



SEATUCK ENVIRONMENTAL ASSOCIATION

CONSERVING
WILDLIFE AND
THE ENVIRONMENT

Annual Report 2018



NATIVE GARDENS AT SEATUCK'S HOME AT THE SUFFOLK COUNTY ENVIRONMENTAL CENTER PROVIDE VALUABLE HABITAT FOR A RANGE OF WILDLIFE, INCLUDING SKIPPERS (HESPERIINAE) AND MANY OTHER POLLINATORS.

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CONSERVATION

Diadromous Fish

Seatuck continued to advance its River Revival Project in 2018, including continuing its leadership role in the effort to restore diadromous fish (Alewives, Blueback Herring, Brook Trout & American Eel) to Long Island’s numerous coastal rivers and streams. In April, Seatuck officially released its *Long Island Diadromous Fish Restoration Strategy*, a road map to restoring diadromous fish populations across Long Island, and worked to advance riverine connectivity and restoration projects in Alewife Creek (Noyak), Bellmore Creek (Bellmore), Mill River (Rockville Centre), Massapequa Creek (Massapequa), Nissequogue River (Smithtown), Parsonage Creek (Baldwin),

Patchogue River (Patchogue), Peconic River (Riverhead), Penataquit Creek (Bay Shore), Swan Lake (East Patchogue) and Whitney Creek (Manhasset).

Diadromous Fish Restoration Strategy

The decline of diadromous fish has a major impact on the health of our coastal ecosystem, as these fish play a vital role in transferring ocean energy into estuarine, freshwater and upland habitats, and provide indispensable forage for countless other species. It is no exaggeration to say that they help to drive Long Island’s entire coastal food web. Rebuilding their populations across the region is a critical component in restoring the health of our estuaries.

Our *Long Island Diadromous Fish Restoration Strategy* provides a long-term road map for rebuilding populations of river herring, American Eel and Brook Trout. It provides background on the region’s diadromous species, details available restoration tools and techniques, establishes benchmarks to measure restoration efforts, and identifies priority restoration sites in each of Long Island’s thirteen Towns.

VOLUNTEERS PLAY AN IMPORTANT ROLE IN ALMOST ALL ASPECTS OF SEATUCK’S WORK, INCLUDING STREAM ASSESSMENTS (LEFT) AND INVASIVE SPECIES MANAGEMENT (RIGHT).

Fish Lifts

Seatuck organized “fish lifts” at dams across Long Island to further the restoration of ecologically important river herring populations. The process involved using seine or cast nets to catch the fish at the base of dams that block their upstream spring migrations. The fish (in some places, such as Smith Pond in Rockville Centre, more than 1,000 of them!) were then lifted over the dams using nets and buckets and released immediately. The effort allows the fish to reach freshwater habitat, which increases their overall spawning success. In doing so, the effort ensures that more eggs successfully hatch and more juvenile fish make it out to the ocean where they can grow up and, in a few years, migrate back

to the same stream. This process helps to “jump start” river herring runs where fish passage projects have been installed or are in the planning process. In some fish lift locations, in addition to river herring, migrating juvenile American Eels were also collected and lifted over the dams. These fish will spend the rest of their lives in the river or stream (as long as 40 years!) before migrating back to the ocean to spawn and die.

Long Island Volunteer River Herring Survey

Seatuck once again organized the annual *Long Island Volunteer River Herring Survey*, a citizen-science project to monitor migrating river herring in

rivers and streams across Long Island. The survey was initiated in 2006 and has been run by Seaturck since 2008. In 2018, more than 50 volunteers spread out across the island, from Montauk to Jamaica Bay, to watch for the migrating fish and estimate the size of the runs. And they found “remnant runs” of river herring in two streams where they were not previously known to exist! Over the course of its existence the annual survey has found dozens of viable river herring runs and provided valuable data on their populations.

Oyster Shell Recovery –
"Half Shells for Habitat"

Seatuck successfully piloted and launched a new oyster shell recovery program, *Half Shells for Habitat*, in 2018 through partnerships with the Town of Brookhaven and several South Shore restaurants. The project recovers oyster shells from restaurant waste streams and returns them to local waterways through oyster and habitat restoration projects.

Historically, in the 19th and early 20th Centuries, Long Island was one of the country's most important oyster producing regions. Oysters from Long Island Sound, Peconic Bay and the South Shore (especially Blue Point) were considered some of the best in the world. However, by the 1920s water pollution and over-harvesting had decimated the industry. Efforts to restore wild oyster populations were initiated, but a series of storms in the 1930s buried oyster reefs (which left few places for young oyster spat to settle and grow).

