

TIDES

Dire Straits

Beach closures are
on the rise again

...and how one community
is raising the bar for the
rest of the state



Exploration Center & Aquarium Reopened to Public

After nearly nine months of rebuilding, Save The Bay reopened its Exploration Center & Aquarium in Newport to the general public on Saturday, July 27 at 10:00 a.m. The facility, located on the ground floor of the Rotunda at Easton's Beach, sustained catastrophic damage to its electrical and filtration systems when superstorm Sandy pushed almost two feet of seawater and sand into the building.

When the seawater came in, it naturally settled into the lowest space in the rotunda—the basement, where most of the Exploration Center's life systems were located. Filtration equipment, plumbing, and electrical equipment were destroyed. These vital systems kept the aquarium running and allowed all of the critters that were native to Narragansett Bay to thrive in an educational setting. Once the damage was realized, Save The Bay staff and volunteers moved quickly into action to rescue, relocate, and, in some cases, release many of the aquarium's inhabitants.

Despite the fact that all exhibits were without filtration and aeration for several hours, there was no loss of critters. Many of the animals were moved to our Bay Center in Providence, and several partner organizations, such as Mystic Aquarium and Aquidneck Lobster Company, took in others. Save The Bay staff and volunteers did have to release two smooth dogfish sharks back into the ocean.

Save The Bay's rebuilding work was bolstered by 14 interns and a volunteer engineer. John Haley, co-owner of Portsmouth-based BioProcess H2O, donated hundreds of labor hours in designing and installing a new filtration system on the first floor. His company also provided the equipment at cost.

Other donations of time and labor came from Schneider Electric of West Kingston and Hayward Pumps of North Kingstown. Schneider Electric provided hundreds of staff volunteer hours cleaning, scraping, and painting the Exploration Center, plus collection of several new specimens. Jamie Murdock of Hayward Pumps secured thousands of dollars in aquarium

equipment and provided free professional consultation on the reconstruction of the aquariums.

New smooth dogfish sharks and other specimens arrived from the Rhode Island Department of Environmental Management and local fishermen.

Save The Bay's education program depends on the use of the Exploration Center & Aquarium. Prior to superstorm Sandy, about 18,000 members of the public—including more than 3,000 school students—visited the Center. The Newport School District sends its entire third grade there for visits.

Location

175 Memorial Boulevard in Newport

Admission

\$6.00 for ages four and older. Save The Bay members and those three years and under always enjoy free admission.

Information

Call 401-324-6020 or visit savebay.org/aquarium

Bay Adventures



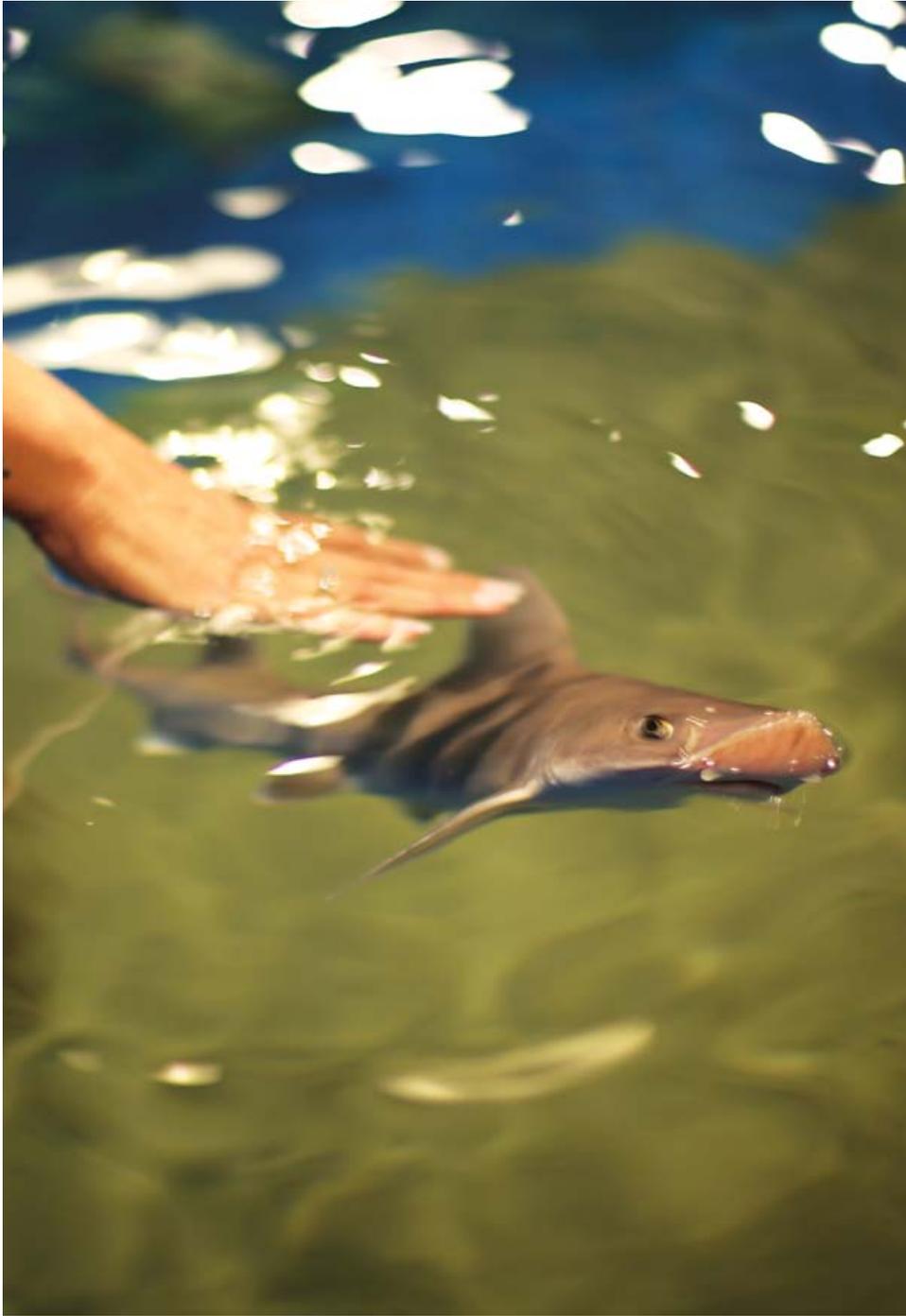
Join us on Narragansett Bay this winter! With the addition of Save The Bay's newest education vessel, *M/V Elizabeth Morris*, we have plenty of capacity to get people on the Bay to experience our popular Seal Watch Cruises out of Newport.

