Friday, March 18, 2016

Thirty Years of Working with Eelgrass (*Zostera marina*) on Long Island: Status, Restoration, and Research

Chris Pickerell, Director and Habitat Restoration Specialist, Cornell Cooperative Extension of Suffolk County Marine Program

Over the last 30 years CCE scientists have been involved with monitoring and restoring eelgrass (*Zostera marina*) around Long Island. During that time, and in keeping with the worldwide trend, much of our local meadows have been lost. The causes of these losses are numerous, but understanding how we came to this point is key to preserving this critical species in the future. Research into the interaction of light and temperature on local populations has allowed us to explain why some populations persist and even thrive while most have declined or have disappeared entirely. This understanding has also helped us to develop new and innovative site selection tools and methods that take these factors into account. In addition to this, more efficient planting methods, utilizing land-based volunteers, have allowed for more significant and in some cases successful restoration efforts.

Chris Pickerell is the Director and Habitat Restoration Specialist with the Cornell Cooperative Extension of Suffolk County Marine Program. His main area of interest is in the restoration and monitoring of coastal plant communities with a specific focus on eelgrass (*Zostera marina L.).* Over the last 23 years Chris has been directly involved with or helped to design and provide guidance for eelgrass restoration projects on the east and west coasts of the United States as well as in Europe. In recent years, Chris and his team have developed innovative methods for restoration of seagrasses using seeds and at sites with extreme physical disturbance as well as a new system that involves the use of land-based

volunteers to enhance eelgrass restoration efforts. Email: pickerell@cornell.edu

Update on The Nature Conservancy's Shellfish Restoration Efforts in Great South Bay

Carl LoBue, Senior Marine Scientist, The Nature Conservancy on Long Island
Adam Starke, Marine Scientist, The Nature Conservancy on Long Island

Through two acquisitions in 2002 and 2004 The Nature Conservancy acquired the 300 year-old fee title to over 13,400 acres of underwater lands in central Great South Bay from The Bluepoint's Company. With the backing of residents, stakeholders, and local, state, and federal agencies, The Nature Conservancy has made, and continues to make significant investments in restoring the bay's once world-renowned hard clam population for the dual purposes of enhancing the health of the ecosystem and supporting sustainable shellfishing. The multi-faceted approach aimed at addressing recruitment limitation, unsustainable harvest, imbalance of predators, and altered plankton communities has so far resulted in both advancements and setbacks. A hallmark of our approach has been to couple restoration efforts with extensive monitoring to learn from both successes and failures and adjust approaches accordingly. This presentation will walk you through what has been accomplished and what has been learned over the past 12 years. Our findings are applicable to the growing number of shellfish restoration efforts around Long Island and within other estuaries experiencing similar conditions.

Carl LoBue is the Senior Marine Scientist for The Nature Conservancy's Long Island program. Carl is part of a team of natural scientists, social scientists, analysts, communications and policy experts that are working to restore and protect beaches, bays, and natural areas. Recently Carl's largest responsibilities have been aimed at addressing Long Island's nitrogen pollution problem which is negatively impacting the health of bays and harbors as well as the integrity of Long Island's only source of clean drinking water. Email:clobue@TNC.ORG

Adam Starke is a Marine Scientist with The Nature Conservancy's Long Island Program. Adam's responsibilities include monitoring Long Island's marshes and water quality, as well as restoring clams, bay scallops, and oysters in the Peconic Estuary and Great South Bay. Prior to his current appointment at The Nature Conservancy Adam studied the feasibility of Oyster restoration in the Hudson River around New York City. Email: astarke@TNC.ORG

To Kill a Kudzu: The Status of Exotic Invasive Plants on Long Island

Lara H. Pomi-Urbat, Project Manager/Environmental Scientist, Nelson, Pope & Voorhis, LLC

There are 125 exotic invasive plant species that are documented on Long Island. Some of them are widespread and others are just becoming established here. Still others are on the doorstep and will be here soon. How do we best control the established species and how can we be prepared to prevent the new ones from becoming a problem?