Oyster shells are an important natural marine resource and play a vital role in maintaining a healthy, productive marine ecosystem. Most significantly, they provide critical substrate upon which juvenile oysters attach and grow. Over time, this process develops oyster reefs, which provide valuable wildlife habitat and enhances coastal resiliency. Oyster shells are also important for water quality: as their shells dissolve they release calcium carbonate, which helps to buffer the pH

of estuarine waters and combat rising coastal acidification around Long Island. For these reasons, oyster shells are an important component of shellfish and habitat restoration efforts; they are used for everything from spat-on-shell projects to living shorelines. Unfortunately, the shells of most oysters consumed on Long Island are thrown away and end up in landfills or incinerators. Few ever get back to the water to play their important role in the ecosystem or are available for restoration projects.

In our new program, the collected shells are cured and sanitized by sunlight for at least six months (as required by New York State Department of Environmental Conservation) at a site established for the H4H program by the Town of Brookhaven. Once the shells are cured, they are available for return to local waters.

The demand for shells for the restoration projects (including those being conducted by Town of Brookhaven, Cornell Cooperative Extension and Stony Brook University) is considerable and will continue to grow. In an effort to ensure an adequate supply of shells to meet this demand, Seatuck will seek to expand *Half Shells for Habitat* in the coming years to locations across Long Island.

SEATUCK CONDUCTS A VARIETY OF NATURE SURVEYS ACROSS LONG ISLAND, SUCH AS THIS FISH ASSESSMENT OF THE WESTERN BAYS ON THE SOUTH SHORE LAST SUMMER.





Diamondback Terrapins

Seatuck has been at the forefront of efforts to safeguard and restore Diamondback Terrapins on Long Island. The iconic turtle, which was once ubiquitous in the region’s many coastal embayments, is imperiled across its range. Over the past several years, Seatuck and The Nature Conservancy, armed with data from scientists at Hofstra University, pushed for an end to the direct harvest of terrapins and for regulations protecting the turtles from dying in crab traps. As of 2018, crab pots, as they’re known, must be fitted with Turtle Excluder Devices (or TEDs) that keep terrapins from getting inside to eat the bait, where they get stuck and drown. In 2018, Seatuck also formed the *Long Island Terrapin Work Group*, which brings together a host of governments and organizations to work together for terrapin conservation.

Seatuck has been at the forefront of efforts to safeguard and restore Diamondback Terrapins on Long Island.

VOLUNTEERS AND STAFF COME TOGETHER IN SEVERAL CITIZEN SCIENCE SURVEYS THAT SEATUCK RUNS, SUCH AS THIS SEARCH FOR SALT MARSH BIRDS.

Window Strikes

Birds face a number of threats as they go about their daily lives. From birds-of-prey, like Great Horned Owls and Cooper’s Hawks, to a host of mammals and snakes, they must be ever-vigilant! They also face numerous threats from humans, including most significantly, habitat loss, but also poisoning, wind turbines, power lines and climate change. Another, less well known, threat is the risk of death from flying into highly reflective or transparent windows. In fact, behind domestic and feral cats, window strikes are the second-leading cause of bird mortality. It has recently been estimated that 365 to 988 million birds die each year in the United States from hitting windows. That’s at least one million birds every day! In 2018, Seatuck launched a new initiative to try to reduce this number on Long Island, working to address the issue in three ways. First, we are commenting on specific development proposals – such as the proposed new entertainment venue at Belmont Race Track, the new nature centers at Hempstead Lake and Jones Beach State Parks, and Stony Brook University’s proposed new Engineering Building – urging that they incorporate bird-friendly glass. Second, we are consulting with building managers and owners on steps they can take to reduce bird strikes at existing buildings, including replacing existing glass, or installing films or stickers that help birds see windows. Lastly, we are working with state lawmakers and key bird conservation groups (American Bird Conservancy, NYC and NYS Audubon) to advance state legislation mandating bird-friendly windows in new construction, and to provide financial incentives and state environmental funds to retrofit existing problematic buildings.



Water Reuse

Long Island is facing a water crisis, with regard to both the fresh drinking water aquifers that sustain our daily lives and the salty coastal waters that enrich them. This crisis is reflected by what has been a steady, many decades-long deterioration in water quality, from excess nitrogen fueled by human sewage, to toxic plumes and spills, all while we “mine” our water supply by taking out more water than is being replenished. Simply put, while several dozen laws and regulations are on the books to protect water quality, the evidence indicates that we are failing to adequately protect the waters and waterways that make Long Island the special place that it is.

For the past few years, Seatuck has been leading the push to make water reuse a key strategy to help reverse this failure. As the name suggests water reuse turns wastewater from a liability into an asset, improving water quality while reducing pumping demands on the drinking water aquifers. Instead of dumping it into the nearest stream or bay, the water reuse strategy puts grey water and treated wastewater to another beneficial purpose, recharging the aquifer.