In the spring, Save The Bay will expand its cruises to include full and half-day lighthouse tours, marine science excursions, and trips to Prudence Island. Our vessels are also available for group charter.

All of our public tours benefit Save The Bay's mission of protecting, restoring, and educating about Narragansett Bay.

Details at savebay.org/trips





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ON THE COVER:

*Beach closure sign at Governor Notte Park
in North Providence.*

*LEFT: A visitor to the Exploration Center
& Aquarium in Newport pets a smooth
dogfish shark.*

TIDES MAGAZINE | Save The Bay | 100 Save The Bay Drive, Providence, RI 02905
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Mission: Save The Bay protects, restores and improves the ecological health of the Narragansett Bay region, including its watershed and adjacent coastal waters, through an ecosystem-based approach to environmental action; defends the right of the public to use and enjoy the Bay and its surrounding waters; and fosters an ethic of environmental stewardship among people who live in or visit the Narragansett Bay region.





SAVE THE BAY®

NARRAGANSETT BAY

Seal Watch Tours

Boat departs from 142 Long Wharf Dock, Newport
at the intersection of Long Wharf and Washington Streets.
Seal tours run weekends and school vacations,
November 2013 - April 2014.

Reservations: 401-203-SEAL

www.savebay.org/seals



Proud Sponsor



Save The Bay Expands Education Fleet With New Vessel

BY ERIC PFIRRMANN

On the afternoon of September 25, *MV Elizabeth Morris* was christened and welcomed into the fleet of Save The Bay's education vessels. With generous funding from The Alletta Morris McBean Charitable Trust, The Champlin Foundations, Diana E. Oehrli, and Chip and Donna Hazard, *Elizabeth Morris* was constructed over the past year by expert boat builders at Chesapeake Boats of Crisfield, Maryland.

At 46 feet in length, *Elizabeth* is just a little larger than her sister ship, *MV Alletta Morris*, but shares many of the same characteristics. Her shallow draft, large open deck, and fast 20-knot cruise speed will all be familiar to those who know *Alletta*. *Elizabeth* was designed to carry up to 40 passengers and will be certified for operation on all southeastern New England waters from Nantucket Sound through Rhode Island Sound and Long Island Sound. Save The Bay also operates *MV Swift*, a 26-foot Oldport Marine launch for education programming. *Swift* carries 12 passengers.

The addition of *Elizabeth Morris* will do more than just double Save The Bay's passenger and student capacity. With both *Alletta* and *Elizabeth*, Save The Bay plans to station one boat in Providence for the upper Bay and one in Newport to cover the lower Bay and Rhode Island Sound. Schools will spend less time and money on busing and Save The Bay will spend far less on fuel running a boat up and down the Bay.

While *Elizabeth Morris* will be primarily based in Newport, her larger operating area will open new markets and audiences for Save The Bay's programs. This winter, we will offer cruises on the Pawcatuck River in Westerly for the general public as well as on-the-water experiential learning programs for South County schools. The educational programming will be in conjunction with our Westerly South Coast Center.

Block Island and Buzzard's Bay are also potential future departures or destinations.

One of the biggest advantages of adding a vessel the size of *Elizabeth Morris* is our ability to interact with our membership. With two boats on the water all year long, we have the capacity to run additional public programs. From seal watches, lighthouse tours, Prudence Island trips, and marine science cruises, we aim to run at least one public trip per weekend.

We invite you to come out on one of our trips this fall or winter to check out our new arrival! Visit savebay.org/trips to learn about all of our excursions on the Bay.



ABOVE: The new vessel, *M/V Elizabeth Morris*, passes Conimicut Lighthouse on her maiden voyage to Providence. BELOW: The September 25 christening of *M/V Elizabeth Morris* with Save The Bay supporter Alletta Cooper and Captain Eric Pfirrmann.



TAKE ACTION

Your gift of \$100 puts a local student out on the Bay. Give at savebay.org/donate.

EDUCATION

Save The Bay Receives Competitive NOAA Fisheries Grant for Education

BY BRIDGET KUBIS PRESCOTT



Students from Roger Williams Middle School seine for macroinvertebrates at Lonsdale Marsh along the Blackstone River.

Last spring Save The Bay's *Explore The Bay* education program received \$72,000 as a recipient of the National Oceanic and Atmospheric Administration (NOAA)'s B-WET (Bay, Watershed Education, and Training) program. The environmental education program promotes locally relevant, experiential learning in the K-12 environment. The delivery of B-WET occurs primarily through competitive funding that promotes Meaningful Watershed Education Experiences.

The funded program, Project Narragansett—Providence Schools Edition, was created in response to teacher feedback and Providence school district staff who believed that current professional development programs lack the science content teachers really need. This comprehensive program model aligns with Providence's science curriculum, Rhode Island Grade Span Expectations, as well as Science, Technology, Engineering, and Mathematics (STEM) disciplines.

Project Narragansett includes a week-long summer academy for up to 20 Providence public school teachers, two field experiences for their students aboard one of our education vessels, and bus funding.

The uniqueness of the program is that the teachers have the same experiences the students will have during the school year. The teachers create units of study in accordance with the district's curriculum based on their experiences during the summer academy and incorporate the field experiences for their students. It's experiential learning at its best.

