

Brewer Middle School science teacher Brenda Willis and class are shown with the Brewer groundwater/watershed demonstration model. Willis uses it to teach the value of maintaining clean groundwater and practical methods of doing so. (Photos by Michael C. York)



FOCUS: STORM

IT'S UP TO EVERYONE

Public education in the City of Brewer, Maine, makes sure that managing stormwater and reducing water pollution is a shared responsibility

By Jim Force

You could say that the stormwater team in Brewer, Maine, consists of hundreds and maybe thousands of people. That's because the city uses innovative public education to enlist the support of citizens ages 8 to 80 for its stormwater management program.

The wide-ranging effort recently earned Kenneth Locke, director of environmental services, the first-ever Steve Ranney Award for Stormwater Management Excellence from the Maine Department of Environmental Protection (MDEP).

Brewer and the 27 other Maine communities holding MDEP stormwater discharge permits must develop a comprehensive storm-

water management program that includes six components:

- Public education
- Public participation
- Illicit discharge detection and elimination
- Construction site runoff control
- Post-construction stormwater management
- Pollution Prevention (good housekeeping of municipal facilities)

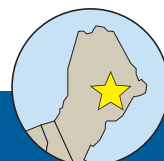
Brewer is progressing on all fronts, but in the area of public education and public participation, the city has generated the kind of local enthusiasm that would be the envy of Prof. Harold Hill of *Music Man* fame. "Instead of just coming in and telling the

community to meet the new stormwater rules," explains Locke, "we thought it would be a lot more effective to approach the solution through public education."

Stream cleanup

The signature initiative of the stormwater program is the annual Stream Cleanup Event in Brewer, held on a Saturday in May. Imagine 170 people — directed by city employees, outfitted in orange safety vests and armed with garbage bags — moving along a riverbank like an invasion force, picking up tons of debris and trash.

Funded fully by more than \$6,000 in contributions from area businesses and organizations, the cleanup covers a seven-mile stretch



PROFILE:
City of Brewer,
Maine

SETTLED: 1770

INCORPORATED: 1812

AREA: 10,106 acres

POPULATION: 8,900

INFRASTRUCTURE:
46 miles of sanitary sewers,
65 miles of storm sewers

ANNUAL BUDGET:
\$75,000
(fiscal 2009, stormwater only)

WEB SITE:
www.brewerme.org

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Kenneth Locke

Staff participation

The same city employees who plan the event lead each group. In addition to Locke, they include city planner Linda Johns, code enforcement officer Dave Russell, treatment plant chief operator Lou Colburn, treatment plant lab manager Steve Butler, city engineer Frank Higgins, assistant city engineer Jeff Hand, water department director Mike Riley, collection systems supervisor Tracy Drew, and public works foreman Russell Wilson.

"The involvement of our city staff is critical," says Locke. "We get support from the city council, city manager, and department heads, which is the key to success." The police department controls traffic, public works provides trucks, and the fire department sends standby medical personnel and firefighters. Any payment for city services comes out of the contributions, not from taxes.

The city-owned construction demolition debris landfill recycles metal, plastics, and wood waste trash. A private waste-to-energy plant takes remaining burnable debris. After the cleanup, the crews celebrate at a volunteer recognition picnic sponsored and funded by Jeff's Catering, a local

Brewer treatment facility employees Craig Lilley (left) and Mark McVey use a grapple to clean storm drains. Crews have to be ready to deal with all kinds of weather and temperatures. Inset, McVey and Lilley prepare a storm drain for cleaning.

program. It puts us on the map." Volunteers include citizens from Brewer and around the state, school children, Scout troops, members of the Maine Geocaching organization, volunteers from businesses, and many city department heads and employees.

The day starts at the Brewer Auditorium, where the volunteers receive coffee, juice and doughnuts, and learn important safety procedures, like staying away from the water's edge and avoiding needles or other dangerous objects. Next the volunteers organize into groups assigned different sections of the riverfront.

of the Penobscot River, as well as numerous tributaries. Their haul over the three years of the event: 19 tons of stuff that otherwise might have polluted Brewer's surface waters.

