Bethany. In Vermont, the Department of Environmental Conservation no longer offers classroom training for operators. In Maine, the Joint Environmental Training Coordinating Committee (JETCC), which coordinates wastewater training throughout the state, was cut completely out of last year's Department of Environmental Protection budget; only aggressive lobbying by the wastewater community and several DEP employees allowed JETCC to receive monies from the state's general fund, although the amount was just 25 percent of the previous year's allotment. And in January 2004, Massachusetts began shifting its wastewater operator certification and training program to a NEIWPCC-led consortium of training organizations. By July 2005, the consortium will be running the program without any assistance from state staff.

Wastewater programs are disappearing at community colleges. "For somebody who wants to get started in the field and get a certificate or an associate's degree in New England, there is not much opportunity."

KIRK LAFLIN, PARTNERSHIP FOR
ENVIRONMENTAL TECHNOLOGY EDUCATION

The trend is also seen at the federal level. EPA's once vast Operations and Maintenance Program, which worked to build and support a comprehensive training capability within states, has all but vanished. EPA continues to fund its 104(g) technical assistance program, which provides states with monies used to pay for personnel to visit small plants and provide on-site technical advice to operators on how to run their facilities more effectively and efficiently. But even those monies have been shrinking.

Twenty years ago, EPA's Region 1 (New England) received \$360,000 in 104(g) funds. Ten years ago, the funding dropped to \$225,000. It now stands at \$141,000. "The funding used to help pay for one full-time employee [in each New England state], but not anymore," said David Chin, EPA Region 1's 104(g) coordinator. "Unfortunately, the funding has dwindled over the years."

There are, of course, some exceptions to the trend. The Northeast Rural Water Association, which provides training and other support services to smaller water and wastewater systems in Massachusetts, New Hampshire, and Vermont, reports an increase in federal support that's allowed it to approximately double its course offerings over the past three years. But the overall drop in government support is a growing concern for NEIWPCC's Chuck Conway.

"State and federal assistance for wastewater training and plants in general is less now than it was when the Clean Water Act was enacted in 1972," Conway said. "This is happening while the need to provide a support system for operators is probably greater than ever."

EPA does indirectly support training in New England and New York State, because a fair share of its general grant to NEIWPCC goes to support the programs offered by NEIWPCC's Environmental Training Center. The Center offers a diverse array of courses every spring and fall, ranging from one-day classes on specific topics, such as "Biological Nutrient Removal," to multi-day courses on basic wastewater treatment operation.

In fact, looking at the array of courses offered by NEIWPCC and other organizations such as Northeast Rural Water, you couldn't be blamed for concluding that the reduction in government involvement hasn't reduced the training options. Operators can even opt for the growing amount of training being offered by for-profit consulting and engineering enterprises (although these firms tend to be motivated in part by the opportunity to expose a captive audience to the value of their products and services).

But many industry experts say it's not enough—at least not enough of the kind of training desperately needed by an industry in need of fresh talent.

"I'm not discounting the training that NEIWPCC and others offer or anything like that," said Kirk Laflin, executive director of the Partnership for Environmental Technology Education (PETE) in South Portland, Maine. "It's just that, for somebody who wants to get started in the field and get a certificate or an associate's degree in New England, there is not much opportunity. We're missing that baseline—those baseline programs that provide the general science, some of the math, and the general wastewater background. Right now, you have facilities that, if they want to replace operators, often have to hire untrained people and then the communities bear the burden of trying to identify where and how they're going to get training for them. In five to 10 years, we are

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going to lose a big number of operators to retirement—and we're going to have a problem.”

CLASS CANCELLED

A number of community colleges in NEIWPC's member states have traditionally offered wastewater programs leading to certificates or Associate in Science degrees. But it's a tradition that's dying. The program at Southern Maine Community College—gone. The same goes for the programs at the Community College of Rhode Island, New Hampshire Community Technical College at Berlin/Laconia, and Tunxis Community College in Farmington, Conn.

Since most community colleges are heavily subsidized by state funds, they've felt the squeeze from state budget woes. All programs have been examined to determine whether enrollment justifies existence, and wastewater programs, more often than not, have fared poorly under the scrutiny.

“We were limping along for several years in terms of trying to get enrollments, to get maybe 12 students in these courses to break even,” said Dr. Karen Wosczyzna-Birch, who developed and coordinated the program at Tunxis. “And it just seemed like we could never pull enough together.”

At the community college in Berlin, N.H., Professor Sheldon Towne once had as many as 16 freshmen in his water and wastewater program. In the early 1990s, the program's enrollment of full-time students began to fall, forcing Towne to start offering night classes at locations throughout the state in an effort to keep the program alive. That worked—for a while.

“I figured, ‘Hey, if I can fill the program up with part-timers, as long as the revenue is the same as full-time students, the program will be OK,’” Towne said. “But the officials looked and said, ‘If you don't have eight full-time or equivalent students, it's not financially viable. The program's gone.’”

“I just wish they'd hung on and weathered this slowdown to see if it picked up again. Enrollment is real cyclic, and we were in a down cycle,” Towne said. “I have a file full of letters from operators, superintendents, people from the Department of Environmental Services, people from New Hampshire Water Works, all saying ‘We need this program, we've got to have it.’ I even talked to the governor. I agreed to move the program to Manchester, where there are so many more people and potential students. But it made no difference in the decision.”

In speaking with coordinators of community college wastewater programs, it became clear that building a program is just the first step. Effective recruitment that emphasizes the positive aspects of the industry is critical, because students, like most everybody else, seldom think about working in wastewater.

“The problem is the field is underappreciated,” says Manchester's Frank Thomas. “Once you flush the toilet, nobody worries about what happens to it.”

When people, especially young people, do think about working in the industry, their natural response is usually negative. “In the summer, I work with a high school program to get kids interested ultimately in teaching math and science, but they also look at other careers,” said Tunxis's Wosczyzna-Birch. “One place we always visit is a wastewater treatment plant, and they say it smells and just don't like the idea of it. We're trying to get them to look at it as a career option, and they right away turn up their noses. They don't understand that if you do it right with the technology, you shouldn't have an odor problem. They truly, truly have a perception that it's not something they want to do.”

Overcoming this perception—or misperception—is one of the keys to attracting new people to the field.

But understaffed, overworked community college recruiting departments aren't likely to be saviors. “The people that go out recruiting don't know anything about it,” said Berlin's Towne. “They get that sneer in their voice when they talk about wastewater treatment.”

In some people's minds, the true savior of basic wastewater education may be the innovation that has helped so many businesses cut overhead dramatically—the Internet.

ONLINE OPTIONS

“I think what we'll see in the future is a blend of academic programs at community colleges and online instruction,” said Laflin, PETE's executive director. “What I am looking at is, in some cases, a blended program. You'll go to college in the wastewater area and maybe 20 or 30 percent of the courses are offered right there at the campus. The rest are all delivered online from different parts of the country, and it will be seamless. You won't even know where they come from.”

This prediction is already coming true in some parts of the country. Kirkwood Community College in Cedar Rapids, Iowa, began offering water and wastewater classes just four years ago, but already more than 2,400 students from around the nation have taken its online courses. Kirkwood attracts students partly by advertising in trade magazines, but it's also established training partnerships with other community colleges and educational institutions. Kirkwood's main partner is the University of Florida's Center for Training, Research and Education for Environmental Occupations. The TREEO Center provides its students with Kirkwood's Internet-based, technologically sophisticated courses, then sends them to local sessions to learn about state-specific regulations.

“Colleges can supplement an existing general education coursework and drop in these Internet classes at little or no expense to the school,” said Doug Elam, program manager of Kirkwood's Environment Technology Online program. “It's a way to keep a program viable.”

“I'm learning from a guy who's been in the field longer than I've been alive.”

EDDIE BARTLETT, 20, A VERMONT OPERATOR WHO ATTENDED NEIWPC'S TRAINING SESSION IN RUTLAND

Kirkwood itself has kept costs low, since it didn't even develop the wastewater course content that it offers. The college provides the online instruction developed and distributed by the Office of Water Programs at California State University, Sacramento, which has its own successful Internet-based operation utilizing material from its popular operations manuals. (If you take the courses directly from CSU Sacramento, however, you don't earn community college credits, as you do if you take the classes through Kirkwood.)

Other online educational alternatives exist and appear to be growing in popularity—a fact that worries some wastewater training veterans.

“When the Sacramento manuals first came out, pilot programs were conducted throughout the country to see how well people did taking the courses on their own,” Don Pottle said. “It became fairly clear, at least in New England, that people are not generally motivated enough to do it. They are much more successful when they can sit in a classroom, with an instructor, away from a work site with a competent instructor.”

Pottle feels online training is helpful for keeping up with new technologies and for allowing those in remote areas to get the education they couldn't get otherwise. But his feelings about the greater value of in-person

training are hardly unique. At the class in Rutland, Eddie Bartlett said he'd driven a long way to get there—and it was worth it.

“You pick up a lot from your bosses,” he said. “But it's amazing how much this training helps. I'm learning from a guy who's been in the field longer than I've been alive.”

Watching Eddie and the other students during breaks in the class pointed to another benefit of convening in a classroom rather than online—informal information exchange. Aside from a passion for the Boston Red Sox, the one thing they all had in common was wastewater work, so they talked about it. They talked about their jobs, about the different way they did things. They learned from each other. And when they returned to the class, Conway was there, lecturing at times but also working with small groups with specific needs or working one-on-one with students stuck on thorny questions.