Here is some feedback from the teachers after their week on the water with us:

*"I just completed my 13th year of teaching in Providence. **In all my years in Providence, this was the best professional development I've ever been involved in.***

It is difficult to put into words exactly how much I learned during this experience.

The instruction we received has given me the confidence to teach my students more about where we live and all of the amazing things going on around us."

— Bridget Richardson, Grade 4 teacher at Woods Young Elementary School

"I am excited to have been part of this experience. My knowledge of environmental science has been enhanced and deepened. I have been challenged both academically and in the field and can relay this fabulous information to our students.

My students will be inspired to be scientists and advocates of their environment."

— Christine Mendonca, Grade 4 teacher at Vartan Gregorian Elementary School

As a result of the federal fiscal climate this year, the process was very competitive.

"Nearly every application was outstanding," said John Bullard, regional administrator, Northeast, NOAA Fisheries. "Great projects were proposed by talented watershed and marine educators, which made the selection process pretty tough."

"We're excited about the opportunities offered by the B-WET funding," said Bridget Kubis Prescott, Director of Education for Save The Bay. "It enables us to create a systemic, multi-level experience for the students and teachers of Providence over an entire school year, using Narragansett Bay as their living classroom."

B-WET is national in its scope with seven regional programs: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawaii, New England, and the Pacific Northwest. Other award recipients from the New England region include: Salem Sound 2000, University of Maine, Gloucester Maritime Heritage Center, Education Connection, University of Rhode Island SMILE, Sturgis Charter Public School, and Lake Champlain Maritime Museum at Basin Harbor, Inc.



CLOCKWISE FROM LEFT: Teachers participate in a trawl onboard M/V Alletta Morris; explore a spider crab; and identify the Bay species caught in the trawl.



Bay Institute for Experiential Learning Offers Professional Development for Teachers

BY BRIDGET KUBIS PRESCOTT

This past June, Save The Bay launched the inaugural year of the Bay Institute for Experiential Learning. Bringing together educators from Rhode Island, New York, and New Jersey—and using historic Narragansett Bay as a resource—participants were introduced to place-based learning and the experiential learning model.

Participating educators were able to take a step back in time and look at how the geological shaping of a place can influence human history. From historic Slater Mill to Pawtuxet Village, teachers discovered how life has changed along Narragansett Bay and what the environmental impacts have been.

Under the guidance and expertise of education staff from Save The Bay, scientists from Brown University and the Narragansett Bay National Estuary Research Reserve, and teachers from local schools, participants explored not only the history and science of Narragansett Bay but how place-based education can be brought right into the classroom.

The next Bay Institute for Experiential Learning is scheduled for June 23-26, 2014. Visit savebay.org/bayinstitute for more details.



FROM THE DIRECTOR

Celebrating Stewardship in All Its Forms

“Stewardship” is a word that aptly defines Save The Bay’s mission. For us the term has many dimensions. This issue of *Tides* illustrates the point. As an accomplished advocate, we must shine a light on pollution to catalyze action. Widespread and persistent beach closures this summer reflect an insidious and growing problem: polluted runoff fouling our beaches and rendering the Bay unlivable for fish and shellfish. In this issue’s cover story, we deliver a call to action. There are solutions to the root causes of beach closures, but they depend on public education, political will, and resources. Bristol Town Beach is a prime example of a solution put into practice.



Education is another essential dimension of stewardship. More than a decade ago we committed ourselves to establishing school programs that inspire the next generation of Bay guardians and support student proficiency in the sciences. This past summer marked several milestones in our *Explore The Bay* program: the arrival of our newest education vessel, the *Elizabeth Morris*; the inaugural session of the Bay Institute for Experiential Learning, a professional development program for teachers; and the reopening of our Exploration Center & Aquarium in Newport after its destruction by superstorm Sandy.

Central to our role as Bay steward is fieldwork. Our staff is on the Bay or along the rivers and streams that flow into Narragansett Bay year-round. Our Baykeeper and Coastkeeper, Tom Kutcher and Dave Prescott, are on the water responding to pollution incidents, monitoring water quality, and advocating for sound public policy that protects our coastal habitats and preserves public access to our Bay and beaches. Our restoration staff is identifying and promoting dam removals on Bay tributaries and studying an alarming decline in the health of our coastal salt marshes. Save The Bay’s “boots on the ground” are dedicated and passionate stewards for whom protecting the Bay is their life work.

This missionary work would not happen without you. Our members, donors, volunteers, swimmers, and foundation partners are the backbone of our political strength and our financial health. To all of you, **thank you for your support.** Please enjoy this issue of *Tides*, celebrating stewardship in all its forms.

A handwritten signature in black ink, appearing to read "Jonathan Stone".

Jonathan Stone
Executive Director



COVER STORY

Dire Straits

BY PETER HANNEY

“EXPLORE RHODE ISLAND BEACHES. CLEAR OCEAN WATERS, COOL BREEZES AND BRIGHT SUNSHINE.”

So says the Rhode Island Tourism Division. Sure, the ocean-facing beaches tend to have cleaner, clearer waters, but what about the beaches of Narragansett Bay?

This summer, Rhode Island beachgoers were faced with over one hundred closure days just halfway through the beach season. Throughout the entire summer, 22 beaches were closed for at least one day each, and several saw double digit closure days. Although a cluster of closures was in the Warwick and Greenwich Bay areas, beach closures hit statewide: Newport, Tiverton, North Kingstown, Narragansett, Barrington, Warren, Middletown. Few towns were spared a beach closure this season. (A beach closure day is defined as one beach being closed for one day. If three beaches are closed for two days, it is considered six closure days.)

So why the high number in 2013? The beach closures that Rhode Islanders saw this summer were most likely due to a combination of factors that included heavy rainfall in June, plus hot air temperatures and calm winds in July.