"We started in 2005," says Locke, whose in-house staff includes two environmental technicians and one supervisor. "It's the biggest thing we do that attracts attention to our stormwater management



REGIONAL INITIATIVE

The Bangor Area Stormwater Group (BASWG) is a formal regional collaboration of regulated entities within the Bangor Urbanized Area to comply with stormwater regulations from EPA and Maine Department of Environmental Protection.

Municipal members include

- City of Bangor
- City of Brewer
- City of Old Town
- Town of Orono
- Town of Hampden
- Town of Veazie
- Town of Milford

Other members include the University of Maine, University College at Bangor, and Air National Guard at Bangor. The BASWG is responsible for the Rubber Ducky media campaign, and last year gave away 2,000 rubber ducks at public events.

STEVE RANNEY AWARD

The Steve Ranney Award is named after the late city engineer and stormwater manager for the City of Lewiston, Maine. The 2007 winner, Kenneth Locke of the City of Brewer, was credited for his "low-key, stick-to-itiveness" by Brenda Zollitch, facilitator for the Bangor Area Stormwater Group.

"Steve would have been immensely proud of the changes Ken has made happen through his hard work and perseverance," she says.

David Ladd, statewide stormwater coordinator for the Department of Environmental Protection, agreed: "Ken continuously seeks ways to make municipal operations more efficient and implements a program that goes well beyond the state's minimum requirements."



The stream cleanup committee meeting at the Brewer Water Pollution Control facility sets up a working model of the spring cleanup campaign. Members seated (from left) are Ken Locke, director of environmental services; Frank Higgins, city engineer; Linda Johns, city planning office; and Tracy Drew, environmental services department. Standing: Steve Butler, Water Pollution Control Facility lab manager; Jeff Hand, city engineer; Lou Colburn, chief of operations; and David Russell, code enforcement.



business. There, the volunteers receive commemorative T-shirts and thanks from the mayor, and hear a pep talk on pollution prevention and control from the MDEP.

Local media cover the event aggressively. Reporters from the Bangor Daily News write articles before, during and after the event, and local TV stations send reporters. To help solicit volunteers, a local radio station airs daily public service announcements for weeks.

Learning by canoe

Some communities might stop at one successful event like this, but not Brewer. The public education program includes other projects that bring citizens and municipal services together around the stormwater management cause. Working with the Penobscot River

bypass system. They lunch on pizza, chips, cookies and soda, and talk with plant staff about local water quality and pollution prevention. "This is an excellent tool for stormwater education, says Locke. "We see 40-60 students each trip."

Brewer takes full advantage of other opportunities to work with area students. The Environmental Department owns a tabletop model that traces non-point-source pollution and shows how various pollutants can enter the watershed and threaten water quality. Brewer Middle School sixth grade science teacher Brenda Willis uses the model (available from Enviroscape in Chantilly, Va.) in her classroom.

"I'm a firm believer in water conservation," she says. "We take students down to the wastewater treatment plant so they can see what happens to the water they use, and then we come back to the classroom and use the model." The model lets students "make it rain" so they can see how the water washes into the river. They simulate oil spills and runoff of pet waste and other pollutants.

"We've been doing this for 16 or 18 years," Willis says. "The kids love the hands-on experience, and the City of Brewer has been absolutely supportive of what we're doing."

Locke and his team make the model available at other venues, as well. An AmeriCorps volunteer hired by the Bangor Storm Water Group demonstrates it at other area schools, and the city makes it



John the Baptist High School students visit the Brewer Water Pollution Control Facility for tours. (Photo courtesy City of Brewer)

available at a local Water Day sponsored by the Brewer Salmon Club.

To the streets

Stenciling the city's 1,200 catch basins is another project that draws public attention to stormwater management. Each June, when students and teachers are looking for outside projects, Brewer staff and Willis organize up to 60 sixth-graders into teams that paint "Do Not Dump — Goes To River" in yellow or white on the basins. They do half the basins each year. "People drive by the kids and honk and wave," says Locke. "It's just another way to teach students and educate the public."