Lara Urbat is a Certified Ecologist through the Ecological Society of America. She received both her B.S. in Biology: Environmental Science and her M.A. in Biology: Applied Ecology from Stony Brook University. Ms. Urbat is currently an Ecologist/Environmental Scientist for Nelson, Pope & Voorhis, a private consulting firm, and is currently an active member of LIISMA. Lara has had an interest in invasion ecology since her undergraduate studies, and currently tackles invasive species issues on a number of sites across Long Island. Email: LUrbat@nelsonpope.com

American Chestnut: Leading the Way to a Healthier Forest

William Powell, SUNY College of Environmental Science & Forestry, Syracuse, NY.

The American chestnut (*Castanea dentata*) and chestnut blight is the classic example of what happens when our forests succumb to exotic pests and pathogens. Because of its environmental, economic, and social importance, many tools have been brought to bear on the chestnut blight problem. We have focused on enhancing blight resistance by adding only a couple of genes to the approximately 40,000 gene pairs in the chestnut genome using the tools of genetic engineering. The most promising gene to date encodes an oxalate-detoxifying enzyme, called oxalate oxidase (OxO). This gene comes from bread wheat (*Triticum aestivum*), but is also a common defense gene found in many plants including all grain crops as well as bananas, strawberries, peanut, and other familiar produce.

The OxO is not a pesticide, not an allergen, and is not a gluten protein. According to chestnut leaf and small stem assays that predict the level of blight resistance, this OxO has raised resistance levels in American chestnut at least as high as those found in the blight-resistant Chinese chestnut (*C. mollissima*). This will be the first time an ecosystem restoration program will use the tools of genetic engineering. The next step is to have the trees reviewed by three federal regulatory agencies, the USDA, EPA, and FDA. Once approved, these blight-resistant American chestnut trees can be used to rescue the genetic diversity in the remnant, surviving population of American chestnut and be an additional tool for the restoration of this important keystone tree.

Dr. William A. Powell received his BS in biology in 1982 at Salisbury University,

MD, and his PhD in 1986 at Utah State University studying the molecular mechanisms of hypovirulence in the chestnut blight fungus, *Cryphonectria parasitica*. He spent over two years as a postdoctoral associate at University of Florida researching transformation techniques using the fungal pathogen, *Fusarium oxysporum*. In 1989 he became a faculty member at the State University of New York's College of Environmental Science and Forestry at Syracuse, NY, where he began collaborating with his colleague, Dr. Charles Maynard, researching methods to develop a blight-resistant American chestnut (*Castanea dentata*) tree. He has also worked with American elm and hybrid poplar. Dr. Powell currently has over 50 peer-reviewed publications and one patent. He teaches courses in Principles of Genetics, Plant Biotechnology, and Biotechnology Freshman orientation. His most significant accomplishment, with Dr. Maynard, is the enhancement of blight resistance in American chestnut by his research team and collaborators. Email: wapowell@esf.edu

Long Island's Climate: Past, Present, and Future

David Black, School of Marine and Atmospheric Sciences, Stony Brook University

Long Island's natural habitats are facing a variety of challenges from climate change that is projected to continue well into the future. Understanding the role of anthropogenic versus natural climate variability is hampered by the limited length of the modern instrumental record for factors such as sea level rise, temperature, and precipitation. This talk will present available paleoenvironmental and paleoclimate data for our region to provide context for modern and future climate change, and projections for temperature, sea level, and precipitation change over the next century. Annual average temperatures for our region are expected to increase by 1 °C within the next fifteen years relative to the late-20th century, and by 2-4 °C by the end of this century. Sea level is projected to increase by 1 m over the same time period, which will drastically impact south shore environments as well as causing increased coastal erosion on the north shore of Long Island. Storm surge potential will also be increased as evidenced by the impact of Sandy in 2012 in combination with the mere 0.2 m rise in sea level experienced over the 20th century. Precipitation is projected to increase across our region, potentially creating infrastructure issues, but also creating associated effects of increased run-off into the waters surrounding Long Island.