Save The Bay sounds the alarm

Tom Kutcher, Narragansett Baykeeper, regularly monitors water quality in the Bay. In June, it was clear to Kutcher that Narragansett Bay was experiencing deteriorating water quality similar to conditions that contributed to the 2003 Greenwich Bay fish kill. Beach monitoring data from the Rhode Island Department of Health (DOH) confirmed this. Sensing that the number of beach closures was on pace to more than triple the previous year's total, Kutcher called for action. Save The Bay held a press conference on July 31 at Oakland Beach in Warwick—a beach with scenic vistas on Greenwich Bay that had been closed more than 45 percent of the time since Memorial Day—to draw attention to the Bay's poor health.

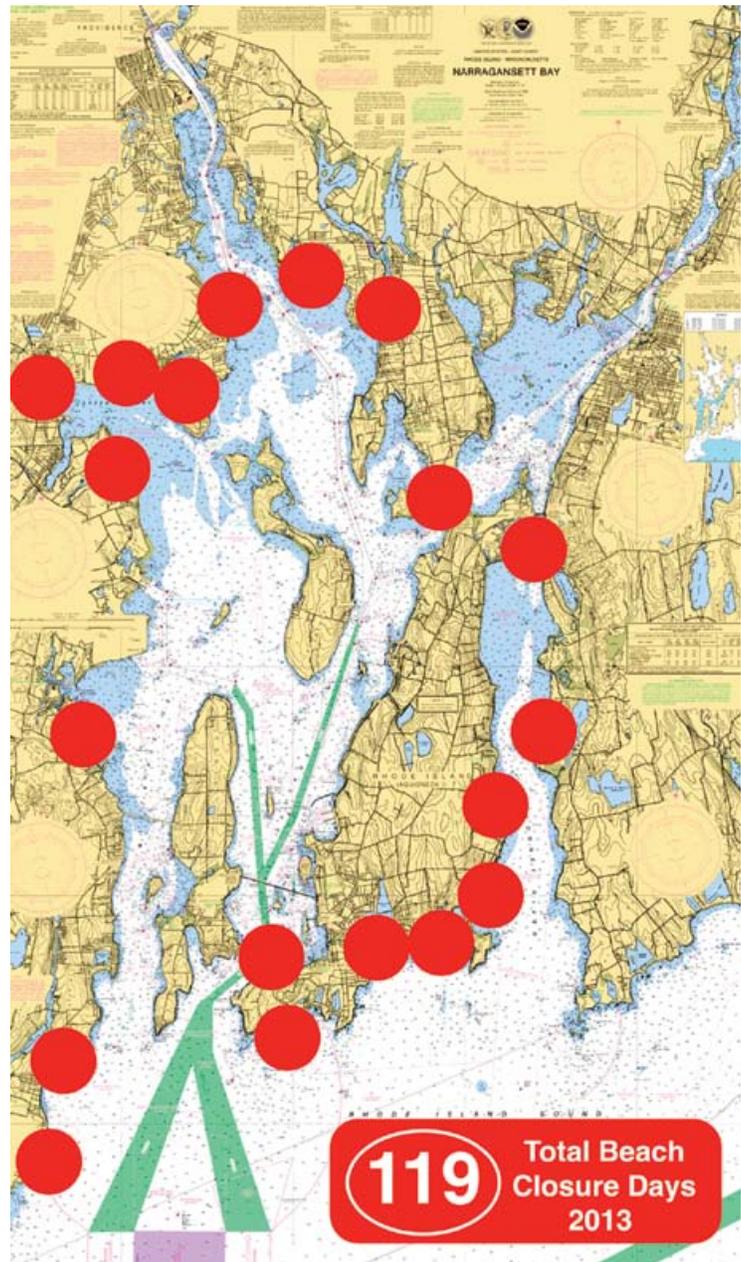
Pollution is the problem, not rain

“You can't blame the rain, but rather what the rainfall carries into the Bay,” said Kutcher. “Lawn chemicals, automotive fluids, and pet waste get carried from the earth into

Narragansett Bay.” Standing under the gazebo at Oakland Beach, Kutcher motioned towards Greenwich Bay. “This beautiful beach has been closed as often as it's been open this year due to bacterial contamination.”

Closures weren't exclusive to Greenwich Bay; they plagued almost every corner of the Bay and along the south coast of Aquidneck Island.

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LEFT: Scarborough Beach in Narragansett. RIGHT: Red dots highlight beach closures in every corner of Narragansett Bay during the summer of 2013.

"We have stormwater pipes discharging this polluted soup directly onto many of our beaches," said Kutcher defiantly. "Am I the only one who thinks this is crazy?"

In addition to animal waste, lawn chemicals, and automotive fluids, Kutcher explained that failing septic systems contaminate the groundwater with sewage.

"One of the worst offenders is cesspools, which are holes in the ground that often directly feed into the groundwater system. Like surface water, this contaminated groundwater flows downhill to the Bay."

"And this is basically raw sewage," said Kutcher. "Clearly, more work needs to be done at the local level to address our outdated and failing systems. Let's not wait for fish to die. Our beautiful Bay, the pride of our state, is in crisis now. How could we possibly choose not to address that?"

Beach closures have a harmful effect on the economy

Local businesses such as restaurants, convenience stores, hotels, and summer property rentals, depend on summer visitors and residents alike. When a beach is closed to swimming, people take their business

Phase 1 of the CSO tunnel has captured and treated more than five billion gallons of untreated stormwater and sewage since October 2008. Photo courtesy of Narragansett Bay Commission.



elsewhere. Communities are also hurt by lowered property values and bad publicity.

Public investments have paid off

The 2003 Greenwich Bay fish kill prompted action by the Rhode Island General Assembly and municipalities. Prior to 2009, enormous amounts of bacteria entered the Bay through sewage treatment plants. Heavy rains were too much for the plants to handle, and the overflow was released untreated into the Bay, taking sewage with it.

