SAVE THE BAY®
NARRAGANSETT BAY

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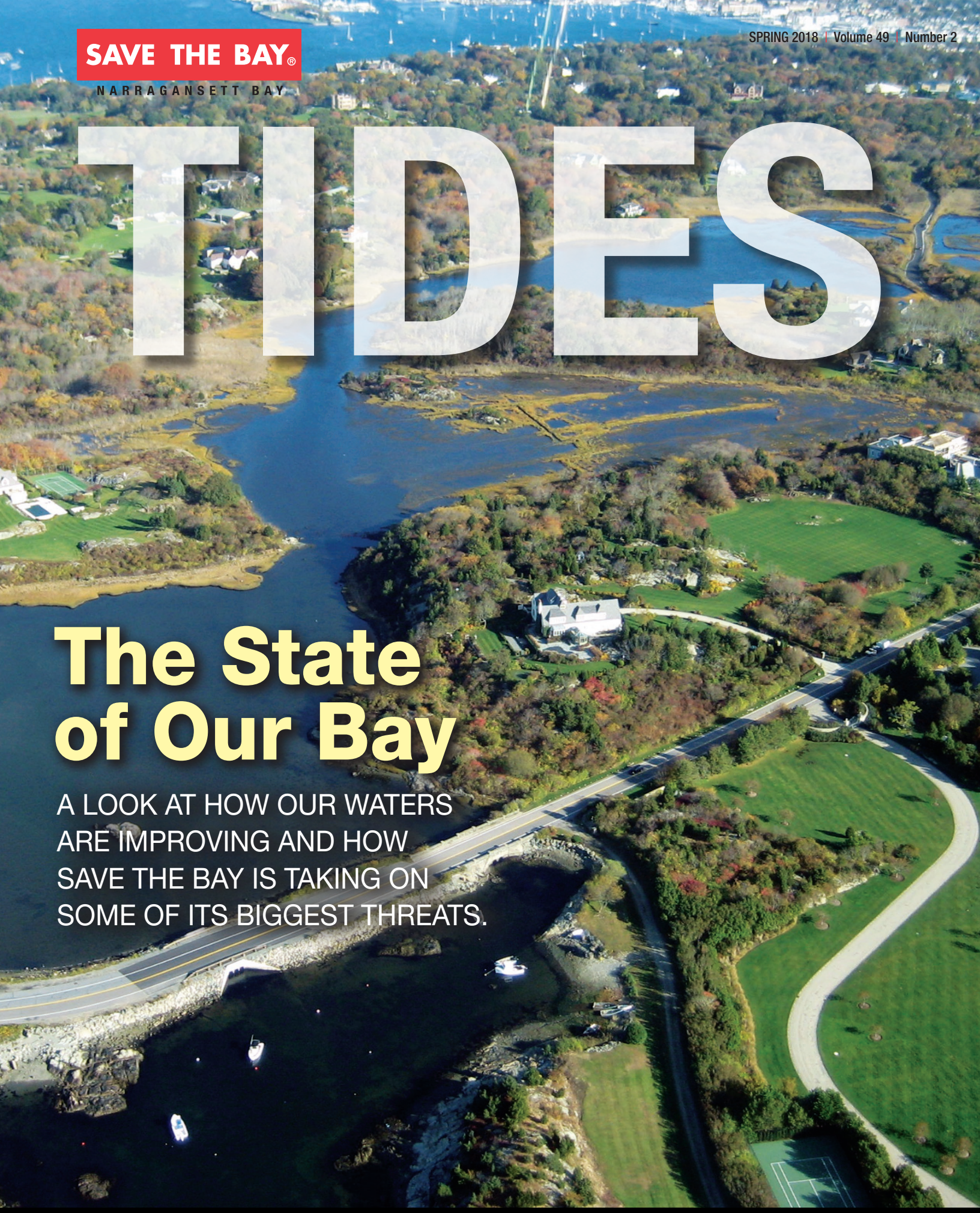
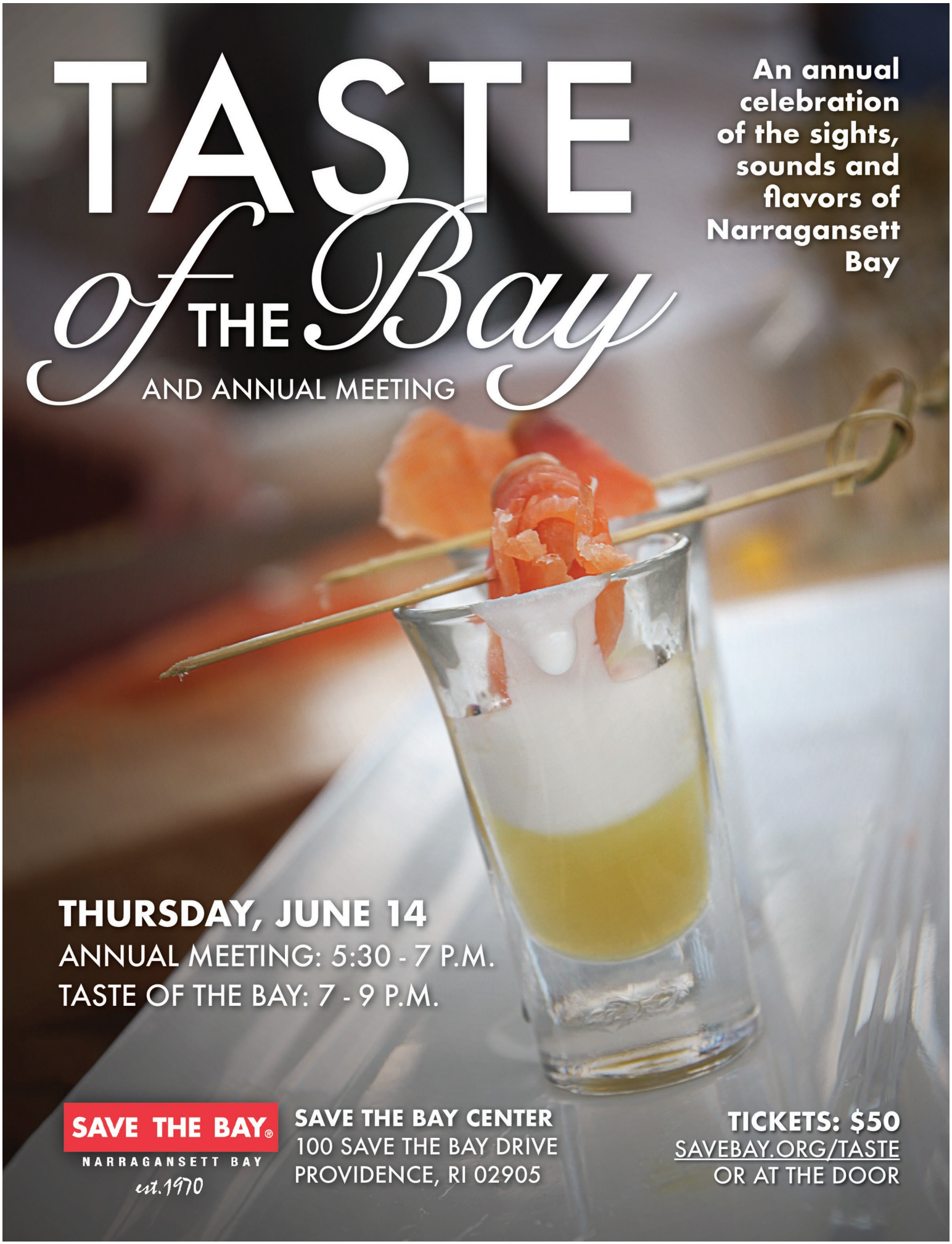
TIDES



The State of Our Bay

A LOOK AT HOW OUR WATERS ARE IMPROVING AND HOW SAVE THE BAY IS TAKING ON SOME OF ITS BIGGEST THREATS.

PLUS: Technology-Enhanced Learning | Action Updates | Marshes on the Move


TASTE
of THE Bay
AND ANNUAL MEETING
An annual celebration of the sights, sounds and flavors of Narragansett Bay
THURSDAY, JUNE 14
ANNUAL MEETING: 5:30 - 7 P.M.
TASTE OF THE BAY: 7 - 9 P.M.
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FROM THE DIRECTOR

Change is the Only Constant

I recently finished Thomas Friedman's latest book, "Thank You For Being Late," in which he describes three great accelerations that are profoundly affecting life on planet Earth. Technology, globalization and climate are all changing rapidly and at an ever-increasing rate. The question for all of us is: can we learn and adapt at a pace that allows us to keep up? Friedman's narrative got me thinking about the pace of environmental change in and around the Bay. Do we really understand why things are changing? What key gaps in our knowledge must be filled? Can we respond to changing climate conditions and population pressures in ways that preserve the environmental gains we've made over the past 50 years?