Online training has its place, and may in fact be the savior for community colleges struggling to provide the basic education that industry experts such as Laflin say is lacking and so necessary. But the in-person version has its own merits, especially for operators who've moved beyond the basics and need higher level training to advance in the field and fill the void left by retiring upper level operators and managers. The issue is: How best to provide it?

TRAINING STATES: THE GRANITE STATE'S WAY

In conversations with industry veterans, one state in the region tends to get high marks for its approach to wastewater training—New Hampshire. By utilizing funding from a variety of sources (including the Clean Water State Revolving Fund, through which EPA grants low-interest loans to states for wastewater construction projects), the state has maintained effective training programs, visiting facilities directly and also offering 10-15 courses every spring and fall. The state continues to operate its training center in Franklin, where NEIWPC frequently conducts courses.

New Hampshire gets praise for developing the entire content of its wastewater exams, which require operators to not only pick the right answers on math questions but also show their work. State staff and industry experts regularly scrutinize the exams and modify them to reflect changing needs for knowledge. Most other states utilize the standard exams developed by the Association of Boards of Certification, and customize them by adding a small number of state-specific questions.

New Hampshire also earns plaudits for the unusually close, cooperative relationship between staff at the Department of Environmental Services and the New Hampshire Water Pollution Control Association, which represents wastewater operators, engineers, equipment suppliers, and others involved in the industry. When state staff, for example, conduct their annual sessions with science teachers to enlighten them about the technical and scientific aspects of wastewater treatment (with the hopes that the teachers will in turn enlighten their students), it is the association that pays for the expensive test kits used by the teachers. The association also has an education committee, which meets twice a year to discuss training needs. The committee includes George Neill, who oversees the state's training efforts as head of the operations section of New Hampshire's Wastewater Engineering Bureau.

“When I first cut my teeth in this business, my boss at the time—who had the job I have now—was very involved with the association,” Neill said. “I just grew up seeing how they cooperated and encouraged training. It just worked well.”

Neill is not immune to the fiscal pressures faced by all government agencies. At one time, he had eight people on his staff; he now has four. But Neill said he feels lucky to have that many, and emphasized that he and his staff, no matter how many they number, will always maintain an open door to facilities and operators in need of help.

"I don't see that happening in a lot of other states," he said. "It's more 'us versus them.' Here, if someone wants to come in and review their exam after they've failed, we'll sit down with them and go over where they went wrong." In Neill's mind, it is far more efficient to show operators the right way to do things rather than to punish a person whose wrong practices have led to non-compliance with environmental regulations.

"I could educate 30 people in the time it takes to chase after one bozo," he said. "We keep our compliance people bored—or at least we try to."

The collaborative spirit in New Hampshire on wastewater training extends to the state's cities and towns as well. Almost every municipality pays the fees for their operators to attend training sessions. More than a few also pay their operators' association dues. "Good training in the long run saves everybody time and money," Neill said.

TRAINING STATES: OTHER APPROACHES

Look east from New Hampshire and you'll find another example of the benefits of collaboration. In the early 1980s, members of Maine's wastewater community—operators, state staff, engineers, and consultants—saw the need for a more extensive, unified training effort. Working together, they succeeded in getting state backing and funding for the creation of JETCC, which was established in 1985. JETCC, which is managed by NEIWPCC, conducts regular meetings of the state's wastewater experts to determine training needs and then coordinates courses designed to deliver the necessary education.

Operating out of a small office in South Portland, JETCC's tiny staff keeps costs low by turning for help from those who have a stake in maintaining a well-trained workforce. State environmental employees, municipal facilities, even private companies pitch in.

"We have a strong network of volunteers who give us the ideas, help develop the agendas and topics, and actually do the work out in the field—working in their communities to get us training sites and carrying out the teaching and instruction," said Leeann Hanson, JETCC's coordinator.

The system is working, and has worked for 20 years. But volunteers can't help even a low-cost operation cover all its expenses, and JETCC's annual struggles for state funding illustrate the precariousness of its existence. Still, it survives. Is it a coincidence that the two states—Maine and New Hampshire—in which collaboration has played a major part in the success of a training effort are also lightly populated, by Northeast standards, and free of the influence of powerful unions found in large urban centers? Probably not, according to Hanson.

"I think JETCC has been a really successful model for doing a lot with limited resources," she said. "But the key has always been that grassroots support. People feel a part of this, and know their contributions, however small, make a difference. It would be harder to do in a more populous, larger area where people don't have that identification with the group."

In far more densely populated Massachusetts, the decision to turn the state's wastewater training program over to the NEIWPCC-led consortium has put the state on a fresh collaborative track. Organizations involved in the consortium include the New England Water

Environment Association, Massachusetts Water Pollution Control Association, Northeast Rural Water Association, and the former operator of the program—the state's Department of Environmental Protection. Early results are encouraging.

"We've actually been able to maintain the quality of the programs while bringing in new courses and instructors," said Tom Groves, NEIWPCC's Director of Wastewater and Onsite Programs. "We're also increasing the number of courses being held throughout the state while maintaining the core courses at the training center in Milbury."

In New Hampshire, the emphasis is on education, not enforcement. "I could educate 30 people in the time it takes to chase after one bozo."

GEORGE NEILL, NEW HAMPSHIRE DES

Placing responsibility for a state's training efforts with an organization outside the state government apparatus means the coordinators can do their job on a daily basis free of influence from the shifting political and fiscal winds that can buffet priorities; a state program is inherently sensitive to signals from above that may indicate, for example, a preference for enforcement over education. The breaking of the embryonic cord to state funds also leads to a more independent budgeting mindset. Groves hopes to have the Massachusetts program entirely self-sustaining through course and certification fees.

The Massachusetts model may, in time, prove to be one that other states can follow. Connecticut's approach is another option. It boasts a wastewater licensing program with particularly strict requirements for training, but the state has long since relinquished any role in providing training courses. Fair?

"I don't know that there is a fairness issue here at all," said Rowland Denny, senior sanitary engineer with Connecticut's Bureau of Water Management and a long-time member of the state's Wastewater Operators Certification Advisory Committee. "There are many other professions that require training, and the state doesn't pay a dime for it."

Denny added, however, that the state is now considering funding *some* portion of *some* courses. But he strongly defended his state's stringent licensing approach enacted four years ago that has been criticized in some corners for setting the bar too high and preventing newcomers from joining the state's wastewater workforce. The March 2001 Connecticut Wastewater Operator Certification Guidelines contain very clear educational and experience requirements to even *sit* for each of the four levels of exams. For example, the guidelines state that the minimum experience requirement to take the Grade 1 exam in Connecticut is one year in the operation of a Grade 1 or higher wastewater plant (with no substitution of education for experience).

To many, that sounds like the proverbial Catch-22: If you're a career changer and need at least a Grade 1 license to get a decent job, you can't get the job until you have the experience to take the exam that allows you to get the license, and you can't get the experience that allows you to take the exam until you get the job. Denny said it's not quite so restrictive; he said plant employees can be designated as operators-in-training and take an exam before meeting the experience requirement. If they pass, they are awarded their certificate after verifying they've put in the necessary hours at their plant. But the

guidelines, as printed, are not terribly clear on the matter, and it's not hard to imagine a prospective industry entrant being confused and even deterred by the seemingly rigid requirements.

Massachusetts DEP's Tom Bienkiewicz feels his neighboring state has taken the wrong approach. "Connecticut is almost like a closed shop," he said. "In Massachusetts, we have a multiple-entry system, where you can come into the field at almost any level as long as you pass the exam. But in states where you have a sequential approach—where after you get your Grade 1 license, you have to work so long before taking your Grade 2 exam, and then if you pass, work so long before taking your Grade 3—it controls the availability of operators."

While some states do require that exams be taken in sequence, Denny clarified that, in Connecticut, you actually *can* take up to the Grade 3 exam, without having taken a lower level exam first. And he emphasized that the main change in the new guidelines was an increase in the education required to take the Grade 1 and Grade 2 exams—a decision he vehemently supports. "We have seen time and time again where people with limited education have trouble passing exams," he said. "It behooves them to get the required education in place so they can pass the exam. Otherwise, it costs them \$190 each time they fail. If people honestly want to get into the field, they can do it. There's no doubt in my mind they can get it done."

CONTINUING EDUCATION?

However the training's provided, there's no dispute within the industry about the absolute necessity of it for educating newcomers or those wishing to advance within the field. There's less consensus about the value of the common practice of requiring certified wastewater operators to take additional training to simply maintain their license at their existing grade level. Go to almost any wastewater class in the region, and a number of the students will be there not because they want to be, but because they *have* to be.

"I'm here to get the credits," said Wally Allen, 45, a student in Conway's class in Rutland. Allen has a Grade 1 wastewater certificate, which he had to get to do his job at the Shelburne Farms environmental education center in Shelburne, Vt. But like all of the state's wastewater certificates, it's only good for five years. It can be renewed at the end of the five-year period, but only if Allen can provide evidence to the state that he's completed at least 20 training contact hours of courses, short courses, or seminars related to wastewater treatment and approved by the state for credit. Advocates of such programs say it's not a lot to ask. With a value of 12 hours, the two-day Rutland class alone got Allen more than halfway to his goal.

Virtually all of NEIWPCC's member states have programs similar to Vermont's, which the states developed to help ensure that operators keep their skills sharp and stay on top of changes in technology, processes, and safety issues. They are laudable goals, but not everyone is convinced the programs achieve them.

In Rhode Island, the regulations of the state's Board of Certification of Operators of Wastewater Facilities include language authorizing the operation of such a program, but with the provision that the board will decide if and when to start one. The board has yet to decide the time is right.