The problem of local polluted runoff can be fixed. At the state level, Rhode Island voters have overwhelmingly approved investments in upgrading our wastewater treatment plants. The Narragansett Bay Commission's (NBC) Combined Sewer Overflow (CSO) system is a prime example.

In October of 2008, the NBC completed the first of three phases with the construction of a CSO tunnel. This tunnel was designed to hold back the mixture of rainwater, road runoff, and raw sewage that used to run directly into the Bay after storms. According to the NBC, approximately 4.6 billion gallons of combined stormwater and wastewater that would have gone straight into Narragansett Bay have been treated at the Fields Point Wastewater Treatment Facility. The CSO tunnel has had significant, positive effects Bay-wide.

Beach closures associated with wastewater treatment plant overflows have declined dramatically since the first phase of the CSO tunnel was completed. There are fewer beach closure days attributed to runoff from the Providence area when the amount of rain is factored. Beach closure days have routinely followed the amount of rainfall. Since 2009, the gap between rainfall and closure days has widened as stormwater management projects—especially the CSO tunnel—have done what they were designed to do.

We also know that stormwater runoff is a major culprit in poor water quality, carrying human and animal waste, fertilizer, pesticides, oil, grease, and trash from lawns, parking lots, and roadways into the Bay. Properly engineered parking lots and roadways channel runoff into catchment basins, vegetated swales, or rain gardens that allow the pollution to be filtered naturally by plants and the water to sink into the soil.

Bristol, a town that used to experience repeated beach closures at its town beach, had zero beach closures in 2013. That's because the town invested in the capture and treatment of polluted runoff

and wastewater from failed septic systems through the planting of rain gardens, vegetated swales, and the relocation of a parking lot. And it's paid off. [see article below on Walter Burke]

Rhode Islanders love their beaches. But how do we know the water is safe for swimming?

All of Rhode Island's 39 cities and towns are within a 30-minute drive to a public beach. After all, we're the Ocean State. So while we are slathering on the sunscreen, filling the cooler with drinks and snacks, and putting the beach chairs and umbrella in the car, do we know if the water at our favorite beach is safe to swim in?

The Department of Health monitors the safety of our licensed bathing beaches throughout the summer. Every weekday from Memorial Day to Labor Day, staff or volunteers collect water samples at licensed swimming beaches. Those samples are analyzed at the State Health Lab in Providence for *Enterococci bacteria*, an indicator organism used to detect the presence of fecal matter in the water column. DOH recommends that beaches close when the

bacteria levels are above standards set by the Rhode Island Department of Environmental Management and the U.S. Environmental Protection Agency. When levels are above the standard, DOH announces recommended beach closings.

The widespread beach closures this summer are an unwelcome reminder that we still have a long way to go. Polluted runoff is a local problem affecting local beaches. In many areas of the Bay, communities must do more to address the problem.

CALL TO ACTION

- Eliminate cesspools statewide
- Build and maintain local stormwater management infrastructure
- Provide state support to municipalities for stormwater controls

Save The Bay depends on its supporters to shine the light on the problem of polluted runoff and to press for action. It's time to end beach closures once and for all.

A Success Story in Bristol

BY KIMBERLY DELANDE

"I never liked having to grab that 'Beach Closed' sign. There was no worse feeling in the world than seeing children and families heading to the beach for a day of fun, and then having to tell them to get out. I hated doing it."

Despite the heavy rains in the first half of the summer and the copious beach closures that followed, Bristol Town Beach's clear waters have been open all summer long for the public to enjoy.

Bristol Town Beach's lack of closures and improved water quality are easily linked to the initiative of Bristol's Director of Parks and Recreation, Walter Burke. His passion for the environment, and his desire to provide a beach where residents could swim in clear, pollution-free water, spurred his plan to address the sources of pollution contaminating the beach.

"Traditionally, the number of beach closures [in Bristol] has been sky high," said Burke. "But this year our beach closure count has remained at zero. It just goes to show that environmental work can have beautiful results."

The beach did not transform overnight. Stormwater runoff once washed fertilizers and goose droppings from the parking lots and lawns into the water, while the wetlands surrounding the area harbored invasive plants. Two failed septic leaching fields, as well as four nearby storm drains that discharged nearby, also affected the beach's condition.



Walter Burke, Bristol Director of Parks and Recreation

"I never liked having to grab that 'Beach Closed' sign," said Burke. "There was no worse feeling in the world than seeing children and families heading to the beach for a day of fun, and then having to tell them to get out. I hated doing it."

Over eight years, Bristol Town Beach has undergone a multitude of projects that have reshaped the area for the better. The parking lot was re-graded and a series of swales was built to capture and infiltrate runoff and prevent it from flowing down to the beach.

Save The Bay identified a section of the park to infiltrate runoff from a pipe that drained directly into an adjacent wetland. The Town constructed a "bio-retention area" that allows polluted runoff from the neighborhood to sink into the ground where it is filtered by soil rather than flowing directly into the Bay.

Two septic systems were removed, and the beach was connected to the town's sewer system. To discourage Canada geese, more than 100 trees were planted around the site. Native plants were installed as a natural vegetative buffer. Youth from the summer camp program worked with Save The Bay planting salt marsh plants in an area that had been impacted by mowing.

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“The East Bay has a very sensitive environment,” Burke said. “Since it’s a peninsula, its health is crucial to the health of the Narragansett Bay. Everything feeds back into it. We have to work hard to preserve and protect it.”

Thanks to the efforts of volunteers, the renovation of the beach proved to be a success. Burke attributes this success to the many partnerships he’s made during the course of the project.



Bristol Town Beach. Photo courtesy of Town of Bristol.

“The more work, drive, and energy you put into a project, the more people will want to get involved,” said Burke.

Burke has a strong reliance on his partnership with Save The Bay, who pitched in to recondition the beach.