This issue of *Tides* is all about change. The Narragansett Bay Estuary Program's 2017 *State of the Bay and Its Watershed* report is a compilation of indicators of Bay health. One key takeaway from this report is that in an extraordinarily dynamic and complex system like our Bay, change is the only real constant. While some indicators show great progress, other indicators suggest increasing stress.

We've included articles that explore some of the profound changes around us: the composition of fisheries, the decline of salt marsh health, and the impact of urbanization and changing precipitation patterns on water pollution.

With your loyal support, the team at Save The Bay is committed to helping the Bay and coastal Rhode Island adapt to the accelerating pace of climate change and development pressures. You'll read about some of the many ways we're doing that here. We have made tremendous progress improving the Bay we inherited from the industrial era before us. Now it is incumbent on all of us to recognize and adapt to this incredible new era of change if future generations are to inherit a productive, healthy, thriving Bay from us.

Jonathan Stone
Executive Director

What's Inside...

ON THE COVER:

Aerial view of Gooseneck Cove marsh in Newport, overlooking Rhode Island Sound.

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Mission and Vision: Save The Bay works to protect and improve Narragansett Bay and its watershed through advocacy, education and restoration efforts. We envision a fully swimmable, fishable, healthy Narragansett Bay, accessible to everyone and globally recognized as an environmental treasure.

A Community Comes Together

On Wednesday, Feb. 28, some 150 men, women and children came together to stand up and speak out in defense of Rhode Island's priceless shoreline. This is the Ocean State, after all, and our economy, lifestyle, and livelihood all depend upon a clean, healthy ocean.

Carrying hand-made signs, wearing Save The Bay stickers, and chanting "No Drills! No Spills!," we gathered on the plaza outside the R.I. State House and then marched together the half-mile to the Marriott on Orms Street. As cars drove by, drivers honked and waved and high-fived in support of our cause. Media walked along the street, snapping pictures and interviewing people. Press coverage made it clear that Rhode Islanders stand united in our promise to protect our environment.

Our cause was to protect New England waters from the risks of offshore oil drilling, a protest against a federal plan to open up 90 percent of U.S. continental-shelf waters to oil and gas exploration and drilling. Save The Bay's Rally to Protect our Coast was part of a collective community effort that began with a press conference at the State House, organized by the Environment Council of Rhode Island, and ended with a Climate Action R.I.-organized mock public hearing inside the Marriott, where the federal Bureau of Ocean Energy Management was offering informational sessions about the federal plan.

Our goal is to get New England waters exempted from the federal plan. Who knows if we can influence the federal government at this juncture? But nearly 50 years of Save The Bay history prove that when we come together—passionate environmentalists, environmental groups each with its own distinct focus, and community members who care about our environment and economy for their children and grandchildren—to show our collective commitment, we can accomplish anything. ■

Wave 'Hello' to Our First Swim Ambassador, Elizabeth Beisel

■ BY KATY DORCHIES, MARKETING & GRAPHICS SPECIALIST

Swimmers and kayakers have myriad reasons for participating in Save The Bay's annual Swim fundraiser—for some it's about pushing their physical limits, while for others it's simply about helping to protect the Bay. For Save The Bay's first appointed Swim Ambassador, it's all about giving back to the hometown waters that helped her reach her goals.

"I grew up on the beaches of Narragansett Bay, which is where I fell in love with the water," said two-time Olympic medalist and Rhode Island native Elizabeth Beisel. "That love helped me accomplish my dreams to represent Rhode Island and the United States in the Olympics."

As Save The Bay's first Swim Ambassador, Beisel will offer welcoming remarks to participants in Newport on August 4 before jumping in the water and tackling the 1.7-nautical-mile swim challenge alongside other swimmers and kayakers. She will then present final awards from the Swim's finish at Taylor Point in Jamestown.

Swimmers and fans, however, won't have to wait until August to hear from Beisel. In the summer months leading up to the event, she will teach two youth swim clinics, share open-water swimming tips through Save The Bay's blog and social media and participate in a takeover of Save The Bay's Twitter account.

"I feel so fortunate to now have the chance to give back to the waters I learned to swim in, and that's why I'm so excited to participate in the Save The Bay Swim," said Beisel. "It's so important to protect and restore our shorelines, beaches and Bay, and this is a perfect and seamless way for me to get involved. Let's help save the Bay for the future Olympians of Rhode Island." ■

A Sandy Simulation

A TECHNOLOGY-ENHANCED SANDBOX HELPS RHODE ISLAND YOUTH UNDERSTAND WATERSHED, EROSION AND TOPOGRAPHY

BY KATY DORCHIES, MARKETING & GRAPHICS SPECIALIST

In an effort to illuminate watershed issues, Save The Bay educators are breaking into the virtual world with their newest technological acquisition: the AR (augmented reality) Sandbox. The first of its kind in the state of Rhode Island, this hands-on exhibit and learning tool goes online in Save The Bay lessons starting this month.

"The concept of a watershed is not necessarily as easy to understand as some of us think," said Save The Bay Education Specialist Lauren Farnsworth. "The most important part of using the sandbox in our lessons is that students get in there and have the opportunity to manipulate the land, the rainfall, and really get an idea of how water flows."

"We want students to understand that anything they do on land has the potential to affect all of their water resources, from drinking water and irrigation to recreation," said Save The Bay Education Specialist Letty Hanson.

The complete AR Sandbox structure includes a seven foot projector stand and a raised 3.5' long, 2.5' wide and 8" deep sandbox. A digital projector is affixed above the sandbox, directed towards the surface of the sand. While not in use, the equipment could appear simplistic; however, when educators turn the machine on, a new understanding of this exhibit comes to light.

Using a 3D camera and a video projector, the technology in the AR Sandbox works with the sculpted sand beneath it to produce a light- and color-based topographic overlay. As students shift the sand in the sandbox, the topographic map adjusts in real time, using a spectrum of colors and contour lines to bring the mock landscape below to life. The simulation adds bright blue pools to represent bodies of water at the sandbox's lowest points, and those interacting with the sandbox can even use hand gestures under the projector to prompt a rainfall simulation.

"The AR Sandbox is an appealing blend of cool technology and get-your-hands-sandy learning," said Save The Bay's Lead Captain Eric Pfirrmann. "Students will be able to explore the concepts assisted by the technology, not driven by it."

As educators and students move the sand around with their hands, the AR Sandbox adjusts the topographic projection to demonstrate how water flows in a watershed.

The technology in the AR Sandbox was initially developed in 2013 as part of an open-source program at the University of California, Davis by researchers looking to improve the instruction of earth sciences. Save The Bay's education staff first set their sights on acquiring the sandbox in 2016, and their efforts were finally realized when funding was acquired in late 2017.

Pfirrmann, assisted by volunteer Don DeLuca, began the physical construction of the sandbox in December 2017. By the following February, the sandbox was ready for its augmented reality technology. This final stage of preparation revealed the true complexity of the sandbox system, requiring the installation of three software packages, two types of hardware calibration, and the configuration of a Linux operating system. Now, the AR Sandbox is ready to be used by Save The Bay educators as they introduce students to watershed issues.

"It adds another layer of hands-on learning while helping students develop the STEM (science, technology, engineering and math) skills that are so crucial to their success. This resource will help students develop their critical thinking and problem-solving skills when it comes to their place in the watershed, and our program will encourage them to incorporate solutions to everyday challenges we face in the Narragansett Bay watershed," said Save The Bay's Education Director Bridget Kubis Prescott.

During lessons at the Bay Center, students will be asked to consider all of the forces at play within a watershed—from the pull of gravity and the consequences of rainfall to the complexity of tributaries—while gaining the vocabulary needed to describe coastal features.

"Since Save The Bay's mission is to protect and improve Narragansett Bay, teaching students about watersheds is crucial so that they can make informed decisions when it matters," said Hanson. ■

WHO SAVES THE BAY? STAFF PROFILE

July Lewis: Mobilizing a Community of Volunteers

BY CINDY M. SABATO,
DIRECTOR OF COMMUNICATIONS

July Lewis joined Save The Bay in 2013 as our Volunteer and Internship Manager. Since her arrival, our volunteer force has doubled, we've taken over coordination of Rhode Island's International Coastal Cleanup, and we've developed partnerships with many companies, organizations and schools.