"We have to make sure that what we do is done so that it's actually working and people are getting something out of it," said Bill Patenaude, a principal engineer with Rhode Island's Department of Environmental Management and the chair of the certification board. "I've been to enough training sessions where you see operators come in, sign in, and walk out. There's no information

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transfer. I'm also not comfortable with somebody taking the same course every two years and having it count."

Patenaude's desire to carefully consider what he's getting into is understandable, particularly so right now. With most states playing less of a role in training or no role at all, other organizations, including private firms, have increased their offerings of courses that operators can take to earn training contact hours. According to Jon Jewett, a former trainer with Vermont's Department of Environmental Conservation who now leads courses for NEIWPC, the result has been fewer directly relevant, technically demanding courses such as "Activated Sludge with Math" and more computer classes and other "feel good" training, as he calls it.

"Operators go to these classes, they get their training hours, but they're not really advancing themselves professionally or taking courses that might help them keep their facility in compliance," Jewett said. "When we wrote Vermont's certification rules in 1984, we said that at least 75 percent of the required training had to be in the field of wastewater treatment. But these days, [state officials] feel that good training is limited enough, they'll approve any training that operators take."

That's a charge that strikes at the very validity of the system—if the courses don't help, why bother? To be fair, it must be pointed out that NEIWPC and the majority of other training providers have established systems to ensure that students who leave a class early don't get credit for the contact hours, and they've worked arduously to develop courses that deliver necessary knowledge. "We certainly stand behind all the training we offer as being valuable and well done," said Northeast Rural Water's executive director Michael Wood-Lewis.

And in Vermont, Paul Olander, the head of the state's operator certification program, said Jewett—his friend and former colleague at Vermont's DEC—is guilty of a little exaggeration. Olander determines which training classes are approved for credit, and he pointed out several recent examples of courses for which he denied approval. Still, he conceded that Jewett's overall point has some legitimacy.

"I don't think we see a lot of operators that take just fluff courses, but there are some," Olander said. It's his view, however, that operators aren't always looking for the easy way out; sometimes, he said, they take less demanding courses because they cost less than a more technical class and their plant's training budget is limited. He also said he sees value in some of the softer classes.

"We approve first aid/CPR courses, for example, because of the hazards involved with these jobs," Olander said. "Blueprint reading is also important. But is it more important than getting a good activated sludge class? Well, some of these guys could really use an activated sludge class much more than blueprint reading. So I want to see them attend both. There needs to be a balance."

In an effort to ensure that balance, Olander is seeking to have Vermont's certification rules rewritten to stipulate the minimum amount of technical wastewater courses that operators must take to meet their license renewal requirements. The new rules would also require more training overall.

But even if the rules are changed, the fact remains that no current training organization has the resources to screen all course enrollees to make sure they need what they've signed up for. Courses such as "Intermediate Microsoft Access" need to be offered, particularly for aspiring managers, but there are no guarantees that the class won't include an operator getting credit for learning skills he'll never use and quickly forget.

It's an imperfect system, to be certain. And in Rhode Island, the board of certification has concerns

beyond the actual value of some of the classes that operators can take to get their required contact hours. Will communities, many already in a cash crunch, have to pay overtime to an employee covering for a colleague away at a training session? Will operators have to pay high course fees? (Rhode Island currently subsidizes classes so operators pay just \$25 for a NEIWPC training session; Patenaude warns that level of subsidy couldn't continue in an expanded mandatory program.) How will the state's already limited wastewater staff find the time and resources to oversee a significant new undertaking?

They are legitimate questions that other states have had to confront. Most, in the end, have found the benefits of requiring continuing education outweigh any burdens imposed by the program and any inherent limitations. Whether Patenaude and his board colleagues ultimately reach the same conclusion may be irrelevant, as proponents of retraining in Rhode Island are expected to finally succeed this year in their efforts to get state lawmakers to pass legislation forcing the board to initiate a program. It's the only solution, the program's advocates say, to a palatable problem.



Passing on the Knowledge: NEIWPC's Chuck Conway helps Eddie Bartlett, 20, work through a complicated math problem during NEIWPC's training session on Sept. 28-29, 2004, in Rutland, Vt.

"When wastewater operators first start their job, they are adequately trained, but as time goes on, I think they get very lax," said Joe LaPlante of the Narragansett Bay Commission. "I also think the plants' management gets lax in trying to retrain them. We're simply trying to get a very well-trained professional workforce. That's the bottom line of what we're trying to do."

NEXT STEPS

What LaPlante wants—a very well-trained professional workforce—is what all of NEIWPC's member states need. But having such a workforce in place when the next decade begins is far from a certainty in the current environment.

During many conversations over the past few months, industry experts offered suggestions and possible solutions to the problem. Most suggested minor tweaks to existing systems. Massachusetts DEP's Tom Bienkiewicz would like to see the state's lower level certification exams offered more than twice a year, and to allow students in basic courses to take an exam right after the class is finished, as NEIWPC frequently does. "We need to make it easier for the lower level folks to come into the system," Bienkiewicz said.

Others would like to see a change in the union rules that govern hiring in big cities such as New York and Hartford. Those rules can require plants to hire peo-

ple based not on experience or education, but rather their union status. A plant with a job opening may have to bypass applicants with extensive wastewater training in favor of a plumber with no wastewater background but with something the others don't have—a union card. Changing the entrenched rules of powerful unions takes time, however, if it can happen at all.

One idea drew unanimous support—more publicity. More people need to know about the need for good operators and about the positive aspects of the job. In 2003, NEIWPC and the New England Water Environment Association led an effort to create a brochure that folded out into a poster and encouraged readers to be "Be a Water Quality Professional." It conveyed the rewards of being an operator and the wide range of skills that plants are looking for, and it drew praise and heavy demand. NEIWPC went to a second printing after quickly distributing the initial run to a variety of organizations, including the region's wastewater associations, who were partners in the effort.

NEIWPC also works each summer with the wastewater treatment plant in Lowell, Mass., to conduct a

"Youth and the Environment" program, which introduces disadvantaged inner-city high school students to opportunities in the field (see article on next page). The success of these efforts only increases the call for more. Industry experts talked about the need for a greater presence at job fairs and career events. "The wastewater industry has got to do a better job promoting itself," said PETE's Kirk Laflin.

A little help from Washington wouldn't hurt either. In a move aimed at increasing the talent flow into the field, Laflin and PETE have taken their case directly to the U.S.

Department of Labor. They've asked the department to fund a demonstration project that already has the backing of Maine's congressional delegation and its Department of Environmental Protection. The project would include pilot testing of online wastewater training as well as an assessment in New England to determine the status of the wastewater workforce and what the employment needs will be in the coming years.

If, as Laflin expects, the assessment were to show the needs to be great, he'll ask for funding to conduct the same survey nationwide. The ultimate goal of the process is to get the Labor Department's career centers to recognize wastewater treatment operation as a "high need job." That recognition would free up a whole new source of government funds to be used to provide wastewater training and job-hunting assistance for displaced or otherwise unemployed workers. The Labor Department has yet to comment on the proposal, other than to say it's under review.

Another idea under consideration at the Labor Department comes from NEIWPC, which has asked the department's Office of Youth Programs and Job Corps in Boston to consider partnering with NEIWPC to establish and administer a wastewater operator training program that would be offered through the Job Corps branches in the region. Like Laflin's proposal, the idea is to bring the jobs and the training to people who need the

work. And as with Laflin's proposal, there's no indication yet whether the Labor Department will back the plan.

"There are so many pluses to the field, and the only negative is the perception of the job that people have. We don't work in sewage. It's much more scientific and professional."

BOB PARISEAU, AMHERST (MASS.) DPW

While programs designed to bring new people into the profession are understandably a top priority, some experts caution against the danger of overlooking the training needs of those operators who've climbed the organizational ladder to new and unfamiliar heights. "Management training is very important," said Woodard and Curran's Eric Teittinen. "It's very often that you have a very competent technical operator or maintenance person who all of a sudden finds himself promoted to a point where he has to manage people and he or she doesn't like it or doesn't do it well. It becomes a problem."

Those on the top rung of the ladder not only must manage subordinates, they must also manage the delicate process of securing support for the plant from city and town officials. With limited federal and state funding available for treatment plant operation and maintenance, almost the entire financial burden falls on municipalities—and it's the plant managers who must convince them to provide the necessary resources.

"Managers at treatment plants have to be more skilled these days," NEIWPC's Conway said. "And training at the management level is something that we could significantly improve."

GOOD HELP WANTED

The growing need for qualified help and sufficient, effective training at all levels is a pressing issue not just for municipal wastewater treatment plants, but also their industrial counterparts. Some industry experts say the demand for skilled operators may be even greater on the industrial side, where the plants may be smaller but no less advanced technologically.

"It's an effort for us to keep people trained to the level we require," said Randy Boles, who manages a wastewater facility in Bedford, Mass., for Millipore, a maker of membrane filters used by pharmaceutical companies. "They have to have the experience that the regulations require, but that's only part of it. The second thing is, do they have enough hands-on experience? Can they actually do the job? You can't just hire anybody. You have to hire someone who has very specific skills."

Boles said that, 15 years ago, he would have hired somebody with a high school degree and a wastewater license. Not anymore.

"I think they need at least an associate's degree," Boles said. "In fact, our operator right now has a bachelor's degree in chemistry."