“Wenley Ferguson [Save The Bay’s director of habitat restoration] has been the catalyst of all my environmental work. I don’t do anything environmental without consulting with her.”

Burke still isn’t finished improving Bristol’s environment and has plans to restore the wetlands and make it more functional. While his task may be large, the renovation of Bristol Town Beach proves that hard work and dedication can lead to remarkable results.

“It’s important to live, swim, and breathe in a pollution-free area,” Burke said. “I couldn’t be more proud and excited of what we can accomplish.”

The partnership between Burke and Save The Bay continues throughout the Town of Bristol. In Silver Creek, Save The Bay is collaborating with Mt. Hope High School on projects to infiltrate runoff and a rain garden has recently been installed by students and teachers.

New Digs on South Coast



SOUTH COAST CENTER OPENS IN DOWNTOWN WESTERLY

In April Save The Bay officially opened the South Coast Center in downtown Westerly. While Save The Bay has had an on-the-water presence and office space in Westerly since 2007, this was the first opportunity for a visitor center where the public can touch, explore, and learn about the amazing marine and freshwater species that call Rhode Island waters their home.

The 400-square-foot South Coast Center features a large touch tank, several aquaria, a children’s story area, and a craft area. So far, the response from the local community and tourists has been great. Since the opening, more than 1,200 children and adults have visited the Center. We continue to add new exhibits with interesting and unique marine creatures, and our Riverside Story Hour will continue throughout the year.

The South Coast Center is open Mondays, Wednesdays, Fridays, and Saturdays from 10:00 a.m. until 3:00 p.m. It is located in the Riverside Building (former McCormick’s building) at 8 Broad Street in downtown Westerly. For more information or if you are interested in volunteering at the Center, please call 401-315-2709 or visit us online at savebay.org/southcoast



AnnaKate, an AmeriCorps member at Save The Bay, shows Will some of the marine life in the touch tank at the South Coast Center.

Coastkeeper Report: Water Quality in Little Narragansett Bay

BY DAVID PRESCOTT,
SOUTH COUNTY COASTKEEPER



The summer of 2013 was a roller coaster ride for water quality. From the record-breaking rains in June, to the extreme heat wave in July, our local waters and the

creatures that inhabit them were stressed. Water temperatures were way up; dissolved oxygen levels were way down. In Little Narragansett Bay, large mats of macroalgae littered the top of the water.

While we did not experience the high numbers of beach closures (due to bacterial contamination) in South County as compared to the rest of the state, taking a dip in your local watering hole should have at least made us pause.

Since 2008, staff and volunteers from Save The Bay's South County office have been collecting water quality data from six locations within the Pawcatuck River and Little Narragansett Bay. Samples are collected twice a month from May through October, and bacteria, nutrient, and chlorophyll samples are processed through the University of Rhode Island's Watershed Watch program.

Save The Bay has used this five-year data set to initiate a dialogue on water quality improvements with the towns of Westerly, RI and Stonington, CT. We have directly advocated for upgrades to septic systems and treatment facilities, furthered public education on the environmental harm of fertilizers and pesticides, continued enforcement of illegal waterfowl feeding and shellfish harvesting, and made

improvements to more than 50 stormwater outfalls that drain directly into the estuary.

Our water quality testing remains an important part of measuring the health of our local waters. While Labor Day has passed and state licensed beaches in Rhode Island are no longer tested for bacteria, many locals and tourists alike continue to recreate in these waters. The number who swim, paddle, dive, and shellfish may be down, but the potential risk of getting sick in polluted waters still remains.

Upgrades to septic systems and sewage treatment facilities, complete removal of all cesspools, and targeted improvements to outdated stormwater systems still need to be a priority for communities along the coast as well as within the watershed. While we rely heavily on our local communities to address these inadequacies at the town level, it is also prudent that we as homeowners do our part as well.



What You Can Do

Install rain barrels, pick up pet waste, reduce or eliminate your use of fertilizers and pesticides, take care of your septic systems, and build a rain garden. Each of these small steps helps to reduce the amount of polluted runoff that makes its way to our rivers, bays, and coasts.

And be sure to stop by our South Coast Center in downtown Westerly to **pick up a complimentary copy of "Bay Friendly Backyards."** We all need to be part of the solution!



Volunteering with Save The Bay

In our 2013 fiscal year, 1,726 volunteers contributed nearly 16,000 hours to Save The Bay. This represented \$360,000 in in-kind contributions! Through volunteer efforts, we were able to monitor water quality, restore salt marsh habitat, track seal and scallop populations, educate thousands of visitors to the Exploration Center, mark storm drains, mobilize mailings and so much more. Our Shoreline Cleanup program was especially successful, removing 23,800 pounds of trash from our beaches!

There are many ways to get involved, from regular volunteering to single-day events or full internships. For more information, visit savebay.org/volunteer



TAKE ACTION

Volunteer in your area of interest. Contact July Lewis at 401-272-3540, x130 or volunteer@savebay.org.

RESTORATION

Restoring a Marsh, One Creek at a Time: The Winnapaug Marsh Restoration

BY WENLEY FERGUSON

When driving west on Atlantic Avenue on Misquamicut Beach in Westerly, it is hard to tell what the tide is by looking north across the marsh. Pools of water can be seen right along the road at the upper edge of the marsh even when the tide is out. In mid-May Save The Bay, in partnership with the Rhode Island Department of Environmental Management (DEM) and the Town of Westerly, began a pilot restoration project of the salt marsh on the southeastern corner of Winnapaug Pond.

The marsh, degraded by excessive amounts of standing water on its surface due to old mosquito ditches and sea level rise, was the site of a pilot project to assess the benefits of digging small creeks to drain water trapped on the marsh. Last spring, staff from the Town of Westerly operated a DEM excavator that was specifically designed to work on marshes with minimal environmental damage. With its relatively small size and wide tracks to evenly distribute its weight, the excavator allows the operator to dig small creeks, allowing water trapped on the marsh to drain.