How would you describe your role at Save The Bay? I recruit and manage the 4,000+ people who contribute their time and efforts to support Save The Bay. There is a lot of work to be done to protect the Bay, and there is a huge amount of enthusiasm out there to do something good. My job is to connect those two things, to create the opportunity and the structure for people to act on their desire to protect the Bay.

How has Save The Bay's volunteer and internship program evolved over the years you've been with us? During my second year at Save The Bay, we took on management of the International Coastal Cleanup for Rhode Island—a global project to clean up and document the trash on our shores. That new endeavor greatly increased our volunteer program and enabled us to partner with many different organizations toward the effort. In addition, our internship program has grown quite a bit. I'm very proud of this program.

Why are volunteers and interns so important to our work at Save The Bay? Narragansett Bay is a treasure—ecologically, economically, aesthetically—that means so much to so many, and it's the story of people who were determined that "the tragedy of the commons" was not going to happen to our Bay. We simply could not do what we do without volunteers. We couldn't do all the cleanups, lead all the cleanups, plant the salt marshes or run the aquarium without the time and talent of our volunteers and interns.

Is there anything in particular about our volunteers and interns that inspires or uplifts you in your day-to-day work? There's really nothing better than working with volunteers—people who want to do good and make the world a better place! It inspires me every day.

Do you have any personal favorite memories or stories of enjoying the Bay or any of our local waters that hit home for you the importance of protecting it? I've lived in Providence most of my time in Rhode Island, and when I first arrived, I just fell in love with downtown and Waterfire and the Providence River. One summer evening, I looked down at the canal and saw the whole river just alive with silvery fish! I didn't know what they were at the time (turns out, they were menhaden), but I was so enchanted that this urban river—the site of so much cultural activity—could also be a home for wildlife. Now here's the sad part. A day or two later, I went back to the river and all those fish were belly up. I was crushed! Most likely it was from low oxygen, which can be more of a problem in waters with nutrient pollution. So although that's a really sad story, it drives home that there is still so much work to do, that our vision is not yet realized, but it can be someday if we keep fighting for it.

What would you say to folks who may be on the fence about volunteering in their community? I'd say, start off with a cleanup! Visit **www.savebay.org/volunteer** and click on the cleanups section, and then pick a favorite beach or a site close to you. It's so much fun and so satisfying. You will feel so good about yourself and the difference you made! ■

Save The Bay Action Updates

Education

- Last fall, we partnered with Warwick public schools to engage all Warwick third-graders in watershed and marine debris education programming. More than 150 third-grade students joined us for hands-on classroom and field-based lessons that helped them understand the shoreline trash and marine debris issues in their communities.
- We successfully implemented the first year of a three-year field studies grant, partnering with 360 High School, Woonsocket High School and Central Falls High School. The program included a week-long on-the-water professional development program for teachers and hands-on marine science lessons for more than 100 students.
- Harnessing technology to help explain complex physical processes, we built an **Augmented Reality Sandbox** (see story on page 5) that allows students to mold a landscape in sand that is augmented in real-time to show elevation and water flow. In a fun and inviting hands-on way, students learn about watersheds, sea level rise and and storm surge. Visit the University of California, Davis website to learn more about this powerful education tool. https://arsandbox.ucdavis.edu/

Advocacy

- This legislative session, we are supporting proposed legislation to establish a **Rivers and Coastal Adaptation Fund**. This fund would help cities, towns and the state pay for projects to reduce the vulnerability of low-lying areas threatened by rising seas and rapid coastal erosion. For example, the fund would enable communities to remove, relocate, and redesign roads, re-grade banks and re-vegetate, or acquire land to maintain public access to the shoreline as sea levels rise.
- We are supporting and advocating for a "Green Economy-Clean Water Bond" included in R.I. Gov. Gina Raimondo's FY 2019 budget proposal. **Bond highlights include** $5M for projects to make our Bay and coast more resilient to climate change impacts such as storm intensity, rising seas, and erosion, and $6.1M for clean water projects, including the upgrade of the wastewater and drinking water infrastructure that protect the Bay and public health.

Restoration

- In partnership with the Town of Tiverton at Grinnell's Beach on the Sakonnet River, we are working on a coastal adaptation project that involves moving a parking lot inland and creating a small dune in its place. The dune will reduce flooding and erosion of the parking lot and restore a buffer of native plants between the parking lot and the Bay.
- At Seapowet Point in Tiverton, we are working with the Department of Environmental Management on a coastal adaptation project that includes planting native, salt-tolerant grasses in a low-lying field adjacent to both Seapowet marsh and Seapowet Point where plants are beginning to colonize the lower edges of the field. We are also excavating shallow creeks to drain water that is trapped on the marsh surface where mosquitoes are breeding.
- In Dighton, Mass., we are doing a marsh adaptation project along Broad Cove, along with the Conservation Commission and the Bristol County Mosquito Control Program. We are clearing out creeks in the upper sections of Broad Cove to enhance drainage of trapped water in the high marsh. We are working with the Town of Dighton to identify and conserve land adjacent to the marsh, to allow the marsh to migrate inland.

How You Can Help

Sign up to clean up. Sign up to clean up. Now through November, our volunteers are heading out to beaches and shorelines throughout Rhode Island to pick up trash littering our beautiful coast. Give as much or as little time as you can; come alone or with friends; lead a cleanup; set a great example! Cleanups are a great family or group/club activity. Sign up at bit.ly/BeachCleanupVolunteer, or contact July Lewis at jlewis@savebay.org.

Contact your senator or representative and urge them to put the Green Economy and Clean Water Bond on the ballot in November. If approved by voters, this bond would provide critical funds to help protect our communities from flooding and sea level rise, keep wastewater and sewage where they belong during floods and storms, repair or remove dams at risk of collapse and improve public access to the shoreline. To find out who your elected officials are, visit: vote.sos.ri.gov.

Sign our petition to protect New England waters from offshore oil drilling. The public comment period has ended, but let's keep filling the inboxes at the Department of the Interior and the Bureau of Ocean Energy Management. Add your name to our petition at: change.org/p/protect-our-coast-stop-offshore-drilling

Ask for your drink without the straw. Americans throw away 500 million plastic straws daily—enough to stretch 49,802 miles, circling the earth twice. Last September during Rhode Island's Coastal Cleanup Day, volunteers collected more than 4,543 plastic straws that had been carelessly discarded from our beaches and shoreline. And if you must use a straw, use a reusable one.

COVER STORY

The State of Narragansett Bay and Its Watershed

CONTRIBUTED BY THE STAFF OF THE NARRAGANSETT BAY ESTUARY PROGRAM

We've been asked: Isn't the Bay saved already? The answer isn't so cut-and-dry. In fact, the Bay is so much cleaner than it once was. And, it's not as clean as it could, or should, be. What's more, while many former threats, such as industrial factory waste, have been remedied, new and more complex threats are emerging. Skeptics may ask: how do we know?

Beginning in 2014, the Narragansett Bay Estuary Program brought together more than 50 environmental practitioners from universities, state and federal agencies, nonprofit and for-profit organizations in Massachusetts and Rhode Island to collaboratively produce the 2017 *State of Narragansett Bay and Its Watershed* report. This robust and well-rounded collective of experts gathered and analyzed the best available data and put together a comprehensive, 500-page technical report on the status and trends in 24 topic areas that describe the conditions of the Bay and watershed and the stressors that threaten them.

The findings in the 2017 *State of Narragansett Bay and Its Watershed* report offer a new and unique understanding of the changing conditions in this important region. The incredible value of the report is that agencies, organizations, and individuals can use this information in their decision-making to ensure that the benefits provided by the Bay and watershed are sustained and enhanced for future generations.