David Black is an associate professor at Stony Brook University's School of Marine and Atmospheric Sciences. Dr. Black's research revolves around subdecadal- to centennial scale paleoclimate reconstructions to create baselines against which modern and future climate change can be assessed. Some of his recent projects include understanding the forcing mechanisms and climate response of circum-Caribbean precipitation using cave- and marine sediment-derived records, and high-resolution sea surface temperature reconstructions for the tropical Atlantic. Email: david.black@stonybrook.edu

Overview and Status of the NYS DEC Colonial Water Bird Program: Where it has been, Where it is, and Where it is headed.

Chip Hamilton, Senior Wildlife Biologist, NYSDEC Region One

Like sands through the hourglass, so is Long Island's Colonial and Coastal Nesting monitoring and management program. We will look at the origins of the program and how it has evolved into the standard for New York State when it comes to coastal management of our nesting shore birds. Status updates on species such as Piping Plovers, Least and Common Terns as well as other colonial nesters will be displayed. Program and species challenges will be highlighted as well as how technology may be able to help us improve the program.

Frederick B. Hamilton IV, "Chip," is a Senior Wildlife Biologist with the New York State Department of Environmental Conservation Region One Wildlife office. He received his B.S. from SUNY Cobleskill before starting work as a plover steward for Suffolk County Park in 2004. After a season there, he accepted a Fish and Wildlife Technician position with the Department in 2005 where he was involved with the management of Long Island's coastal nesting shorebirds. Later in 2005 Chip was recruited to work with Cornell University's Cooperative Extension of Suffolk County to construct and manage a shellfish hatchery in the Town of Northport. After several successful years with Cornell Chip came back to the Department in 2007 as the Bird Conservation Area Biologist in the Region One Wildlife office, where he continues to work today as the project lead on a variety of different programs that affect regional wildlife. He currently resides in Ridge with his beautiful wife Kelly and their two sons, Freddy and Hunter. Email: Frederick.Hamilton@dec.ny.gov

Great Gull Island Terns – here and there

Helen Hays, Director, Great Gull Island Project

In my presentation I will discuss management methods we have used to encourage expansion of populations of both Common and Roseate Terns on Great Gull Island. In addition, I will take you to South America and show you non-breeding concentrations of both Common and Roseate Terns we found there on surveys of the east and north coasts.

Helen Hays is the Director of the Great Gull Island Project. Great Gull Island lies at the eastern end of Long Island Sound between Plum Island and Fishers Island. The American Museum of Natural History owns Great Gull Island and her study is done under the auspices of the museum. Helen graduated from Wellesley

College, then attended graduate school at Cornell and received a masters degree. She did graduate work in Manitoba, Canada, on Ruddy Ducks and made a movie about them at Jamaica Bay, New York, while working in Ornithology at the American Museum of Natural History. One day, Catherine Pessino in the Education Department at the American Museum called and asked if she would like to visit Great Gull Island. Helen accepted and has been returning ever since. Helen's most recent honor is an Honorary Doctorate from the University of Connecticut on May 10, 2015. Email: hays@amnh.org

The Southern Pine Beetle Infestation in Long Island's Forests: Status and Trends

John D. Wernet, Supervising Forester, Division of Lands and Forests, NYSDEC–Region 1
John W. Pavacic, Executive Director, Central Pine Barrens Joint Planning and Policy Commission

The Southern Pine Beetle, a diminutive insect no larger than an uncooked grain of rice, has wreaked havoc in Long Island's forests and woodlands since it was initially discovered here in the fall of 2014. Hundreds of acres of pitch pines and other evergreens have been killed by this organism since that time, especially in its epicenter - the 105,000-acre Central Pine Barrens region of Suffolk County. A response and management effort, led by the New York State Department of Environmental Conservation and supported by the Central Pine Barrens Joint Planning and Policy Commission, and assisted by a number of other local, county, state, and federal agencies and organizations, was initiated soon after the beetle's detection. A multi-pronged approach, including aerial and field identification and characterization, monitoring and forest management, has been implemented to address this infestation. This presentation will provide an overview of Southern Pine Beetle biology, the state of current science, response efforts and methodologies utilized to combat this species on Long Island, results obtained thus far, research efforts, management issues, and strategies and future trends.