As Westerly Public Works employee Donnie Brough expertly maneuvered the bucket of the excavator to dig creeks just



wide enough to drain the impounded water, Save The Bay staff and volunteers worked alongside, hand digging smaller creeks to connect with the larger creeks. As the water began to drain off the marsh, a variety of shorebirds migrating to northern breeding grounds in the Arctic descended to feast upon the newly exposed mud flats.

The marsh was originally ditched during the 1930s in an effort to reduce mosquito breeding habitat by draining natural pools on the marsh. Al Gettman, DEM's Mosquito Abatement Coordinator, describes the historic ditching as misguided and ineffective. The ditching had the unintended consequence of creating small dams along the edges of the ditches. As sea level continued to rise during the last century, these linear dams held water on the marsh

surface. What had once been marsh meadow was slowly flooded over the decades. The marsh surface sank and a grid like series of shallow pools formed throughout the marsh.

During last spring's digging, layers of peat and sand were exposed, providing another window into the marsh's past. A sand layer was found under a few inches of marsh peat, or mud, that was deposited on the marsh during the 1938 hurricane. Just as superstorm Sandy washed sand from the beaches into Winnapaug Pond last fall, the surge from the hurricane of 1938 covered the marsh with large amounts of sand. Over time, the marsh plants colonized the sand and slowly built up peat over the sand layer.

During the summer, Save The Bay monitored how the marsh responded to the restoration by tracking both changes in the marsh plant community and salinity levels in the marsh soil. The initial results show marsh plants reestablishing on the marsh where water had once been trapped for decades.

The digging continues this fall by Save The Bay and community members who participate in "dig days" to excavate small creeks in areas where the excavator could not reach. With hip waders and shovels,





CLOCKWISE FROM ABOVE: Save The Bay coastal ecologist Marci Cole Ekberg digs small creeks called “runnels” to help drain water off the marsh surface; just 24 hours after the project to drain the marsh began, sandpipers and other shorebirds converged on the area to feed; Donnie Brough, a Westerly Public Works employee, carefully clears clogged ditches with an excavator; and Director of Habitat Restoration Wenley Ferguson discusses the project with a reporter from the Westerly Sun.

volunteers become intimately familiar with the effects of too much water on the marsh. Peat begins to break down when water is

trapped on the marsh, so walking without getting stuck or losing a boot can become a challenge.

This project was made possible with funding from the Coastal Resources Management Council's Coastal and Estuarine Habitat Restoration Trust Fund and the U.S. Fish and Wildlife Service's (USFWS) Coastal Program.

In recent years, Save The Bay has noticed expanding areas of standing water in the upper parts of salt marshes that would historically be dry at most tides, even in marshes without historic ditching. The cause could be that more water has been

getting onto the marsh during high tides as a result of sea level rise. Since 1990, sea level has increased nearly three inches and the rate of rise has been increasing over the past two decades.

This seemingly small change in water level can cause major changes in marsh vegetation. Sections of the marsh that used to only flood during higher moon tides are now flooding regularly, causing a change in the marsh plants. Salt marsh sparrows nest on the marsh surface and rely on areas of “high marsh” that don't flood so regularly. Yet, initial results of our assessment show that these areas of high marsh are shrinking



Photo courtesy Peter Paton

in size, limiting suitable areas for these birds to nest. According to USFWS, the salt marsh sparrow population regionally is likely on the decline, and its future is directly threatened by sea level rise and marsh loss.

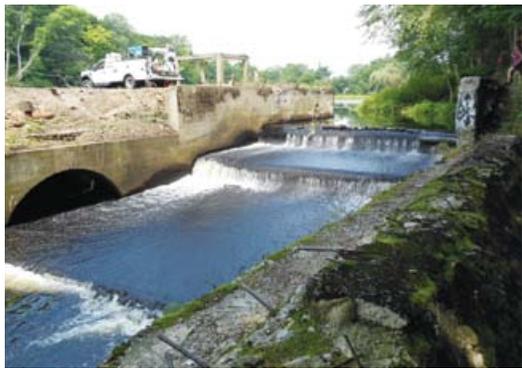
Later this year, Save The Bay will complete an effort to assess the health of marshes around Rhode Island with an eye toward sea level rise and to establish a baseline from which to assess the effects of sea level rise on the region's marshes going forward. From this assessment, Save The Bay and our partners from the Narragansett Bay National Estuarine Research Reserve on Prudence Island have identified other marshes where “adaptation” efforts are being planned to address standing water on marshes including sites in Barrington, Warwick, Prudence Island, and Jamestown.

TAKE ACTION

Participate in a salt marsh dig day. Contact July Lewis at 401-272-3540, x130.

The Rebirth of the Mill River

BY RACHEL CALABRO



Photos (above and right) show the Hopewell Mills dam during the removal process. The photo below shows the Whittenton Mill impoundment after restoration. The newly constructed stream banks are located where the dam once stood.

The Mill River in Taunton is on its way to once again becoming a thriving habitat for fish that migrate to the river from the ocean and for the fish that use the river as their home. After the Hopewell Mills dam was removed in the fall of 2012, fish began using this stretch of river immediately. The Massachusetts Division of Marine Fisheries is using the Mill River as a case study to see how fish respond to habitat restoration. This spring, they installed a video monitoring device upstream of the dam removal project and documented the first river herring to migrate into this part of the river in over 200 years!

During this spring's herring run, several hundred fish came through the newly restored section of the river. Other *anadromous* fish (live in salt water, spawn in fresh water) seen in the river included the sea lamprey and white perch. Resident fish such as yellow perch and white sucker live in the river all year, but move upriver in the spring to spawn. An adult American eel, a *catadromous* fish (live in fresh water, spawn in salt water), was also documented. Project partners were also delighted to see evidence of native brook trout in the river.