Wastewater industry boosters point out that being an operator anywhere these days is more about chemistry and computers than about doing society's dirty work. But you can't escape the fact that it's wastewater. Today's kids grow up dreaming of doing bizarre touchdown celebrations, winning *Survivor*, or rapping their way to a Miami mansion, not treating waste, whether it's generated by a factory or the family down the street. It would be folly to expect even the most effective publicity or recruitment program to succeed in attracting enough young people to meet the industry's need for new talent.

Industry veterans say that recruiting efforts should target those in the middle of their career, people who've reached a stage where their primary need is a stable, challenging, reasonably well paying job that can't be exported to China or automated out of existence.

"It's a maintenance intensive career and robots really haven't learned how to do maintenance yet," said Bob Pariseau, director of water resources at the Amherst (Mass.) Department of Public Works. "There's also an awful lot of judgment and common sense involved. It's too bad. There are so many pluses to the field and the only negative is the perception of the job that people have. That's really not the way it is. We don't work in sewage. It's really not the way the job operates. It's much more scientific and professional."

Amherst has established an operator-in-training program at its wastewater treatment plant, which allows it to hire people who have potential and worry later about getting them the licenses and the skills. Through in-house training, and the programs that are available through NEIWPC, the plant has managed to maintain a full, qualified staff. But it hasn't been easy. "The job applicants haven't been that good," Pariseau said.

Still, he's not convinced that the field is on the road to a crisis unless changes are made to attract newcomers. "I think everybody has that feeling that after we retire, everything will fall apart," Pariseau said. "But it won't."

Many others are not so sure. When older workers leave, they take with them their wisdom in the ways of wastewater, which only increases the need to effectively train their replacements to operate increasingly sophisticated facilities. But before you can teach and train, you must have somebody to teach and train—no small challenge for an industry that's often unfairly overlooked or spurned by the type of committed, capable workers it needs.

The two young men at the class in Rutland are not quite convinced they've found their niche in life. Eddie Bartlett and A.J. Wright are keeping their career options open, but they weren't ashamed of working in wastewater—far from it.

"It doesn't really affect me, when it comes to girls," Bartlett said. "I would come home dirtier from my previous jobs." To them, the field offers tangible benefits. "I never expected to get full medical and dental coverage right out of high school," Wright said.

Two months after the Rutland class, Bartlett and Wright revealed their scores on the Grade 2 test for which they'd been preparing. Wright said he failed with a 56, but he's determined to pass the next time around. Bartlett passed with a 76 and, as a result, received a \$0.50 raise in his hourly pay. Perhaps that raise, and the lure of it for Wright, will be enough to keep them from straying to another, potentially more lucrative, field.

It would be nice if they stuck around. ♪

URBAN EXPOSURE

Program Provides Lowell Youth with Environmental Opportunity

Since 1991, NEIWPC and the Lowell Regional Wastewater Utility have collaborated in the Youth and the Environment summer program in Lowell, Mass. The program, which is part of a national effort started by EPA, stresses hands-on work experience and academic training to introduce disadvantaged inner-city high school students to professional opportunities in the environmental field, with a particular emphasis on careers in the wastewater industry. The participants are paid as they gain new knowledge, earn new skills, and find out about a rewarding career path.



The 2004 Lowell Youth and the Environment Program students at Squam Lake, N.H. Front row, left to right: Tha Kim, Daline Thach, Chansaravuth Keo. Back row, left to right: Danni Houth, David Som



In 2004, the program hired five students to work at the wastewater treatment plant daily. During the six-week program the students experienced all that a wastewater treatment plant has to offer, including pretreatment, maintenance, landscaping, and lab work. From Monday to Thursday, they worked at their designated stations, getting a diverse, hands-on education in water pollution control. In the afternoons, they gathered to hear lessons on wastewater and other environmental issues. The lessons covered such topics as the water cycle, tide pools, water quality, water pollution and prevention, and microorganisms that live in water.

On Fridays, the students went on field trips that related to what they were learning in Lowell. The group visited the New England Aquarium in Boston; the Seacoast Nature and Science Center in Rye, N.H.; the Squam Lake Natural Science Center in Holderness, N.H.; and the Roger Williams Park Zoo in Providence, R.I.

For information on the upcoming 2005 YEP program in Lowell, contact NEIWPC at 978-323-7929. ♪

YEP student David Som lowers a secchi disk into Squam Lake to measure water clarity.


Contamination Concerns *continued from page 1*

or blasting have occurred near their water source. Consideration should be given to the source's immediate watershed or groundwater recharge area. If the conditions exist to merit concern, testing might be considered.

Some states have taken extra steps to determine if perchlorate is present in their water sources. In 2004, Massachusetts instituted a special one year requirement for testing of all community and non-transient non-community water supplies such as schools. Quarterly samples were collected for all surface water sources, and spring and fall samples were required for groundwater sources. Continued monitoring may be required under future regulations.

The discovery of perchlorate as well as other contaminants should remind us all just how important it is to protect drinking water supplies and to become more aware of local industrial activities that may threaten our water.

For more information on perchlorate visit:

- <http://www.epa.gov/safewater/ccl/perchlorate/perchlorate.html>
- <http://www.mass.gov/dep/brp/dws/percinfo.htm>
- <http://www.dhs.ca.gov/ps/ddwem/chemicals/perchl/perchlindex.htm> 

Editor's Note: This article contains the latest news about perchlorate as of the date this issue went to press. New developments in this story are frequent, however, so check future issues of IWR for updates.

Denise Springborg (dspringborg@neiwpc.org) is NEIWPCC's Director of Drinking Water Programs.

STRATEGIES FOR ACTION

NEIWPCC Publishes Source Water Protection Guide


by Kara Sergeant, NEIWPCC

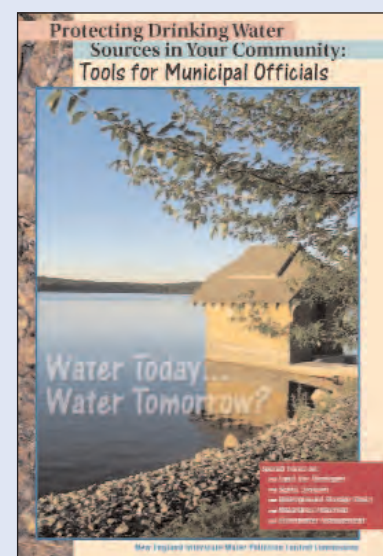
What steps can municipal officials take to protect public drinking water supplies? NEIWPCC provides the answers in *Water Today...Water Tomorrow? Protecting Drinking Water Sources in Your Community: Tools for Municipal Officials*, a new 52-page guide funded by EPA. The target audience of municipal officials includes town employees and volunteers on planning boards, conservation commissions, and other related positions. These are the people with the power to make decisions at the community level, such as enforcing a new protective zoning ordinance or starting a septic tank registration database.

For the most part, states already began the protection process by developing useful Source Water Assessment Program reports that assess the potential threats to public water supplies for each area in the state. NEIWPCC created the guide and a companion series of fact sheets to help officials understand these reports and identify ways they can implement protection at the municipal level. The guide even provides useful ideas for towns with mostly private wells.

The focus is on the five key areas of vulnerability as identified by state groundwater and source protection managers: inadequate local regulations and ordinances, underground storage tanks, onsite sewage disposal systems, hazardous materials storage, and stormwater runoff. The booklet features background materials for those who want to learn the basics of source water protection, and specific strategies for action on each of the five topics. The booklet is color coded, so it is easy to find information on septic systems if that is the main concern in a community. Each of the five topic chapters contains several case studies showcasing ways other towns and communities have addressed those problems.

Written and designed for NEIWPCC by Enosis-The Environmental Outreach Group, the guide and fact sheets are being widely distributed, but a limited amount of printed copies are still available. The shipping charge for one set of fact sheets and a booklet is \$2.50. To order a copy, send your name, address, phone number, and email address to NEIWPCC at the address on page 2 of this issue of IWR. Please call NEIWPCC about shipping charges for additional quantities. The manual and fact sheets can also be downloaded for free at our Web site (www.neiwpc.org).

For more information about the project, please contact Kara Sergeant at ksergeant@neiwpc.org. 



NEIWPCC KICKS OFF WETLAND ENFORCEMENT TRAINING PROJECT

by Rebekah Lacey, NEIWPCC

In these times of tight budgets, it's hard for state agencies to find the funds for staff training. For this reason, NEIWPCC, at the request of the state of New Hampshire and with the support of our other member states, applied for a grant from EPA's Office of Enforcement and Compliance Assurance (OECA) to fund a regional training program for state wetland regulatory and enforcement staff. NEIWPCC's proposal was one of 16 selected for funding from across the country. The proposal called for a series of four modules, each to be offered multiple times throughout New England. One set of trainings has already been held, and NEIWPCC is now working with state regulatory and enforcement program leads and our EPA Project Officer to assess needs, finalize topic selection, and plan future training agendas.

OECA's State and Tribal Assistance Grants (STAG) program has actually been in existence for many years. Its overall purpose is to help build state and tribal capacity for implementation of environmental regulations; the specific focus changes from year to year. When NEIWPCC submitted its proposal in 2002, OECA was seeking proposals in the areas of inspector training, performance management/program planning, and data management. (Last year, the funding was targeted exclusively to helping states modernize their electronic permit reporting systems.)


NEIWPCC proposed to conduct a series of trainings to enhance the knowledge and skills of state wetland and regulatory staff in wetland delineation,

regulation, and enforcement. The tentative topics identified in the proposal were regulations and enforcement, advanced wetland delineation, wetland delineation at disturbed sites, and best management practices for erosion control.