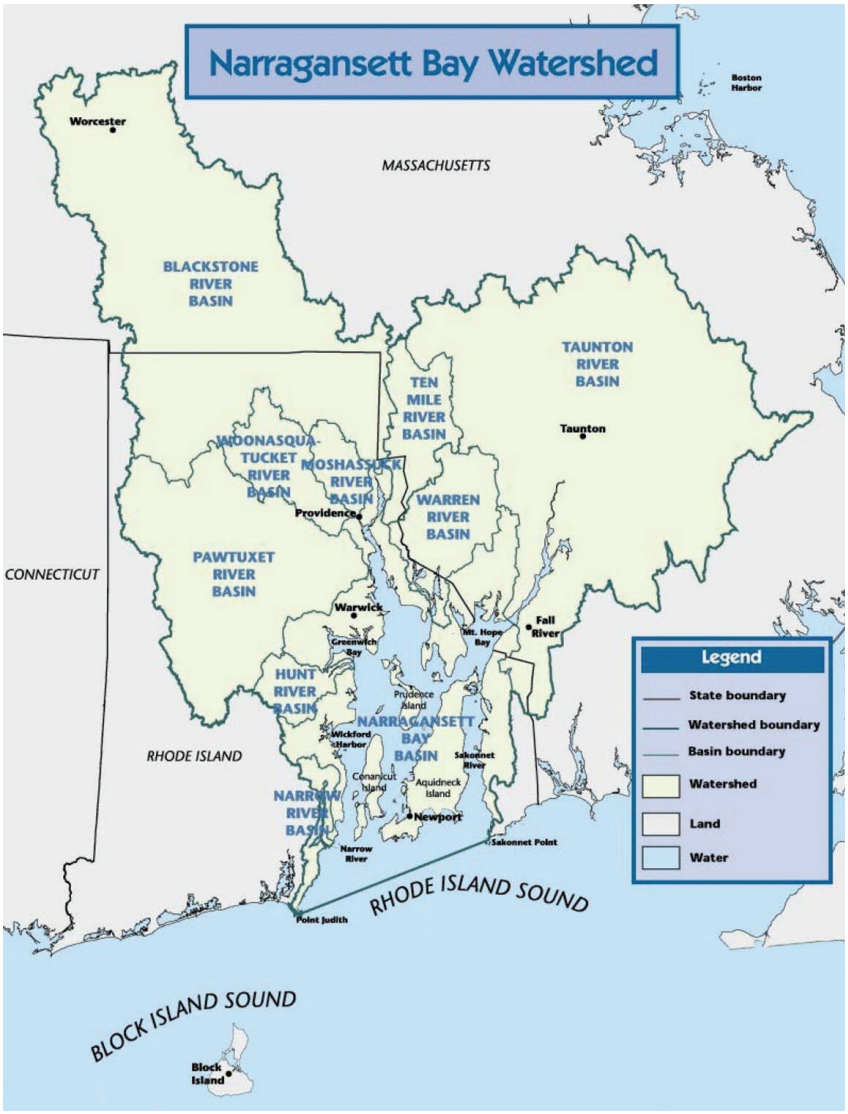
The Good News

The water in the Bay is getting cleaner. Over the past several decades, major investments in wastewater facilities and restrictions on harmful chemicals have paid off in a dramatic drop in pollution. Discharges of bacteria, often from human and animal waste, excessive nutrients that lead to insufficient oxygen for marine life, and such legacy toxic pollutants as metals, PCBs, and pesticides have declined.

WATER QUALITY IS UNDER THREAT BY EMERGING CONTAMINANTS, POLLUTED RUNOFF, AND CLIMATE CHANGE.

Scientists are tracking changes in the ecosystem after recent reductions in pollution from wastewater treatment facilities. Scientists are looking at biology, chemistry, and physics to understand how nutrient reductions are impacting our ecosystem. Additionally, research is looking at the cause of lower dissolved oxygen concentrations and how the fish populations are changing.

Conditions vary greatly among places in the Bay and watershed, generally improving with distance from urban areas. But, urbanized areas are expanding. This spreading of the human population has spurred changes in land use, including loss of forests, that negatively affect rivers and the Bay. Conditions in the Bay also improve with distance from the Providence, Fall River and other highly urbanized areas.



Map of the Narragansett Bay Watershed.

Major Stressors Currently Threatening Progress

Climate change shifts. Decades of scientific data show that local air and water temperatures have warmed, rainfall has increased in volume and intensity, and sea level has risen. These changes are already happening and will continue into the future. Rising temperatures and increased rainfall stresses local stormwater systems, negatively affects human health and may change the species that inhabit the Bay and freshwaters. By understanding these changes, we can make better decisions and implement better policies to help protect land, communities, and infrastructure.

Sea level rise is stressing low-lying areas—particularly developed areas where people live and work. Additionally, salt marshes are drowning in place and have little room to retreat to higher ground. Salt marshes play important roles in the ecosystem by providing shelter, nurseries, and feeding grounds for fish and shellfish and protection from storms and flooding for coastal communities. Sea level rise will bring more frequent flooding to low-lying coastal areas which could displace homes, roads and coastal habitats.

Urbanization. Population has increased over the last 20 years. People are spreading out, moving to more rural areas. Urban areas are expanding at the expense of forested lands. Demands for infrastructure such as roads, waste management, and power lines have increased, and habitat has been fragmented. More urbanized areas mean more impervious surfaces such as roads and buildings which can lead to warmer temperatures, more polluted runoff into waterways, and less natural habitat for animals.

Degradation of water quality. Significant advances in stormwater management, wastewater infrastructure, and policies aimed at reducing pollution have improved water quality significantly. However, water quality is still under threat from emerging contaminants, polluted runoff and climate change. High nutrient levels lead to low dissolved oxygen, which threatens fish and shellfish and can cause significant loss of life. Additionally, emerging contaminants such as personal care products and medications have unknown impacts on the natural ecosystem.

Looking Toward the Future

The work does not stop here. We need continued monitoring to better understand the effects of nutrient and bacteria reductions on the Bay. Reducing nutrient pollution from Taunton River Estuary wastewater treatment facilities and from nonpoint sources will be crucial to the overall health of the Bay going forward. Finally, we need to enhance the watershed's resiliency to climate change impacts. ■

Narragansett Bay Today

ALWAYS CHANGING, BUT CERTAINLY NOT TOO CLEAN

BY MIKE JARBEAU, BAYKEEPER

The question of whether Narragansett Bay has become too clean to sustain a healthy fishery was the main topic of the annual Ronald C. Baird Sea Grant Symposium, held at the University of Rhode Island's Bay Campus in December. While there was certainly no consensus among the communities present in the room, one theme was clear: the Bay has been changing since humans first settled in New England, and changes continue to occur today. But what are those changes? And is there a "Goldilocks" level of nitrogen or other nutrients to which the Bay should be managed?

Save The Bay staffers Joan Abrams (left) and Topher Hamblett (right) pull up mats of Cladophora macroalgae *littering Little Narragansett Bay.*

In the science and research communities, Narragansett Bay is often touted as the most studied estuary in the world. State and federal agencies work closely with local colleges and universities to gather and interpret data in all reaches of the Bay. The University of Rhode Island's Fish Trawl Survey, for example, began in 1959 and is one of the longest continuous records of marine species abundance in existence. And anyone who spends time on the water is also familiar with the many buoys, probes and gauges dotting the Bay that collect information to help us understand its complex dynamics.

The Narragansett Bay Estuary Program's recent *State of Narragansett Bay and Its Watershed* report does a great job summarizing what we know about the Bay, illustrating changing conditions and highlighting areas that need more investigation.

One major success has been a reduction of nutrients—nitrogen and phosphorus—entering the Bay from many sources, but particularly from the process of treating human wastewater. Just as nutrients in fertilizer cause our grass to grow, excessive amounts of nutrients in our water stimulate algae growth. Too much algae starves the water of oxygen as it dies and decomposes, harming marine life that needs that oxygen to survive. The good news is that the amount of nutrients going into the Bay has gone down by almost 60 percent over the last 15 years. But this success has led to questions about whether these nutrient reductions are negatively affecting fisheries by starving the Bay of its productivity.

We must not be confused by the discussions. No, Narragansett Bay has not become some sort of dead zone incapable of supporting marine life. Yes, the Bay of several decades ago was different. And yes, we hear stories of the glory days gone by and the difficulty of making a living on inshore fisheries today. But we must take into account that many factors have caused the types and numbers of fish and shellfish in our waters to change. We can't ignore decades of closed beaches and stories of ear infections or other health issues still felt by people who spend time in the water. And we must remember the extensive shellfish closures that are just now beginning to be lifted in parts of the Upper Bay, opening up new opportunities for fishermen.

Reports from the 1800s tell us that Narragansett Bay was teeming with fish and natural resources readily available for harvest. Researchers point to many reasons why fisheries in the Bay have changed since then. But changed by what?