In addition to video monitoring, the Division of Marine Fisheries has started a study of American eel in the river using pit tags to mark and recapture fish to better determine their population size. They will also



begin to track herring as they travel into the upper watershed to better understand which habitats they use and their population response to their new habitat. This is an interesting case study because about two miles of river are being restored up to Lake Sabbatia with three dam removals and a fish ladder. The project will open up about 400 acres of newly available pond habitat.

Last summer a second dam on the river was removed at the Whittenton Mills complex. This dam was partially removed in 2005 and tons of rock were placed on the remains of the dam. The debris and the concrete and timber dam were all removed, revealing native cobble and gravel from the original streambed of the mill. Because sediment behind this dam did not need to be removed, native seed stock took off and the restored floodplain regrew quickly after dam removal. Stream bank reconstruction in the vicinity of the dam and stream bank planting along the stream up to Morey's Bridge are also part of the project.

One last fish passage barrier, the dam at Reed & Barton, will be removed next summer, completing this multi-phase restoration project. When all dams are removed, fish will pass through a new fish ladder before entering Lake Sabbatia. Fish will be counted and monitored at this fish ladder, and the public will be able to view the fish each spring. By restoring the river's floodplain, this project will also help protect downtown Taunton from flooding. The city will no longer have failing dams on its list of worries.

The Mill River restoration would not be possible without the support of many project partners, including state and federal agencies in partnership with non-profits including The Nature Conservancy, American Rivers, and Save The Bay.



Events

Citizens Bank “Sequester” Swim

The 2013 Citizens Bank Swim was one-of-a-kind. The Swim proved challenging, as we were unable to start at the Naval Station Newport, preventing the traditional cross-Bay Swim. The event still united more than 1,500 people including 351 swimmers and 97 kayakers who began and finished the 1.7-mile triangular swim in Jamestown’s Potter Cove. The 37th annual Swim welcomed participants from ages 15 to 83 and celebrated two swimmers who had each completed the event for 35 years. The Save The Bay Swim—the largest charitable open-water swim in the country and our largest fundraiser—raised nearly \$300,000.



Taste of The Bay

In May, our second annual Taste of The Bay celebrated the best of Rhode Island at our very own beautiful Bay Center in Providence. Sponsored by Newport BioDiesel and Residential Properties, the event invited community members and friends to eat, drink, and relish in the distinct flavors of more than 20 local partners. We raised nearly \$10,000 to support programs to restore, explore, and protect Narragansett Bay.



Golf Outing

Our second annual golf outing was held in May at The Carnegie Abbey Club in Portsmouth and hosted more than 80 golfers and special guests. Overlooking beautiful Narragansett Bay, the Scottish links course is one of the region’s premier golf courses. Generously sponsored by the Providence Journal Charitable Foundation, the outing raised over \$47,000 to support Save The Bay’s mission.



CLOCKWISE FROM ABOVE: Foods from around Narragansett Bay were served up to the public at the Taste of The Bay event in Providence; the starting line of this year’s “Sequester” Swim; participants at the Golf Outing enjoyed picturesque views of Narragansett Bay while supporting Save The Bay’s mission; and kids enjoy paddleboarding and kayaking at the Beach Slam.

Beach Slam

Save The Bay held its third Annual Beach Slam in September at a new location: Goddard Memorial State Park in Warwick. The Beach Slam event celebrates free access to the Bay and brings community members, sponsors, and supporters together to enjoy



and explore Narragansett Bay. Families experienced beach activities such as kayaking, seining, and stand-up paddleboarding. They also enjoyed arts and crafts, face painting, nature hikes, a rock climbing wall, a “Chill Zone,” live entertainment, and local food trucks. The Beach Slam’s major sponsors, including DuPont, Liberty Mutual, Hemenway’s Seafood Grill and Oyster Bar, and Stop & Shop, helped us raise more than \$30,000 to support education programs that will reach 15,000 children this year.

Save The Date

Artists for the Bay Show and Sale
December 5, 2013

Taste of The Bay
May 21, 2014

38th Annual Citizens Bank
Save The Bay Swim
July 19, 2014

4th Annual Beach Slam
September 2014

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tides@savebay.org

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 100 Save The Bay Drive
 Providence, RI 02905
 401-272-3540

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 Easton's Beach Rotunda
 175 Memorial Boulevard
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 401-324-6020

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Exploration Center & aquarium

SAVE THE BAY

NARRAGANSETT BAY

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Located in the Rotunda at Easton's Beach
175 Memorial Boulevard
Newport, RI 02840

Hours:

October through Memorial Day: Friday, Saturday, and Sunday 10 a.m. to 4 p.m.

Public school vacation weeks: Daily, 10 a.m. to 4 p.m.



SAVE THE BAY®

NARRAGANSETT BAY

SOUTH COAST CENTER

Located in downtown Westerly, the South Coast Center offers visitors the opportunity to learn about the amazing marine and freshwater species that call Rhode Island waters their home. It features a large touch tank, several aquaria, a children's story area, and a craft area. Come by to check out the sea life, learn about the water quality in Little Narragansett Bay and the Pawcatuck River, or stay for a Riverside Story Hour.

Located at 8 Broad Street
Westerly, RI 02891

Hours:

Mondays, Wednesdays, Fridays, and Saturdays from 10 a.m. until 3 p.m.

www.savebay.org



JOIN Save The Bay



YOUR MEMBERSHIP:

- Works toward clean, accessible waters and beaches
- Invests in educating future generations
- Makes a difference in your community
- Ensures the health of Narragansett Bay

YOU CAN HELP SAVE NARRAGANSETT BAY!

- Support marine science education programs for more than 17,000 students and teachers throughout Rhode Island each year
- Help to protect and restore over 124,000 acres of wetlands in Rhode Island
- Help support our cleanup efforts of over 30,000 pounds of trash collected from our coastline