Brewer seeks opportunities to collaborate with other groups on water education, and save money in the process. Working with the Bangor Area Stormwater Group (BASWG), Brewer's staff helps carry the stormwater message to public gatherings like the Bangor Folk

Festival and Bangor Garden Show.

"We target the homeowners ages 30 to 55," says Locke. "Our message is environmentally friendly lawn care." The programs urge property owners to use phosphorus-free fertilizer and to fertilize lawns in the fall, rather than in spring when rains are more likely to carry chemicals into the watershed.

"We also recommend setting lawn mowers at three inches to promote better root growth and shade out weeds, and leaving clippings on the lawn as a free natural nutrient," says Locke.

The training also emphasizes cleaning up pet waste, avoiding the use of pesticides if at all possible, using green gardening practices, and limiting oil runoff from driveways.



Keepers and local schools, Brewer takes part in a unique water education event five to seven times a year.

Advanced biology and environmental science students from area schools pile into 10-person war canoes and paddle down the Penobscot River, as the River Keepers volunteers educate them about stream history. (The canoes are built by retired teacher Mike Mayberry).

Midway through the voyage, they stop at the Brewer Wastewater Treatment Plant to tour the facility and the stormwater treatment

Floating ambassadors

That is where rubber ducks come in. “Eighty percent of the people at these events have seen the statewide ‘rubber ducky’ outreach media campaign that the BASWG runs each summer on local TV to raise awareness about stormwater pollution,” Locke says.

In the ads, the ducks represent different types of pollution, so when Locke and his team talk to people about stormwater pollution and in-home prevention measures, they give away a rubber duck as a reward for listening or answering a question correctly. The ducks also play a role in the interactive display about pollution.

“In our display, we feature five different forms of stormwater pollution: oil and grease, soil erosion,

ordinance to cover this issue, which will require all post-construction Best Management Practices (BMPs) to be operated, maintained and inspected by the developer or a homeowner group. There is also discussion about the BASWG hiring a consultant annually to inspect stormwater BMPs in all that group’s MS4 communities.

Pollution prevention. Using an Elgin Whirlwind MV sweeper from Elgin Sweeper Co., Brewer cleans all streets each spring, removing 1,000 to 2,000 cubic yards of sand used during winter road maintenance. The material is recycled at the city’s Construction Demolition Debris landfill as cover.

Catch basin cleaning. A crew of two, plus a supervisor, cleans and flushes 800 of the city’s 1,200 catch

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Kenneth Locke

pet waste, fertilizer and pesticides,” Locke says. “If we select a pet waste duck, we place it on the display near the pet waste, and the water carries the duck to the stormwater collection system on the display, and eventually to the receiving stream. This is how we connect the source of pollution with the river.”

Other measures

As required by its state permit, Brewer has launched several other programs to control stormwater pollution throughout the community. They include:

Illicit discharge detection and elimination. A city ordinance prohibits illicit dumping, and a Stormwater Hotline helps apprehend and stop violators. Citizens report incidents over the hotline, which connects directly to cell phones and e-mails of stormwater and wastewater treatment managers.

Construction site runoff control. A local ordinance will cover this issue, but at present the city relies on the Maine Construction General Permit, and refers contractors to that.

Post-construction stormwater management. The city is writing an

ordinance to cover this issue, which will require all post-construction Best Management Practices (BMPs) to be operated, maintained and inspected by the developer or a homeowner group. There is also discussion about the BASWG hiring a consultant annually to inspect stormwater BMPs in all that group’s MS4 communities.

Training of municipal employees. Brewer makes certain its own employees are knowledgeable about stormwater pollution prevention. Employees from the environmental, wastewater, public works, fire, code enforcement, planning, and parks and recreation departments receive training annually.

Combined with effective public education, all these measures help Brewer and its residents keep local waters clean and healthy. ♦

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