This reuse can simultaneously achieve water quality and quantity benefits, as evidenced by one of two water reuse projects on Long Island. This project involves Suffolk County’s Indian Island Golf Course in Riverhead and the adjacent Town of Riverhead Sewage

Treatment Plant. This initiative, which began operating this past Spring, sends highly treated effluent to the golf course to irrigate the grass. The benefits? Two thousand, four hundred fewer pounds of nitrogen discharged annually into Peconic Bay and 63 million fewer gallons of water pumped from the stressed underlying aquifers.

This project is a mere drop in the bucket regarding water reuse’s potential here. For example, in Suffolk County there are several dozen sewage treatment plants and golf courses within one-half mile of each other, not to mention many other possible targets for wastewater. The comprehensive implementation of water reuse projects could achieve significantly reduced nitrogen loadings to coastal

waters and our drinking water aquifer as well as stopping billions of gallons of fresh water from being pumped out of stressed aquifers, helping to protect the flow of streams and rivers.

To guide implementation of water reuse, Seatuck called on environmental leaders in 2018 to fund an island-wide feasibility study or roadmap, which would prioritize reuse projects based on financial, logistical, and environmental criteria. This blueprint would allow us, in a thoughtful way, to advance the most effective reuse projects providing the greatest water management benefits. More than two billion gallons of water are currently reused each day in the United States, most notably in California,

Florida and the arid Southwest. It’s time we took a major step forward in managing and protecting our vulnerable coastal waters and drinking water supply by adding Long Island to this list.

Water reuse turns wastewater from a liability into an asset, improving water quality while reducing pumping demands on the drinking water aquifers.

Hydrodynamic Model

The Fire Island breach created by Superstorm Sandy in 2012 demonstrated the positive influence that greater ocean exchange can have on estuarine waters. The “Wilderness Breach,” as it came to be known, delivered clean ocean water to a stagnated and polluted section of Great South Bay, resulting in a cascade of ecological benefits. Water clarity improved, nitrogen levels were reduced, fish and birds returned and even wild set mollusks took hold. These benefits started Seatuck on an exploration of the extent to which the Great South Bay was suffering from overall poor circulation and what could be done to improve conditions. To try to answer what proved to be difficult questions we worked with a consultant to develop a new hydrodynamic model of the Great South Bay. We used the model to test a variety of hypothesis and scenarios for greater exchange. Included was the idea that a “realigned” Fire Island Inlet could deliver water quality benefits to the heart of the bay. In the end, the model suggested that while engineered solutions would be difficult to achieve, there was great potential for future barrier island breaches to improve water quality.

Wildlife Surveys

Good conservation begins with good science. A thorough understanding of both historical and existing ecological conditions is essential to ensuring that decisions regarding conservation policy initiatives and land management are effective and successful. Toward this end, Seatuck engages in wildlife surveys to inform and guide both public and private decision-making. In 2018, Seatuck scientists conducted detailed bird surveys of the 400-acre Greentree Foundation property, the full Mill River corridor, including Hempstead Lake State Park, and marsh islands in the Great South Bay and the Western Bays. These surveys were led by Seatuck’s staff ornithologist, Stephane Perreault. Seatuck also conducted fish and horseshoe crab surveys in a portion of the Western Bays for the Governor’s Office of Storm Recovery. In addition to contractual surveys, Seatuck staff and volunteers conducted bird surveys (as part of the annual Captree Christmas Bird Count and the NYSDEC Winter Waterfowl Survey) and various water quality surveys, including a NYSDEC WAVE (Water Assessments by Volunteer Evaluators) survey of the Penataquit Creek in Bay Shore run by Seatuck’s water quality scientist, Maureen Dunn.

Seatuck engages in wildlife surveys to inform and guide both public and private decision-making.

INSECT SURVEY OF RESTORED GRASSLANDS AT THE GREENTREE FOUNDATION PROPERTY IN MANHASSET.



EDUCATION

Day in the Life

We continued our role in the annual Long Island “*Day in the Life*” program, which was established by the Long Island Pine Barrens Commission, Brookhaven National Laboratory and NYS Department of Environmental Conservation. The program, which was initiated on Carmans River in 2014, gets school students out to different parts of a river, stream or embayment to conduct basic biological and chemical sampling for a one-day snapshot of the waterway’s ecological health. It has been expanded across Long Island by Seatuck and other partners, including the Peconic Estuary Program and the New York State Parks. Seatuck runs the program for the Carlls River (in Babylon) and the Mill River (Hempstead, East Rockaway, Rockville Center, Oceanside).