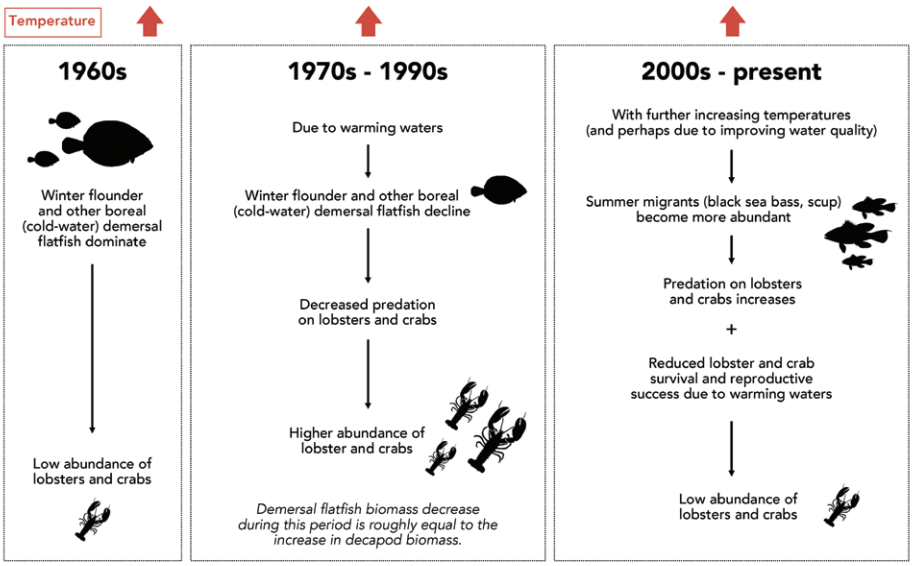
Habitat quality is a critical component of a healthy ecosystem, and our Bay habitats have changed significantly over the past century. A Bay high in nutrients is not natural or conducive to the growth of critical habitats that support an abundant fishery. Much of the nuisance seaweed that washes up on our beaches in the summer is a result of excess nutrients. Eelgrass beds that were once plentiful all over the Bay floor, supporting a robust oyster population and providing habitat for fish and other shellfish, are scarce now, killed off by pollution, disease, and scallop trawls, despite significant

efforts by Save The Bay and others to restore native beds.

Water temperature also influences the types and abundance of fish in Narragansett Bay and surrounding waters. The water in Narragansett Bay has risen almost four degrees Fahrenheit since 1960. This temperature change is believed to have had a large effect on the types of fish that live in the Bay. In the 1960s, colder water temperatures supported a high abundance of bottom fish such as winter flounder. But in the next few decades, populations of these bottom fish declined as temperatures rose and allowed lobster and crab populations to grow. Finally, scientists say, in the last several decades, warmer-water species, such as black sea bass and scup, typically found in Mid-Atlantic waters (see illustration) have become more common.

The fact is: spawning conditions, habitat availability, pollution, and fishing pressure are among the many factors at play when we consider the current health and productivity of the Bay. As noted in the *State of Narragansett Bay and Its Watershed* report, more study is needed to fully understand the complexities of our marine ecosystem. We have many questions about how evolving Bay conditions affect the health and productivity of the microscopic phytoplankton that forms the basis of the entire marine food chain. More study is also needed to characterize the Bay's response to improving conditions and how weather and water flow patterns influence offshore nutrient inputs, among many other topics.

While we may not be able to pinpoint a "Goldilocks" scenario where conditions in the Bay are "just right" for every interest, there is no question that recent efforts are moving us closer to a Narragansett Bay that is fully fishable, swimmable and accessible. The Bay has been changing for centuries, requiring us to adapt to evolving conditions and new opportunities, just as we have always done. We should all be proud of the fact that beach closures are down, shellfish beds are reopening, and our investments in a cleaner Bay are paying off. ■



ABOVE: A timeline and description of changes in the Narragansett Bay fish community as water temperatures have risen. BELOW: Algae blooms, caused by excessive nutrients in the water, can be seen along the shores at Sabin Point.

Where the Rain Meets the Road:

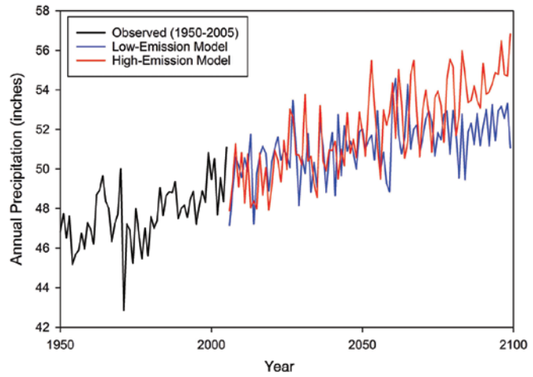
How Urbanization and Climate Change Are Affecting Our Waters

BY WENLEY FERGUSON, HABITAT RESTORATION MANAGER, DAVID PRESCOTT, SOUTH COASTKEEPER, AND CINDY SABATO, COMMUNICATIONS DIRECTOR

Within the Narragansett Bay watershed, the water in 162 miles of streams, 57 square miles of estuarine waters where freshwater and saltwater mix, and 4,800 acres of ponds and lakes is too polluted for aquatic life, according to the *State of the Narragansett Bay and Its Watershed* report. Location matters; the report tells us the water is more polluted in urbanized areas than rural areas and gets cleaner and safer the further south it flows.

Why? One big factor in water pollution is how we use our land, and that is very much tied to location. More and more development within the watershed has turned forest land and open space into streets, buildings and parking lots, spurring two important changes in the way rainfall affects our waters. When rain falls onto natural areas of land, it soaks into the soil, where excess nutrients, bacteria and other pollutants are filtered out naturally. When rain falls onto parking lots, streets and roofs, it can't soak in, and instead runs right off, picking up and carrying pollutants into our rivers and the Bay in higher-than-normal volumes and velocity. This is commonly known as "polluted runoff."

Water quality begins to become degraded when more than 10 percent of the land in a watershed is hardened by roadways, parking lots, driveways and roofs. According to the *State of Narragansett Bay and Its Watershed* report, 14 percent of the watershed is covered by hard surfaces, and more than one-third of its residents use septic systems and cesspools, "some of which are thought to be significant sources of nutrients and contaminants entering rivers and the Bay." Unfortunately, more and more forested land around the watershed is being developed, particularly in the Taunton River and Pawtuxet River basins.



Climate change also brings with it some important changes to precipitation patterns, making the effects of urbanization on water pollution even worse. According to the report, Providence has been getting nearly half an inch more rain every decade since 1895. Climate models predict that number will go up to three inches per decade in the future. What's more, most of the increased precipitation comes during intense downpours, which have more than doubled in frequency since 1950. More intense rainfall, combined with increased volume and velocity of runoff carrying pollution over hard surfaces into our waters, is all bad news for water quality. On top of that, rain and snow are coming more often in large events with drier spells in between. When all of this rainfall runs off the hard surfaces of our cities and neighborhoods directly into our rivers and the Bay, our groundwater is not replenished, and we suffer from more frequent droughts.

The broad, cumulative effects of increased development and precipitation changes include more pollution and more beach closures, adding to Save The Bay's sense of urgency to address the problem of polluted runoff. We have been partnering with multiple municipalities and other organizations over the last decade to reduce the impacts of polluted runoff from the Bay's watershed:

In Providence's Roger Williams Park Pond, a tributary of the Pawtuxet River, we have collaborated with the City of Providence Parks Department on planning, installing and maintaining planted areas where polluted runoff from the park and neighborhood roads is diverted and absorbed into the ground. We continue to work with the City to restore buffers along the pond to improve water quality and discourage geese feeding.

At Stillhouse Cove in Cranston, we partnered with a local watershed organization, the Edgewood Waterfront Preservation Association and the City of Cranston on a stormwater management plan for the Stillhouse Cove watershed. Last fall, along the edge of Narragansett Boulevard, we installed a catchment area designed to capture and infiltrate the first flush of polluted runoff, removing bacteria and nutrients before they reach the cove.