For the first set of trainings, Advanced Wetland Delineation was chosen as the topic. The module was intended for staff with training and experience in wetland delineation, to refresh their knowledge of soils, vegetation, and hydrologic indicators and give them a chance for hands-on practice in the field with technical experts. The two-day training was offered three times during September 2004, in New Hampshire, Massachusetts, and Maine. Arranging field training is always a challenge, but the instructors were able to find appropriate sites and get permission to use them, and managed to dodge most of the rain from the various hurricanes sweeping up the East Coast throughout the month. Instructors from the Natural Resources Conservation Service, the U.S. Army Corps of Engineers, state agencies, and the private sector worked in small groups with the class participants, who found the hands-on field exercises very beneficial.



David Rocque, Maine's state soil scientist (foreground, on left), helps participants evaluate a soil test pit during an Advanced Wetland Delineation training session last fall.

The next training will be held this summer. Over the course of the project, NEIWPCC plans to provide top-quality educational opportunities for state wetlands staff and to demonstrate the value of federally funded training for these staff. 

Rebekah Lacey (rlacey@neiwpc.org) is a NEIWPCC Environmental Analyst and the coordinator of NEIWPCC's wetland enforcement trainings. More information on OECA's STAG program is available at www.epa.gov/oeca/planning/state/grants/stag/index.html

LEGAL LINES

Blueberries, Bugs, and Beyond: An Overview of Challenges Made to Aerial Spraying Without a NPDES Permit

by Beth Card, NEIWPCC

This past August, a group of environmental organizations, including the National Environmental Law Center, Toxics Action Center, Environment Maine, Beyond Pesticides, and the Sierra Club provided notice to Cherryfield Foods, Inc., of their intent to sue. The group claimed that Cherryfield Foods, Maine's largest blueberry grower and processor, had engaged in aerial spraying of pesticides without first obtaining a NPDES permit to do so. The group cited aerial spray discharge studies to support their allegation that this practice was in essence the direct discharge of a pollutant through a point source into waters of the United States.

This question in Maine had the potential to grow into a serious debate. But before the parties put on their battle gear, a letter from Cherryfield Foods to the National Environmental Law Center indicated that the blueberry grower planned to cease the aerial spraying and use ground applications instead. Now the two sides are talking and the pending suit is on hold.

This is not the first time that the question of whether aerial spraying of pesticides requires a NPDES permit has been raised, and if the citizen enforcement suit had proceeded, the attorneys on both sides would have had plenty of material to review and use to support their arguments. The four cases summarized below have set the stage for future rulings on aerial spraying, whether it be pesticides, herbicides, or fire retardants. The cases also address when citizen enforcement suits are allowable and how the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) plays a part.

No Spray Coalition et al., Inv. V. City of New York U.S. Court of Appeals, 2nd Circuit, 2001

Background: In response to a break-out of viral encephalitis (West Nile) virus in 1999, New York City deployed trucks and helicopters to spray pesticides designed to kill adult mosquitoes. The spraying continued for several seasons. A coalition of environmental groups and individuals (the No Spray Coalition, Inc.) brought a citizen suit to stop the spraying, which they argued constituted discharge of point source pollution without a NPDES permit. The District Court determined that the spraying had been done in accordance with FIFRA, which, unlike the Clean Water Act, does not have a provision for citizen enforcement suits.

2nd Circuit Holding: Citizen suits on the issue of whether permits are needed for mosquito control efforts cannot be barred. Congress intended the CWA's citizen suit provision to operate regardless whether the claimed violation of CWA also violated FIFRA. The issue of whether a NPDES permit is required in this case was remanded to the District Court. Cross motions for summary judgment were filed this past summer, but so far no decision has been issued.

Headwaters, Inc. v. Talent Irrigation District U.S. Court of Appeals, 9th Circuit, 2001

Background: The Talent Irrigation District (TID) operates a system of irrigation canals in Jackson County, Oregon. To control the growth of aquatic weeds and vegetation in their canals, TID applies an aquatic herbicide (Magnacide H) by using a hose from a truck every two weeks. Headwaters, Inc., and Oregon National Resources Council filed a citizen suit alleging that TID

had violated the Clean Water Act by applying the herbicide to its canals without obtaining a NPDES permit. TID argued, and the District Court agreed, that it did not need a permit because the Magnacide H label, which was approved by EPA under FIFRA, did not specify a permit requirement.

9th Circuit Holding: Registration and labeling of Magnacide H under FIFRA does not preclude the need for a NPDES permit under the Clean Water Act. The label's failure to specify that a permit is required does not mean that the Clean Water Act does not apply to the discharge. The Court concluded that a NPDES permit is required for the application of herbicides in the circumstances that were before the Court.

Altman v. Town of Amherst U.S. District Court, Western District of N.Y., 2001, vacated by U.S. Court of Appeals, 2d Circuit, 2002.

Background: The Altmans, residents of the Town of Amherst, N.Y., alleged that the town's mosquito control spraying program, which involved aerial spraying of pesticides without a permit, constituted a violation of the Clean Water Act. The spraying took place over federal wetlands that the Altmans considered navigable waters. The District Court considered whether pesticides, as used in the manner for which they were intended, constitute pollutants for the purposes of the Clean Water Act. Review and consideration was given to a New York State Department of Environmental Conservation declaratory ruling and U.S. EPA correspondence indicating that EPA has "no specific policy under the NPDES program on the spraying of pesticides to control mosquitoes where the pesticide is discharged directly to waters of the United States." The District Court held that no permit was required.

2nd Circuit Holding: The Appellate Court remanded the case to the District Court for further proceedings and determined that more information was needed. It instructed the lower court to engage in discovery on the following questions:

1. Was the pesticide spraying from a point source?
2. Were pesticides discharged into navigable waters?
3. Are pesticides considered pollutants subject to the CWA?

Perhaps more important than the remand itself was the discussion in the 2nd Circuit's opinion regarding the impact of EPA's "ambiguous stance" and failure to clearly interpret the connection between FIFRA and the Clean Water Act. The Appellate Court further instructed the District Court to consider language in EPA's amicus brief in the Altman case, which suggested there were times when the application of pesticides would require a NPDES permit. The District Court has not yet issued a decision.

League of Wilderness Defenders v. Forsgren U.S. Court of Appeals, 9th Circuit, 2002

Background: The League of Wilderness Defenders alleged that Harv Forsgren, in his official capacity as Regional Forester, Pacific Northwest Region, and the U.S. Forest Service implemented a program of annual aerial insecticide spraying over 628,000 acres of national forest lands in Washington and Oregon. The spray was aimed at controlling a predicted outbreak of the Douglas Fir Tussock Moth, which kills Douglas Fir Trees. The League of Wilderness and seven other environmental groups argue that a NPDES permit is required for this type of spraying.

9th Circuit Holding: Aerial spraying of pesticides by the Forest Service is point source pollution and requires a NPDES permit. 💧

See "From the Hill" on pg. 12 to read more about how these cases have influenced Congress and EPA guidance. Beth Card (bcard@neiwpcc.org) is NEIWPCC's Director of Water Quality Programs. She is also a licensed attorney in Massachusetts.

BASIC TRAINING

NEIWPCC Begins Water Quality Training Initiative with "Clean Water Act 101"

The Clean Water Act may be a complex piece of legislation, but for the many who attended NEIWPCC's recent "Clean Water Act 101" courses, its complexities are now considerably clearer. NEIWPCC conducted the two-day courses on Dec. 14-15 in Portsmouth, N.H., Jan. 10-11 in Albany, N.Y., and Feb. 28-Mar. 1 in Hartford, Conn. The classes provided an introduction to the Act, which is one of the foundations of environmental protection in the United States. The sessions also marked the beginning of a significant new effort by NEIWPCC to meet the needs for water quality training in our member states.

"The Clean Water Act courses were the first," said Susy King, a NEIWPCC Environmental Analyst who assisted with the training, "but they won't be the last. Our plan is to provide two different water quality training courses every year." Plans are well underway for the second course of 2005—a Water Quality Standards Academy, which will be cosponsored by EPA New England. It will be held June 20-24 in Boston.

At the Clean Water Act courses, the focus was on the policy and law of water quality protection. The instructors—Rusty Russell, an environmental attorney with broad experience working with experts from other fields, and Beth Card, NEIWPCC's Director of Water Quality Programs—offered a detailed look at the key sections of the Act. They discussed its successes and failures as a unified regulatory program and described its relation to state and local water quality policies.

The course was intended for non-lawyers, which resulted in a diversified audience. In attendance were watershed groups, non-profit organizations, state government officials, federal employees, and engineers and consultants at private firms engaged in water quality projects—all of whom walked away with a greater understanding of the Act and how it drives issues that they confront every day.

"We covered a lot of ground in two days," Card said. "But we were careful to keep our audiences' needs in mind. We provided information that they could really use, and I'm pleased with the feedback. There's a real thirst out there for more knowledge in all aspects of water quality."

For more information on the upcoming Water Quality Standards Academy, contact Susy King at sking@neiwpcc.org or 978-323-7929. 💧

MERCURY MATTERS

New Workgroup and Policy Guide are Latest Efforts in Bid to Reduce Contamination

by Susy King, NEIWPCC

As concern increases about the high levels of mercury found in fish throughout New England and New York State, a growing number of efforts are being undertaken to address the problem. In one truly collaborative venture, NEIWPCC worked with the states in the Northeast and with other interstate organizations to develop a four-page policy guide for legislators that explains the problem and what needs to be done to solve it. Through our new Mercury-Fish workgroup, NEIWPCC is also providing a much-needed forum for our member states, EPA, and other interested parties to discuss the issue, share ideas, and work together to address mercury contamination in the Northeast.