Little Peepers Forest School

Seatuck’s *Little Peepers* hit its stride in 2018, with the initial program reaching full enrollment and additional sessions being offered. The program for three- to five-year-olds, which was established at the South Shore Nature Center in 2013, is the first drop-off forest school on Long Island. *Little Peepers* follows a full preschool curriculum, including a comprehensive blend of environmental education and traditional, play-based preschool standards. The natural world is a guiding theme for science, math, art & music, language & literacy, dramatic play and other curriculum areas. The program addresses each child’s total development with a fun, hands-on program that engages children in the outdoors and teaches them to love the natural world around them (helping them grow into our “future conservationists!”).



The experiential, hands-on, multi-sensory learning opportunities include ample outside time in over 200 acres of “living classroom.” It’s like having a field trip every day!

Greentree Foundation Teachers' Ecology Workshop

Seatuck continued its year-long professional training program for grade, middle and high school teachers in 2018. The Teachers’ Ecology Workshop, established with the Greentree Foundation in 2011, provides in-depth lectures, field-based programs and hands-on learning experiences about Long Island’s natural world. It also provides skills and techniques for incorporating nature into school curricula, using

the outdoors as an extension of the classroom, and adapting nature study to the NYS Science Learning Standards.

The Workshop commences with a week-long session in July at the Greentree Estate in Manhasset, New York. The property’s 400 acres of mature woodlands, restored grasslands and glacial topography provide a remarkable natural classroom for immersive study of Long Island’s ecology. The program continues throughout the school year, with seven Saturday field trips and programs across the island to explore the region’s varied and unique natural features.

The Workshop is lead by Seatuck staff and professors from Adelphi University, Hofstra University and the College of Staten Island, as well as other local experts. Participants also hear from Workshop alumni about their experiences in taking the program’s lessons back to their schools. The connection to these and other teachers in the robust community of Workshop alumni facilitates an ongoing process of learning and collaboration.

The Workshop trains teachers to help their students experience and better understand the natural world around them. In an era of ever-increasing exposure to digital technology and entertainment, such experiences are invaluable to students in their educational development, and in establishing life-long connections to the natural world.

SEATUCK’S EDUCATION PROGRAMS ENGAGE STUDENTS OF ALL AGES, FROM PRE-SCHOOLERS AT THE LITTLE PEEPERS FOREST SCHOOL TO MIDDLE AND HIGH SCHOOL STUDENTS PARTICIPATING IN THE “A DAY IN THE LIFE” PROGRAMS.

The Day in the Life program gets school students out to different parts of a river, stream or embayment to conduct basic biological and chemical sampling for a one-day snapshot of the waterway's ecological health.



Quail in the Classroom

2018 was the 10th year of Seatuck’s work with local students to raise Bobwhite Quail. The grassland birds, which were historically found in the Great Plains, expanded their range eastward, including to Long Island, as the vast eastern forests were cut for timber and agriculture needs during the Colonial Era. Over the past century, as woodlands returned to fallow farms and development expanded across the landscape, suitable quail habitat has shrunk. As a result, the bird’s population on Long Island and throughout many parts of the Northeast has been greatly reduced. Seatuck works with grade-school students across

Long Island to hatch quail eggs in the classroom and then release the birds at various parks and preserves. The effort is not aimed at restoring quail on Long Island (too little habitat remains), but is rather primarily an educational program that helps to supplement struggling quail populations in remnant patches of suitable habitat. Through the story of this iconic North American bird, Seatuck’s educators work with the participating teachers to help their students learn not only about the life-cycle, but also important lessons about habitat needs, the impacts of human changes to the landscape and wildlife conservation.

STUDENTS IN SEATUCK’S LITTLE PEEPERS FOREST SCHOOL ARE PROVIDED WITH THE GEAR THEY NEED TO EXPLORE THE NATURAL WORLD IN ALL WEATHER CONDITIONS!



Native Schoolyard Gardens

Seatuck expanded its work to establish native gardens in schoolyards around Long Island. The effort, which grew out of the Greentree Foundation Teachers’ Ecology Workshop, engages students in planning, prepping, planting and caring for small native gardens on their school grounds. The gardens feature native grasses, shrubs and other plants which -- unlike non-natives -- attract and support pollinators, birds and other wildlife.

They are easily expanded from year to year and become valuable teaching tools for a wide range of grade levels. In an era when schoolyards are dominated by sports fields, neatly mowed lawns and plastic playground equipment, these gardens become an oasis of life that help children develop a connection to the natural world. In 2018 new gardens were created in Baldwin, Northport and Port Washington, bringing the total up to 15 across Long Island.

SEATUCK’S NATIVE SCHOOLYARD GARDENS PROGRAM ENGAGES STUDENTS IN PLANNING, PLANTING, CARING FOR AND EXPLORING THEIR OWN NATIVE GARDEN.

Schoolyard Gardens are easily expanded from year to year and become valuable teaching tools for a wide range of grade levels.

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“The Earth is a fine place and worth fighting for.”
—Ernest Hemingway



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