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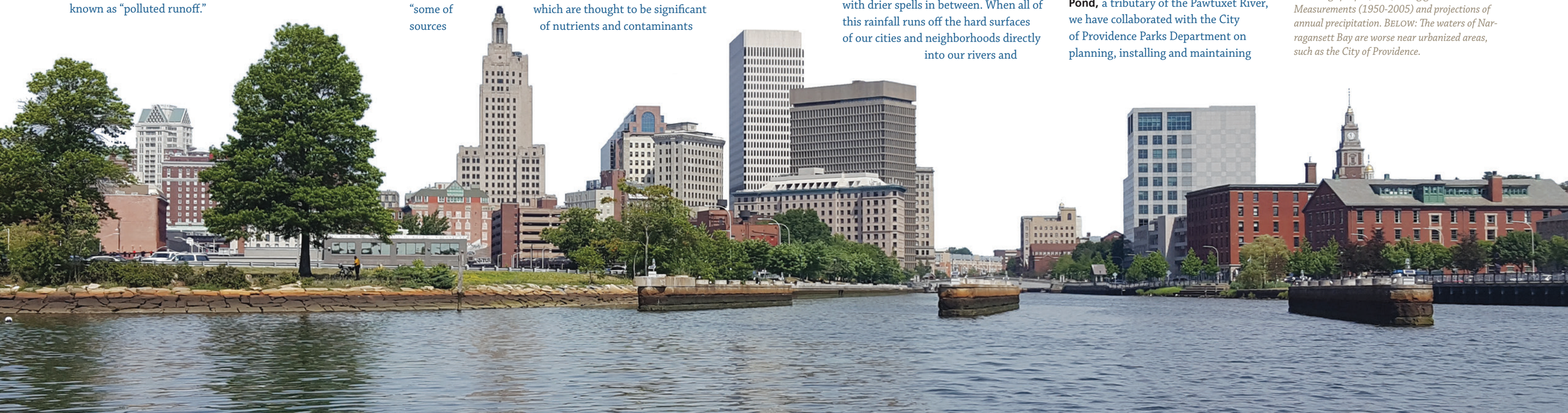
LEFT: Volunteers plant a buffer around Roger Williams Park Pond, to reduce runoff pollution going into this Pawtuxet River tributary and to discourage people from feeding geese. ABOVE: Measurements (1950-2005) and projections of annual precipitation. BELOW: The waters of Narragansett Bay are worse near urbanized areas, such as the City of Providence.



SIDEBAR: Saving Little Narragansett Bay

BY DAVID PRESCOTT,
SOUTH COASTKEEPER

The Pawcatuck River and Little Narragansett Bay, forming the border between Westerly, R.I. and Stonington, Conn., are vitally important to the beauty and recreation of southern Rhode Island. This is the place where salt water from the Atlantic mixes with fresh water from the 300-square-mile Wood-Pawcatuck watershed, which extends into 10 towns in Rhode Island and four in Connecticut.

Save The Bay has remained committed to improving the overall health of Little Narragansett Bay and the rest of the estuary since 2007. That was when we began working with the University of Rhode Island's Watershed Watch Program to collect, test and analyze water samples from several points along the Pawcatuck and inside Little Narragansett Bay every other week. The reason was simple: we wanted the public to know whether or not it was safe to swim and play in these local waters.

Our water quality testing highlighted challenges to the overall health of the ecosystem in this area, possibly due to some of the unique features of Little Narragansett Bay. The lower Pawcatuck River, particularly on the Westerly side, is highly urbanized, making it the place where all the pollutants from streets and parking lots end up after a rain. Water quality studies showed that polluted stormwater has been carrying high levels of nutrients—nitrogen and phosphorus—leading to large mats of macroalgae that litter the bottom of Little Narragansett Bay. Studies also revealed elevated bacteria levels in the river and Bay, the source of which is under investigation. Tidal flow in Little Narragansett Bay is limited by the barrier island of Sandy Point and the Napatree Point peninsula, and studies revealed that certain areas of the Bay had very low oxygen levels because of the limited water flow.

Matts of Cladophora macroalgae *litter the surface of Little Narragansett Bay, an indication of high nutrient levels.*

But one of the most unique features of the Bay is its place as the border between the towns of Westerly in Rhode Island and Stonington in Connecticut. Because of this natural and political divide, moving toward real change depends on open lines of communication and a shared vision for the river and Bay. That was one of the main reasons why Save The Bay held a "floating" press conference out on the Bay in the summer of 2015, issuing a Call to Action to these communities and individuals to work together to address many of these long-standing impairments to our local waters.

Our Call to Action has led to increased dialogue among the states, towns and other important players in the region. We have worked with partners to sample stormdrains in downtown Westerly for elevated bacteria. We have built rain gardens to demonstrate to local students, parents, and homeowners how they can filter rainwater and runoff. To help educate the public about the direct connection that polluted runoff has to the river and Bay, we have marked more than 350 stormdrains in Westerly with markers that say "Don't Dump. Drains to Bay." We have partnered on grants to develop plans for addressing historic water quality issues.

We still have a lot to do but together we can all work towards a cleaner and healthier Bay that we can all enjoy! ■

We are working with the City of Warwick to treat stormwater at several sites and improve the quality of local waters. At Oakland Beach, we have helped the City maintain a new infiltration area along Suburban Parkway and contributed conceptual designs for another stormwater infiltration area north of the beach. We are helping the city identify sites where low-lying pavement at the end of coastal roads can be removed and stormwater can be treated.

Along the Seekonk River in Providence, runoff flows untreated down a steep bank, causing significant shoreline erosion. We are working with the City of Providence Planning Department on a project to address the erosion and to reduce the impacts of polluted runoff by installing infiltration areas further inland.

At Barrington Beach, we are working with the Town and the University of New Hampshire's Stormwater Center to address stormwater that flows from neighborhood streets down to Barrington Beach, causing beach erosion and water quality problems. We have installed infiltration areas and replaced a section of the beach parking lot with a protective dune of beach grass. We are now looking further inland to identify areas where we can reduce the volume and velocity of the runoff that flows down to the beach from neighborhood streets.

In Warren, we are helping the town restore a stream corridor to enhance its flood storage capacity and to manage and treat polluted runoff along the Warren River and Belcher Cove. We are also identifying low-lying coastal roads subject to saltwater flooding to carve back and install stormwater management practices.

In Bristol, we continue to work with the Town to manage stormwater that discharges into Bristol Harbor from the Silver Creek watershed. Students from Mount Hope High have installed rain gardens on the campus adjacent to Silver Creek.

In North Kingstown, at the end of the Calf Pasture Point bike path, asphalt was removed and an infiltration area installed. We are working with the Town of North Kingstown to address the high erosion rate in this area that is threatening the lower sections of the infiltration area.

With a grant from the U.S. Environmental Protection Agency, Charlestown is partnering with Save The Bay, the University of Rhode Island, and the Salt Ponds Coalition on a number of strategies to reduce nutrient pollution in groundwater and surface water in Green

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Infiltration areas along Narragansett Boulevard in Cranston (top) and Water Street in Warren (above) filter polluted runoff before the water flows down to Stillhouse Cove and Warren Town Beach.

Hill, Ninigret and Quonochontaug ponds. Fifteen substandard septic systems are being replaced with newer systems that utilize nitrogen-reducing technology. Save The Bay is installing six rain gardens to promote stormwater infiltration and serve as public demonstration projects. And our *Bay-Friendly Living* guide is being distributed to homeowners.

In Newport, in partnership with the city, University of Rhode Island Sea Grant and University of New Hampshire Stormwater Center, we worked on conceptual designs for a stormwater infiltration area along an access path to the Cliff Walk, where erosion from stormwater was affecting accessibility and discharging to a local beach. And Rogers High School biology students worked with Save The Bay to plant rain gardens to filter runoff from the school parking lot. ■

At Barrington Town Beach, to reduce runoff pollution going into the Bay, the parking lot was moved back, a filtration area was installed at the edge of the lot, and volunteers planted beach grass between the lot and the beach.

Does the R.I. Coastal Resources Management Council Really Represent Coastal Communities?

The R.I. Coastal Resources Management Council is responsible for implementing and enforcing policies concerning Rhode Island's coastline. Last month, Save The Bay filed a complaint in R.I. Superior Court asking for clarification on the makeup of the Council, because we believe our coastal communities may not be properly represented by this important agency. We've asked the court to clarify both the number of members the governor has the authority to appoint to the Council and the required qualifications of those members.

"We bring this action on behalf of our members who are repeatedly impacted by Council decisions concerning the development of the coastline, public access and the enforcement of regulations designed to protect natural resources. Our members use and enjoy our coastal resources, own or reside near properties that are subject to Council regulations, and use public access sites for surfing, fishing, boating and swimming. They deserve to be properly represented by the Council," said Executive Director Jonathan Stone.

The Coastal Resources Management Council was formed in 1971, thanks in large part to Save The Bay efforts. Rhode Island law states that the Council shall consist of 16 members—eight appointed by the governor and eight by the legislature. The majority of these members must represent coastal communities and half of them must be elected or appointed officials at the time of their appointment. The rules seem clear enough, but in 2008, the R.I. Supreme Court ruled that under the "so-called separation of powers amendment," the legislature could neither appoint members nor serve on the Council themselves. However, after that Supreme Court ruling, the R.I. General Assembly did not re-write the law to change the membership of the Council accordingly. Today, the Council consists of 10 members, all appointed by the governor.