The need for these efforts stems from mercury's virulent nature. It is a toxic element that poses a severe threat to human health and the environment. Once it enters a waterway—perhaps as the result of a spill or, more commonly, atmospheric deposition—it is converted to methylmercury, the element's most toxic form. Methylmercury accumulates in fish, thereby creating a dangerously efficient route of human exposure; when we eat fish, we also consume the methylmercury they may contain.

Mercury contamination in fish is actually addressed by two groups within each state. Sampling and monitoring of mercury levels in fish tissue is the responsibility of the states' environmental staff, whereas state public health departments are responsible for issuing fish consumption advisories. The purpose of


NEIWPCC's workgroup is to bring together both parties; workgroup members include both environmental and public health staff from the region as well as representatives from EPA Regions 1 (New England) and 2 (New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands) and the Agency for Toxic Substances and Disease Registry.

On January 26, the workgroup met for the first time, convening in NEIWPCC's Lowell headquarters. Roughly 20 state and EPA representatives gathered to talk about mercury issues that are specific to the Northeast and to guide new regional initiatives and projects. The group addressed outreach for sensitive populations, a proposed regional mercury model, and research needs.

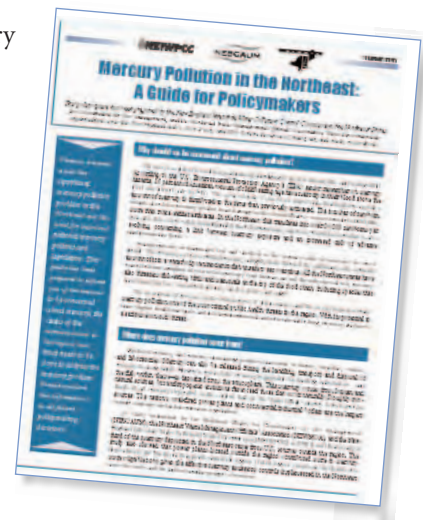
While the workgroup addressed the need for a regional forum on mercury, the policy guide addresses an equally important, if not more pressing, need—that is, getting greater federal action on the issue of atmospheric deposition. The Northeast states have been active in reducing mercury in their region, but a large portion of the mercury deposited in the Northeast comes from domestic sources outside of the region. Federal action is needed to reduce mercury in air emissions.

NEIWPCC collaborated with the Northeast States for Coordinated Air Use Management (NESCAUM) and the Northeast Waste Management Officials' Association (NEWMOA) to prepare *Mercury Pollution in the Northeast: A Guide for Policymakers*. The policy guide

explains the mercury problem, describes the mercury reduction efforts that have already been completed in the Northeast, and outlines specific steps that should be undertaken by state and federal governments to further reduce mercury in the environment. It asks state governments to continue to reduce emissions from in-region sources and urges the federal government to develop stringent emissions standards for power plants.

The policy guide will be distributed in March to the region's Congressional members and state legislators. Members of the Mercury-Fish workgroup will most likely convene again in June at the National Forum on Contaminants in Fish. Another workgroup meeting is expected to be held in Lowell in the fall. 

Susy King (sking@neiwpc.org) is a NEIWPCC Environmental Analyst. She coordinates our Mercury-Fish workgroup and coordinated the development of the mercury policy guide.



FROM THE HILL

Water-Related News Out of Washington

by Beth Card, NEIWPCC

PROPOSAL ON PESTICIDES

In an attempt to offer clarification and guidance on the multiple court opinions issued on the application of pesticides over or near waters of the United States, EPA published a notice in the Federal Register in August 2003. It solicited public comments on an Interim Statement and Guidance to address issues pertaining to coverage under the Clean Water Act of pesticides regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Review of the docket where comments are kept shows there was plenty of reaction to the guidance, both positive and negative.

The interim guidance suggested that the pesticides applied in accordance with FIFRA are not to be considered "pollutants" as defined in the CWA and as a result those applications would not require a NPDES permit. Those who commented in favor of the guidance agreed that this was the best interpretation of the term "pollutant" and concurred that this would be the best way to facilitate the application of pesticides consistently with relevant FIFRA requirements. Non-supporters, however, expressed concerns about the environmental effects of pesticides applied to waters of the United States as well as concern that EPA's position had changed from when the Agency initially filed amicus briefs in earlier pesticide cases. (EPA's General Counsel addressed the concern about its earlier positions in a memorandum titled "Analysis of Previous Federal Government Statements on Application of Pesticides to Waters of the United States in Compliance with FIFRA." This memorandum

is available on line at www.epa.gov/edocket.)

EPA considered the comments, and also considered the relevant case law (see Legal Lines on page 11) before releasing a proposed rule on February 1, 2005.

The proposal, which is consistent with the August 2003 version, identifies two instances where pesticide applications consistent with relevant FIFRA requirements do not require a NPDES permit. They are:

- Application of pesticides directly to waters of the United States to control pests (for example, mosquito larvae or aquatic weeds) that are present in the water.
- Application of pesticides to control pests that are present over waters of the United States that results in a portion of the pesticide being deposited into those waters.

In the February 2005 Federal Register notice, EPA also proposed revising NPDES permit regulations to incorporate the Interpretive Statement so that application of pesticides in the two scenarios described above would be excluded from NPDES requirements.

The proposed rules are available for public comment until April 4, 2005.


NEXT PHASE IN INTAKE DEBATE

In the Summer 2004 issue of *IWR*, we explained the increasingly bitter legal battle over cooling water intakes used by power plants and factories. The pressure from the flow of water into these cooling systems traps larger fish and sucks in and kills smaller organisms. The Clean

Water Act requires EPA to establish the best technology available to minimize adverse environmental impact from intakes, and on November 24, 2004, EPA released Phase III of its new intake regulations.

This was the third in a series of rules designed to set standards to protect fish, shellfish and other forms of aquatic life taken up by intake pipes. The two earlier proposals addressed power plants. Phase III affects manufacturing facilities, and it proposes three possible options for defining which existing facilities would be subject to new requirements. These options are:

- Facilities with a total design intake flow of 50 million gallons per day (MGD) or more, and that withdraw from any waterbody type.
- Facilities with a total design intake flow of 200 MGD or more, and that withdraw from any waterbody type.
- Facilities with a total design intake flow of 100 MGD or more, and that withdraw water from an ocean, estuary, tidal river, or one of the Great Lakes.

Public comments on Phase III are due to EPA by March 24, 2005. In the meantime, litigation continues over Phase I. The 2nd Circuit Court of Appeals found that EPA exceeded its authority by allowing compliance with the CWA through restoration methods and remanded that part of the rule. All separate industry claims pertaining to restrictiveness of Phase I were rejected by the Court and following the recent ruling, industry representatives expressed concern about increased compliance costs for specialized cooling systems. Both Phase II and the new Phase III of the rule contain language similar to the defeated restoration provision. 

Beth Card (bcard@neiwpc.org) is NEIWPCC's Director of Water Quality Programs.

TEACHING ENGINEERS TO ADAPT

Creating Sustainable Water Infrastructure for Developing Nations

By Kathryn Riley

When Bill Moeller, an emeritus professor of civil and environmental engineering at the University of Massachusetts Lowell, traveled to Guatemala, he saw a perplexing sight. Scattered across cow pastures were latrines, apparently built by aid workers in an effort to help improve sanitary conditions. Although simple devices, the latrines were clearly critical components in an effort to prevent water-borne disease. There was only one problem. As evidenced by the vines creeping across the doors of the latrines, it was clear that it had been some time since they'd been occupied. Obviously, something had gone wrong. But what?

In his quest for an answer, Moeller approached a nearby farmer and asked him why the latrines weren't used. The farmer had a simple explanation: It was crazy to walk so far out in a field, in full view of everyone, simply to use the bathroom. "You might as well go in a tree!" the farmer told Moeller.

While the latrines would have been appropriate in this country, cultural differences made them unacceptable for use in Guatemala. Moeller explained that Guatemalans believe that going to the bathroom is "something you do in private, behind bushes, not in a little house" in the middle of a pasture. "When organizations go in, and try to do something to improve public health," Moeller said, "they often don't know these cultural attitudes. It's easy to miss all this stuff."

Due to a lack of understanding of cultural differences, many projects that were designed to improve conditions end up as failures. "But people don't talk about that," Moeller said. "We improve conditions, they say." It is both this attitude and the high failure rates that Moeller is working to change. His interest in underdeveloped regions has led to the creation of a certificate program, offered to UMass Lowell graduate students. Students in the course examine the difficulties engineers face when building facilities in developing nations, a subject not usually addressed in civil engineering classes. Moeller also is working to establish a "Center for Sustainable Infrastructure in the Developing World" to continue research.

One reason many engineers have trouble adapting technology to work in less developed areas is they are trained to work in their own society. But American engineering isn't the best fit with every culture, and many engineers don't realize that technology that works here must be modified to be successful in the developing world.

"About 15 years ago," Moeller said, U.S. engineers went to Thailand and "built literally hundreds of [water] treatment facilities." The treatment plants were of excellent quality, and met all World Health Organization standards. The problem, said Moeller, was that they "were not appropriately sustainable facilities." If anything in a facility broke down, it would take more than six weeks for a replacement part to arrive. When control of the facilities was transferred to the local residents, they found what American engineers considered "simple" maintenance to be complex and confusing. Eventually, many communities decided they didn't want anything to do with such complicated treatment plants.

While Americans may prefer to have the newest and most advanced technology, this may not be the best solution for other cultures. Moeller mentioned a visit he made to a Honduran community, which was building a wastewater treatment plant using an Imhoff tank, a modified version of a septic tank.