"The governor's office has been unable to provide evidence that Council members were elected or appointed officials at the time of their appointment or that the majority of members represent coastal communities," Stone said. "We understand that the governor's office may be retroactively securing appointed positions for some members of the Council, which may technically meet the requirement of the law, but circumvents its intent. We believe the governor also may have exceeded her authority by appointing more than the eight members allowable by law," Stone said.

The declaratory judgment sought in our complaint would end any confusion about the appointment authority of the governor and provide certainty with respect to the number of Council members and their qualifications. Save The Bay contends that prior to the separation of powers amendment, makeup of the Council was clear, but that post-separation of powers, the composition of the Council is unclear.

"The Coastal Resources Management Council has jurisdiction over critically important decisions affecting Rhode Island, and as such, its composition is a matter of public trust and public resources, particularly for people who live in or use coastal areas affected by Council decisions," said Stone. "We are today seeking clarity about the makeup of the Council and the number and qualifications of the governor's appointments to ensure that Rhode Island's coastal communities and coastal users are properly represented, as was clearly the intention of the law." ■

GEANNE GRIFFITH: You've Got a Friend at the Aquarium

BY CINDY M. SABATO, DIRECTOR OF COMMUNICATIONS

When Geanne Griffith, her husband, and their two cats moved to Rhode Island three years ago, Geanne didn't wait long to jump right into the water—the water at our Exploration Center and Aquarium, that is.

Geanne has been a volunteer docent at the aquarium for nearly the whole three years she's been in the Ocean State—a perfect fit since she worked in her children's elementary school for years, first as a substitute teacher, then as a special education teaching assistant, and finally helping in third-grade science classes. "We did many units that remind me of going to the Exploration Center every day," she said.

At the aquarium, Geanne wears many hats—helping guests at the touch tanks, leading children on scavenger hunts, preparing craft activities, making sure guests see every animal, and always stepping in when the center is short-staffed. "She's amazing. She has a wonderful connection with our guests, always has a warm smile, and has an extensive knowledge about our animals," said Outreach Coordinator Celina Segala.

In fact, Geanne says, "One of the best things about volunteering there is how much I've learned, certainly about the animals, but about environmental issues surrounding the Bay also. I get asked a lot of questions, and now I have answers to most of them, although I still get asked a new one now and then."

Her favorite part of the gig? "I love working with the kids who come in and enjoy seeing them get excited about things they are seeing and learning about. And I love having a child who is really hesitant to touch the animals at first. We take it slow, maybe starting with just holding an empty shell. Nine times out of 10, we work our way up to them being fully involved. Kids are curious and you just have to tap into that," Geanne said.

The Griffiths moved here from Connecticut, where they lived and raised their family for 18 years, after their youngest child headed off to college at Roger Williams University. They've always loved being around the water, vacationing on the Jersey Shore every summer and visiting Newport frequently. So, when it came time to make a move, the Griffiths' decision to move here was an easy one.

Geanne's interest in protecting the environment came early, first as a child with a father who loved hunting and fishing and instilled in her a respect for rivers and forests and the animals that live there. Then, those summers on the Jersey Shore "was during a time when there were a lot of problems with waste in the water and coming up onto shore. Sometimes we weren't allowed in the water because of the waste, which wasn't fun with two young children," Geanne said. "I have always realized it is important to take care of our natural resources so we can continue to enjoy them." ■

RESTORATION

Marshes on the Move

BY WENLEY FERGUSON,
HABITAT RESTORATION MANAGER,
AND CINDY SABATO,
COMMUNICATIONS DIRECTOR

When most people take a walk along the water's edge in Rhode Island, near a salt marsh, they might just notice some dead trees along the marsh edge or vivid green grasses growing under cedar trees and bayberry bushes in the springtime. But Save The Bay's Habitat Restoration Director Wenley Ferguson sees something different.

She knows the dead trees are a sign that the marsh is moving inland, trying to "outrun" the rising waters that threaten to drown it out. The trees are dying from exposure to salt water. Around the Chesapeake Bay, they call these dead trees "ghost forests," remnants of a lower sea level. The vivid green grasses are new shoots of "black grass," the first sign of spring in the marsh. Usually found along the upper edge of a salt marsh meadow, black grass growing under the canopy of upland trees and shrubs is a tell-tale sign the marsh is migrating further inland as the high-tide line gets higher and higher.

When people talk about climate change, many are generally thinking of the future. But a look at Narragansett Bay's salt marshes reveals that our Bay is already suffering some of the effects of a changing climate—among them, rising sea levels, which pose some rather serious threats to our coastal communities. Roads, buildings and utilities will be more and more compromised by increases in flooding and storm surge. Facilities that pump or treat human wastewater, often located along rivers and coastlines, are at increasing risk of flooding. And as we lose our salt marshes to rising seas, we also lose their priceless benefits.

These intertidal ecosystems are an integral part of Rhode Island's culture and economy, essential for healthy coastlines, communities and fisheries. They serve as foraging and breeding habitats for fish, shellfish and birds. They filter pollution from storm runoff before it enters the Bay and provide some protection from flooding. And they help support the state's fishing and tourism industries.

The green salt marsh grasses growing under this cedar tree are a sign of a marsh that is moving inland as sea level rises.

Flooded by tides twice daily, salt marshes are, by their very nature, quite resilient to the ever-changing conditions along the coast. Since their formation some 3,000-4,000 years ago, marshes have kept pace with historic sea level rise, building their elevation a few millimeters a year as their plants produce organic matter and trap sediment from the water. But with today's quickening pace of sea level rise, marshes are no longer able to keep up, drowning in place.

If the land surrounding a salt marsh has a gentle slope and is undeveloped, salt marsh vegetation can slowly and naturally migrate inland, replacing "upland" plants, such as oak trees and blueberry bushes, as these low-lying areas flood more frequently. However, heavy development along the shores of Narragansett Bay and our salt ponds, combined with the naturally steep topography along our coastline give salt marshes very little room to migrate.

In order to retain the protective features and the benefits to the Bay's marine life, Save The Bay, land trusts, coastal communities and state agencies are working to identify marshes that do have space to migrate and to take actions to help facilitate that migration. The Coastal Resources Management Council, in coordination with a number of partners, developed maps to highlight areas that, under one, three, and five feet of sea l evel rise, potentially could become marsh based on the elevation of the land. These maps give Save The Bay and our partners a window into what low-lying uplands should be preserved to ensure that these "marsh migration corridors" can become suitable habitat.

In Narragansett, the town's park department has stopped mowing a former lawn where marsh plants have migrated inland. At Colt State Park over on the East Bay, we helped the Department of Environmental Management (DEM) secure funding to move a bike path that was preventing the marsh from migrating inland up the gentle slope. In Warren, along the Palmer and Kickemuit Rivers, and in Westerly and Charlestown, we are working with local land trusts and the Natural Resources Conservation Service to identify and protect key parcels of land with potential to become salt marsh.

ABOVE: At Seapowet Point in Tiverton, a low-lying field near Seapowet marsh was planted with salt-tolerant grasses to create a suitable place for the marsh to migrate inland as sea levels continue to rise. BELOW, RIGHT: Along Middlebridge Road and the Narrow River in Narragansett, the town's park department has stopped mowing this former lawn, where marsh plants are migrating inland.

In Tiverton along Seapowet marsh, we are working with DEM's Division of Fish and Wildlife to create a marsh migration corridor in a low-lying field bordering the marsh. During moon tides and storms, the field floods with salt water, and salt-tolerant marsh plants are beginning to colonize the lower field where potatoes and squash once grew. By planting grasses that can tolerate irregular flooding, the state is converting these fields into coastal grasslands that will provide suitable habitat where the marsh can migrate inland.