UMass Lowell's Bill Moeller with his photographs from Guatemala. A visit there inspired Moeller to accelerate his efforts to teach American engineers how to properly adapt modern engineering practices and technologies for use in developing nations.


"It was out of our [engineering] books by 1940 and was replaced by higher, more modern technology," Moeller said. "But it was totally appropriate in that community because it needs no electric power and doesn't require skilled operators. It was state of the art technology there." While many American engineers would never dream of installing an Imhoff tank in this day and age, it was perfect for the community in Honduras.

In his new certificate program, Moeller teaches his students how to avoid mistakes by learning to adapt American technology to different cultural contexts and to predict potential problems. One year, in his course on small alternative wastewater treatment system design, Moeller had his students design a treatment plant for a four-season golf and ski resort in northeastern Vermont. Each student chose one technology and designed a plant using that technology. The student reported back to the class on the advantages, disadvantages and dilemmas faced while adapting the technology. The following year, the class designed a treatment plant for a small commu-

nity in Honduras. Both projects required the students to consider factors such as location and weather, and to make a 25-year population forecast. By having his students solve real and different sets of engineering problems, Moeller is getting them to think in a global context.

Moeller's proposed "Center for Sustainable Infrastructure for Developing Nations" is still in the development stage, with Moeller preparing to make a formal proposal to the University. "The way I see it," he said, "the center would function as an administrative coordinator and initiator for programs." These programs would include research to improve the certificate course, and an initiative Moeller refers to as "training the trainers," in which a select group of people from underdeveloped countries would be trained in the maintenance of wastewater facilities, acquiring skills and knowledge they would share with others when they returned home. Most importantly, Moeller hopes that his proposed center will "bring everyone together," uniting universities, organizations, and other groups as they work towards a common goal.

Although there is much to be done before the center becomes a reality, Moeller hopes to benefit from the increased attention to issues facing developing nations. Not only are American companies beginning to see the potential for profit in these countries, but Moeller believes that engineers seeking new challenges will be inclined to head to nations where such opportunities exist.

Even if his center is approved, Moeller, 68, isn't sure he'll be there to see it come together. "This is something that could really take ten years to get off the ground," he said. If his vision for a thriving center materializes, "it will be long after I'm gone from the scene. I'm not expecting that I will get this heartwarming gratification that 'Wow, look at this monstrously wonderful big thing I built.' I hope to get the 'little engine that could' on track." It will be up to future generations to keep it going and growing. 

Kathryn Riley, a student at Wheaton College in Norton, Mass., researched and wrote this article during an internship at NEIWPC's Lowell headquarters.

PICTURE OF PROGRESS

Report Spotlights Efforts to Restore and Protect Long Island Sound


Scientists have long understood and appreciated the tremendous ecological significance of estuaries—those bodies of water where salt water from the ocean mixes with fresh water from rivers. It's also no secret that urban estuaries, which are surrounded by human populations that live, play, and do

business around them, have been and continue to be severely impacted by civilization and its by-products. What can be done to restore and protect these critically important waters? A new publication provides plenty of answers as it reviews the impressive efforts done on behalf of one of the nation's largest urban estuaries, Long Island Sound.

The 2003-2004 Long Island Sound Study Biennial Report highlights projects undertaken in the past two years to improve water quality, restore and protect natural areas, better understand the Sound's environmental issues through scientific research, and increase the public's awareness of the Sound. The projects involve the cooperation of a wide range of government agencies, universities, businesses, and community groups. They are dedicated to improving the 110-mile long waterway by working collaboratively through the Long Island Sound Study, a cooperative effort sponsored by EPA and the states of Connecticut and New York.

The importance of that effort is obvious, when you consider what's at stake. Long Island Sound provides economic and recreational benefits to millions of people, while also providing natural habitats to more than 1,200 invertebrates, 170 species of fish, and dozens of species of migratory birds.

"It may never again be the pristine place that it once was," said NEIWPC's Robert Burg, who conducts outreach for the Long Island Sound Study and coordinated the production of the biennial report. "But a lot of progress has been made in recent years. We worked hard to produce a publication that captures some of the amazing work that's going on, without ignoring the challenges that remain."

NEIWPC produced the 24-page report, the first of its kind for the Study, as part of a cooperative agreement with EPA. You may view the report on-line, or obtain information on obtaining a hard copy, by visiting the Long Island Sound Study's Web site (www.longislandsoundstudy.net). 



IN THE SPOTLIGHT

As the new Commissioner of the Connecticut Department of Environmental Protection, **Gina McCarthy** officially joins our roster of NEIWPCC Commissioners. McCarthy previously held various senior positions in Massachusetts, and most recently served as Deputy Secretary for Operations at the Massachusetts Governor's Office for Commonwealth Development. Like former CT DEP Commissioner Arthur Rocque Jr., McCarthy will be represented at NEIWPCC Commission and Executive Committee meetings by **Yvonne Bolton**, Chief of CT DEP's Bureau of Water Management.



Sidney Kallman, NEIWPCC's Financial Administrator, retired in December. Kallman, seen here at a party held in his honor on Dec. 23, worked for NEIWPCC for more than 22 years. We miss you, Sid!

Another newcomer to our list of Commissioners is **Dr. David Gifford**, Acting Director of the Rhode Island Department of Health. Prior to being appointed to the post by R.I. Governor Donald Carcieri, Dr. Gifford was the Chief Medical Officer at Quality Partners of Rhode Island and an Assistant Professor of Medicine at Brown University School of Medicine.

Former NEIWPCC Commissioner **Russell Nylander** has retired from the New Hampshire Department of Environmental Services. No doubt he's missed at NH DES, just as we miss him and his enthusiastic support for our work. Nylander served as a NEIWPCC Commissioner for 27 years.

Ellen Frye received the 2004 Paul Keogh Award from the New England Water Environment Association. The award honors excellence in communicating to the public the need for protecting our water environment. Frye was a NEIWPCC staffer for many years, and now works on many NEIWPCC projects on an independent basis. In giving her the award, NEWEA cited Frye's work on a brochure/poster that highlights the positive aspects of working in the wastewater industry. (See page 8, column 3, for more information on this project.)



At the North Country Convention in Presque Isle, Maine, the Maine Department of Environmental Protection presented a Certificate of Achievement to **Gerald Raymond**, Superintendent of the Eagle Lake Water and Sewer District (second from left), for accomplishments in the wastewater field and water quality improvement. Also pictured (left to right) are **Nick Archer**, Regional Director, Maine DEP, Presque Isle office; **Dawn Gallagher**, Maine DEP's Commissioner and a NEIWPCC Commissioner; and **Andrew Fisk**, Director of Maine's Bureau of Land and Water Quality and Gallagher's representative at NEIWPCC meetings. The North Country Convention was coordinated by the Maine Joint Environmental Training Coordinating Committee (JETCC), which is managed by NEIWPCC.

PROFILE

NEIWPCC's Beth Waterman: Passionate Advocate for the Hudson River

by Stephen Hochbrunn

Spending time with Beth Waterman, and speaking with her about what she does and has done and hopes to do, is a bit like going to a movie that, for once, is as good as advertised. With her playful glasses, elegantly hip clothes, and quick, lively smile, Waterman looks like she has interesting stories to tell. She doesn't disappoint.

Born and raised on the banks of the Mississippi in the city of Davenport, Iowa, Waterman's journey has taken her from Wellesley College (B.A. in Classical Archaeology) to a 20-year-long stint running a home-based children's clothing business to her current position with NEIWPCC as an Information Officer for the Hudson River Estuary Program. From her desk at the program's headquarters in New Paltz, N.Y., she helps administer NEIWPCC's contract with New York State, conducts outreach to raise awareness of the Hudson River and its environmental needs, and engages in a wide array of special projects such as helping to determine the recipients of the program's annual grants. She does a lot, and does it all with an infectious enthusiasm.

We spoke with Waterman as she drove from New Paltz to Haverstraw, N.Y., to observe the release of 89 Atlantic Sturgeon into the Hudson River.

IWR: After graduating from Wellesley, you made a rather unusual career choice. Why kids' clothes?

Waterman: Well, I had a daughter, and it allowed me to stay home with her and work to the degree I wanted to. And I liked the creative aspect of it. I did everything—designed the clothes, dyed the fabric, put it all together, and then sold the products to high-end boutiques. I had some other women who worked for me out of their

homes, and that made it fun. But when my daughter turned 17 and went off to college, the handwriting was on the wall—she didn't need me anymore.

I needed something more socially responsible, less isolated. So I went back to school. In 1991, I graduated from Bard College with a master's degree in environmental studies.

IWR: And that ultimately led to the job with NEIWPCC, which you seem to thoroughly enjoy.

Waterman: This really is an exciting period for the estuary program. With the funding we've received from the New York State Environmental Protection Fund, we've been able to do projects that are quite amazing—fisheries research, benthic mapping, creating a grants program. What other river or estuary programs have done this? We're really at the forefront here.

The truth is, it's a singular time on the estuary. Communities have really turned their attention to the waterfront, and I like the opportunity to create or upgrade public access along the river. And I love the people I work with. They're wonderful people, committed to the Hudson and improving the environment.

IWR: When you're not on the job, how do you spend your time?

Waterman: I really enjoy working in my garden. I'm a little obsessive about that. I wish, though, it looked like I obsessed about it. It looks like I've been ignoring it [laughs].