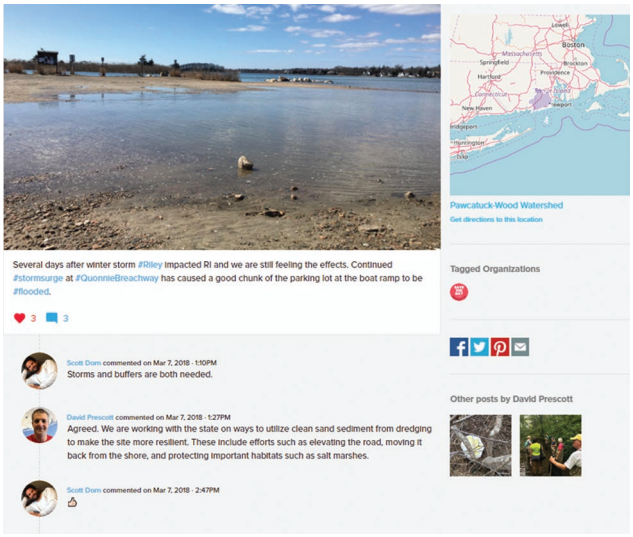
These unique ecosystems are a priceless resource with irreplaceable benefits, including their ability to protect the human-built world from sea-level rise. Protection of these undeveloped corridors is crucial to create space for future salt marsh habitat. With the quickening pace of sea level rise, we will not be able to prevent the loss of current salt marsh habitat, but we can ensure that coastal lands are protected and management activities are put in place to maximize the area where salt marshes might thrive in the future. ■

Salt Marsh Facts

- The Bay is losing and has lost thousands of acres of salt marsh, much of it to development. These unique ecosystems are a priceless resource with irreplaceable benefits, including their ability to protect the human-built world from sea level rise.
- Salt marshes are shoreline wetlands that are flooded by salt water brought in by the tides. These intertidal ecosystems—foraging habitat for fish, shellfish, birds and mammals, and home to nursery areas and spawning grounds—are essential for healthy coastlines, communities and fisheries. They are an integral part of Rhode Island's economy and culture.
- Healthy salt marshes help communities, buildings, infrastructure and the environment better withstand the impacts of sea-level rise and coastal storm surge. Salt marshes protect shorelines from erosion by buffering wave action and trapping sediment. These vital ecosystems reduce flooding by absorbing rainwater, and protect water quality by filtering runoff and metabolizing excess nutrients, such as nitrogen.

Become a Water Reporter and Help Us Keep Eyes and Ears on the Bay

BY CINDY M. SABATO,
DIRECTOR OF COMMUNICATIONS



You, our Save The Bay supporters, are intimately familiar with your favorite spots in and around Narragansett Bay and its 1,705-square-mile watershed. That makes you the absolute best source of information and help when it comes to fighting pollution and other watershed issues around Narragansett Bay and all the waters that flow into it.

That's why we're excited to launch our new Water Reporter Program. It's a social network of community volunteers who use a smartphone app—the Water Reporter App—to share pictures of water and shoreline conditions with our Waterkeepers. Our staff can't be everywhere, and your pictures will help us document issues and changes taking place around the Bay's entire watershed, which stretches from southern Rhode Island as far north as Brockton and Worcester, Massachusetts.

Geo-location services embedded in each photo will help Save The Bay target our advocacy efforts, identify and map trends, and prioritize shorelines and beaches that need to be added to our beach cleanup program. A comment field gives you a place to describe more about the photo and engage in conversation with our Waterkeepers and other volunteer Water Reporters. Hashtags will help catalogue reports so we can categorize and refer back to reports in our daily work.

"Save The Bay was founded on citizen action. Now, we're asking people to once again partner with us as advocates and vigilant guardians of Narragansett Bay and all the waters that flow into it," said Save The Bay Coastkeeper David Prescott.

Every month, we will send our Water Reporters on a mission to scour their favorite beaches and shorelines, even those along inland rivers and ponds, for specific types of debris, discharges, invasive vegetation, fish kills, or other items of concern. In addition, photos of people using the water to fish, paddle, or swim, or of breathtaking scenery will breathe life into our dialogue with policymakers about the importance of protecting and improving the health of the Bay and all local waters. We'll use these photos to watch activities throughout the watershed, share stories on social media, and present information in conversations with policymakers and others.

"The Water Reporter App has already helped us document areas ripe for beach cleanups. It has also been invaluable for tracking plastic wastewater media discharged from East Providence after one of the winter storms in March," said Baykeeper Mike Jarbeau.

"Volunteers have been helping us with beach cleanups for years. Now, through the Water Reporter Program, they have another important way to help us improve water quality. They will become the backbone of our water monitoring effort, filling in gaps where our small staff needs extra help," said Prescott. ■

TAKE ACTION!

To become a Water Reporter, volunteers can simply download the Water Reporter App for iOS and Android at: **www.savebay.org/waterreporter**, join Save The Bay's group, and begin sharing reports and observations. Helpful tips on using the Water Reporter App can be found at: http://help.waterreporter.org.

LEFT: A new Water Reporter volunteer practices submitting a photo with the Water Reporter App.

REBECCA DORAN: There's More Than One Way to Save The Bay

BY JACKIE CARLSON, MEMBERSHIP AND INDIVIDUAL GIVING MANAGER

Longtime Save The Bay member, swimmer, and supporter Rebecca Doran is, for the 12th time, taking the plunge to swim 1.7 nautical miles across Narragansett Bay as part of the 42nd Annual Save The Bay Swim in August. The water and Narragansett Bay have always been a large part of life for Rebecca, who began competitively swimming at age seven. She recalls spending countless hours as a child enjoying the Bay, swimming, of course, but also quahogging and kneeboarding with her brothers and exploring various spots around the Bay, including Prudence, Patience and Block Islands, Newport and Jamestown. To this day, Rebecca enjoys the Bay all times of the year, and has added yoga, kayaking, paddleboarding and surfing to her Bay activity list.

"In addition to the summer, I visit the water frequently in fall and winter; I take every opportunity I get to be outside and near the water," Rebecca said.

Because of her lifelong connection to Narragansett Bay, fundraising for the Save The Bay Swim has always been important to Rebecca, who completed her first Save The Bay Swim at age 16 at the recommendation of her father. After college in California, where she continued her open-water swimming, Rebecca returned to Rhode Island and participated in the 2009 Save The Bay Swim and every Swim since. When last year's Swim was canceled due to high winds, she did her "alternative swim" in Newport from First Beach to Second Beach, once again raising important funds to support Save The Bay's mission and work.

Even beyond the Swim, Rebecca has been supporting Save The Bay for more than 30 years, attending other fundraising events, including Taste of The Bay, Artists for the Bay and the International Coastal Cleanup. She also recruits family and friends to come out with us for Seal Tours and visits to the Exploration Center and Aquarium. She does her part developing future stewards of the Bay by promoting our summer BayCamps among her social circles. Through her activities with us, Rebecca shows the many different, active ways to support Save The Bay.

"I take every opportunity I get to be outside and near the water."

And while Rebecca does her part, her employer, Amica Mutual Insurance Company, increases her impact by participating in a generous Matching Gifts program for its employees. Many of Save The Bay's members, donors, supporters, volunteers and swimmers take advantage of their own companies Matching Gifts programs as well. We are so very fortunate to count Rebecca, and all our supporters, as part of the Save The Bay family, and would like to thank her for her tremendous support of Save The Bay over the years.

Amica: Matching Gift Employer

For the past decade, Amica has been a corporate sponsor of Save the Bay and the Save The Bay Swim, supporting its mission to protect and improve Narragansett Bay. Amica prides itself on being a good corporate citizen and its employees go above and beyond in the communities where they live and work. Rebecca's work with Save The Bay is a shining example of that commitment. ■

Amica
AUTO HOME LIFE

Tides Editor:
Cindy Sabato
Editorial inquiries to: tides@savebay.org

SAVE THE DATE

Annual Meeting & Taste of the Bay
Thursday, June 14, 2018 • 5:30 – 9:00 p.m.
Save The Bay Center, Providence
savebay.org/taste

International Polo Charity Gala Auction
Friday, August 3, 2018 • 5:00 p.m.
Rosecliff Mansion, Newport

42nd Annual Save The Bay Swim
Saturday, August 4, 2018 • 6:15 a.m.
Start: Naval War College, Newport
Finish: Potter Cove, Jamestown
savebay.org/swim

International Coastal Cleanup
Saturday, September 15, 2018
Locations all over Rhode Island, times vary
savebay.org/ICC

4 Bridges Ride
September 16, 2018 • 7:00 - 10:00 a.m.
North Kingstown • 4bridgesride.com

Lorena Pugh 21 Months, 147 Miles, Painting the Bay
October 6 - December 1, 2018
Dryden Gallery, Providence

Artists for the Bay Show & Sale
Open reception: Thursday, December 6, 2018
6:00 - 8:30 p.m.
Bay Center, Providence
savebay.org/art

Connect with Us

Save The Bay is on social media, including Facebook, Twitter, Instagram and Blogger. Follow along, share your stories and pictures, plan a visit and spread the word about the importance of a healthy Narragansett Bay.

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