I also serve on my town's planning board, and I'm on the board of several non-profit agencies. I just have a strong attachment to the Catskill Mountains, where I

Beth Waterman,
NEIWPCC Information
Officer for the Hudson
River Estuary Program



live. This Saturday [Oct. 2, 2004], for example, is the Margaretville Cauliflower Festival, which celebrates the days when cauliflower was king in the Catskills—a huge cash crop. I volunteered to make a cauliflower costume, so I'm spending my nights creating this thing. It's really bringing me back to my former life.

Then, on Sunday, I'm riding a bike for 100 miles in the Catskill Park Centennial Century Ride. [Editor's Note: Waterman completed the ride, which was classified as "very difficult" and for experienced riders only.]

IWR: So, if NEIWPCC suddenly granted you six months off at full pay, what do you think you'd do? Enter the Tour de France?

Waterman: Actually, I think I'd go to Italy for three months. I studied Italian last year, and then went there. I just love everything about it—the language, the beautiful landscape, the food.

After Italy, I'd come home and work in my garden, and do volunteer work in the community. I'd do the global thing, and then start thinking locally.

IWR: Would you miss your job?

Waterman: I'd definitely miss working with the people at the program. I think we're all basically egocentric, so we like to think that what's happening our lifetime is the most important thing. But the environment really has blossomed and flourished and become much more ingrained in American culture and politics in my lifetime. I'm glad I'm playing a part in that. ♀

In the Spotlight continued from page 14

An article in On Tap magazine, published by the National Environmental Services Center, spotlights NEIWPCC's source water protection efforts and features numerous comments from NEIWPCC's **Kara Sergeant**. The article is available online at <http://www.nesc.wvu.edu/ndwc/articles/OT/FA04/swprotection.pdf>



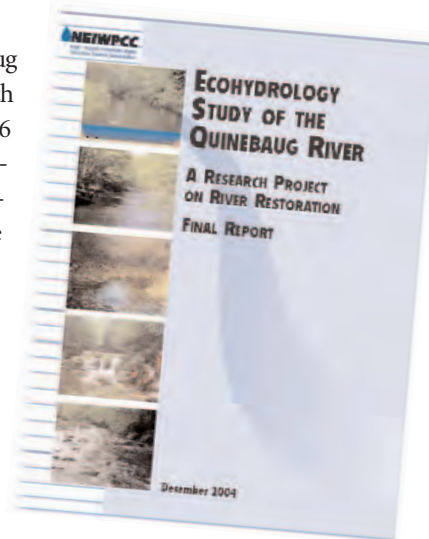
NEIWPCC's **Susan Ely** delivered a presentation to state and federal wetlands staff during our Wetlands Workgroup meeting on January 27 in Lowell, Mass. Ely works with the Rhode Island Department of Environmental Management on a variety of outreach projects. Her presentation focused on strategies and materials that effectively educate citizens, homeowners, and businesses about wetlands regulations.



The National Association for Interpretation awarded its 2004 Community Interpretive Service Award to the **Lake Champlain Basin Program** Steering Committee. The award honored the LCBP for its wayside exhibit program, which has generated more than 110 new wayside exhibits in the Lake Champlain Basin. In the photo above, Steering Committee member Dan Stewart, Mayor of Plattsburgh, N.Y., poses beside a wayside exhibit at its unveiling. NEIWPCC serves as financial manager and program adviser to the LCBP.

JUST RELEASED: RESEARCH REPORT ON QUINEBAUG RIVER

The Quinebaug River, which winds for 76 miles through Massachusetts and Connecticut, is the focus of an extensive report published in March by NEIWPCC. The report summarizes five years of research that was initiated in 1999.



The researchers assessed the river's biophysical conditions, identified ecological deficits, and determined potential improvement measures. They analyzed hydromorphology, fish habitat, fish density, invertebrate samples and temperature data to determine present conditions and restoration potential.

This report was prepared for NEIWPCC by Dr. Piotr Parasiewicz, Instream Habitat Program, and the New York Cooperative Fish and Wildlife Research Unit at Cornell University. It was produced under a contract with Millennium Power Partners, L.P., and is part of a multidisciplinary investigation required by the U.S. Army Corps of Engineers Section 404 permit and by the Massachusetts Department of Environmental Protection Section 401 Water Quality Certification for the Millennium Power Project in Charlton, Mass.

Due to the length of the report, only the executive summary is available for download from the report's Web page (www.neiwpcc.org/quinebaug). For copies of the complete report on CD, contact NEIWPCC at 978-323-7929.

EXPLAIN THIS!



If you headed for this section of *IWR* eager to test your knowledge on a new version of our "Know Your Acronyms!" quiz, we're sorry to disappoint you. The acronyms exam has been put on hold for this issue at least, as we bring you a new feature that tests your ability to explain what's going on in a photograph. Take your best shot at figuring out what the handsome fellow in this picture is doing. (Hint: It's directly related to a story that appeared early in this issue.) Complete explanation on page 16.

ARE YOU A REGULAR READER OF IWR?

The current *IWR* and all past issues can be downloaded for free at www.neiwpcc.org/iwr.htm, but why take the chance of missing one? If you're not receiving printed copies in the mail, fill out the subscription form and send it to NEIWPCC. We'll make sure all future issues go directly to your mailbox. It's one easy way to stay informed on the critical water issues in New England and New York State.



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CALENDAR OF EVENTS

Please note that NEIWPCC workgroup meetings are designed to foster focused small-group discussions among workgroup members on specific issues. Workgroup members are drawn from state and federal regulatory agencies and NEIWPCC staff. For general information about our workgroups and their points of focus, please visit our Web site (www.neiwpcc.org) or call 978-323-7929.

APRIL

- April 4**
New England Monitoring Summit
"Shared Waters"
Westford, Mass.
www.neiwpcc.org/ne_summit_05.htm
- April 10-12**
Environmental Council of the States (ECOS)
Spring Meeting
Washington, D.C.
- April 11-14**
24th Annual National Conference on
Managing Environmental Quality Systems
San Diego, Calif.
- April 13-14**
EPA Region 2 Decentralized Wastewater
Management Forum
Bear Mtn. State Park and New York, N.Y.
- April 13-15**
Joint Meeting of New England Biological
Assessment of Wetlands Workgroup and
Mid-Atlantic Wetland Workgroup
- April 17-20**
WEF/AWWA/KY-TN WEA 2005 Joint
Residuals and Biosolids Conference
Nashville, Tenn.
- April 26-28**
New England Regional 104g Meeting
Portland, Maine

MAY

- May 3-5**
Northeast Aquatic Nuisance Species Panel
Workshop (Legislation for Early Detection
and Rapid Response of Aquatic Nuisance
Species) and Spring Meeting
Portsmouth, N.H.
- May 12-13**
NEIWPCC Executive Committee and
Commission Meeting
Stockbridge, Mass.
- May 17**
NEIWPCC Wetlands Workgroup Meeting

- May 21**
Massachusetts Wastewater
Certification Exams
Mass. (various locations)
- May 23-25**
"Achieving Mercury Reduction in Products
and Waste: Coordinating National and Local
Government Initiatives" Conference
Portland, Maine
www.neiwpcc.org/mercuryconference05
- May 24-26**
16th Annual Nonpoint Source
Pollution Conference
Bretton Woods, N.H.
www.neiwpcc.org/npsannualmeeting.htm

JUNE

- June 3-4**
New England Chapter of the North
American Lake Management Society
(NEC NALMS) Annual Conference
Plymouth, N.H.
- June 5-8**
National 104g Conference
San Antonio, Texas
- June 5-8**
New England Water Environment
Association Spring Meeting
Ogunquit, Maine
- June 5-10**
Annual Meeting of the Society of Wetland
Scientists (in conjunction with the
Association of State Wetland Managers)
Charleston, S.C.
- June 8**
NEIWPCC Stormwater Workgroup Meeting
- June 20-24**
NEIWPCC's Water Quality
Standards Academy
Boston, Mass.
- June 26-29**
2005 TMDL Conference
Philadelphia, Pa.

To check for additions
or changes to
this listing, see the
Calendar of Events at
NEIWPCC's Web site
www.neiwpcc.org.

Updated Interstate Water Quality Standards Matrix Now Available on Web

NEIWPCC has updated and uploaded our interstate water quality standards matrix, which summarizes our member states' water quality classifications and standards. The matrix contains the water quality criteria that each of the states has adopted for parameters such as dissolved oxygen, bacteria, and pH. Recently revised to reflect the states' most current standards, the matrix allows states to compare their standards to those of other states in the region. To download the matrix, go to www.neiwpcc.org/PDF_Docs/i_wqs_matrix04.pdf



"EXPLAIN THIS" EXPLANATION

That handsome fellow in the photograph is none other than NEIWPCC's Gregg Kenney, an environmental analyst who works with the Hudson River Fisheries Unit of the New York State Department of Environmental Conservation.



Here's Gregg's explanation of what he was doing:

"I'm on one of the unit's boats, running through a pre-deployment checklist to ensure proper functioning of the acoustic tracking system used to follow the movements of Atlantic Sturgeon in the Hudson River. The piece of gear I'm looking at is one of two hydrophones that are attached to the boat during mobile tracking of fish that were outfitted with sonic tags. The hydrophones detect the signal emitted from the sturgeon and transmit it to the onboard receiver. The receiver decodes the signal and displays to the trackers the direction and approximate distance of the fish in question. The trackers then use this information to triangulate the precise location of the fish."

Who knew? For more on the effort to evaluate seasonal movements and habitat use of wild and hatchery juvenile Atlantic Sturgeon in the Hudson, be sure to read the article on page 3 of this issue.



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