John Wernett has an Associate's Degree in forest technology from SUNY ESF Ranger School and Bachelor's in Forest Resource Management from SUNY ESF main campus. He worked as a contracting forester for the US Forest Service for 7 years and in over ten states. After working for the US Forest Service, John took a procurement forester position with a hardwood lumber company. He's grateful, he was offered the Forester position at Region 1, and he's been with the NYS DEC for 2 years. Email: john.wernet@dec.ny.gov

John Pavacic holds a BS from Union College and a MS from the SUNY College of Environmental Science and Forestry in Syracuse. Currently, Mr. Pavacic works as the Executive Director of the Central Pine Barrens Joint Planning and

Policy Commission which is charged with the protection, preservation and management of the 105,000-acre Central Pine Barrens area. Prior to this, Mr. Pavacic was Commissioner of the Suffolk County Department of Parks, Recreation and Conservation. He also served as the Regional Permit Administrator and chief of the Division of Environmental Permits for the Region 1 (Long Island) office of the NYSDEC and with the Brookhaven's Division of Environmental Protection as Assistant Environmental Protection Director and Environmental Planner. He has been a lecturer and presenter on SEQRA administration, environmental regulatory program implementation, environmental compliance and enforcement, natural resource protection, wildfire prevention and management, and public ethics at a variety of seminars, meetings, forums, workshops and continuing legal education courses. Email: John.Pavacic@SCWA.com

Saturday, March 19, 2016

Beyond Words: What Animals Think and Feel

Carl Safina, professor for Nature and Humanity at Stony Brook University, Alan Alda Center for Communicating Science at the University's School of Journalism, and founder of The Safina Center.

Can we ever really know what animals think and feel—or even if they do? Many scientists say the question can't be addressed. Carl Safina, who is a scientist, says yes, it can. And he addresses it. Based on his best-selling book of the same title, Safina will show that animals think and feel a lot like people do—because after all, people *are* animals. He'll show that their lives and their minds aren't really too different from ours. They know who their friends are. They know who their enemies are. They have ambitions for status, and their lives follow the arc of a career. Relationships define them, as relationships define us.

Carl Safina's writing about the living world has won a MacArthur "genius" prize, Pew, and Guggenheim Fellowships; book awards from Lannan, Orion, and the National Academies; and the John Burroughs, James Beard, and George Rabb medals. He earned a PhD in ecology from Rutgers. Safina is the first Endowed Professor for Nature and Humanity at Stony Brook University, where he co-chairs the Alan Alda Center for Communicating Science and runs the not-for-profit Safina Center. He hosted the PBS series *Saving the Ocean.* His writing appears in *The New York Times, TIME, Audubon,* and on the Web at National Geographic News and Views, Huffington Post, CNN.com, and elsewhere. He is author of the classic book, *Song for the Blue Ocean.* Carl's seventh book is *Beyond Words; What Animals Think and Feel*. Email: csafina@safinacenter.org

Barcode Long Island: Student-Centered Biodiversity Research

Maria Brown, Science Research Teacher, Sayville High School
Bruce Nash, Assistant Director for Science, Cold Spring Harbor Lab DNA Learning Center

DNA carries a record of how organisms are related. Just as the unique pattern of bars in a universal product code (UPC) identifies each consumer product, a "DNA barcode" is a unique pattern of DNA sequence that identifies each living thing. In *Barcode Long Island,* Cold Spring Harbor Laboratory's DNA Learning Center is supporting high school teachers as they lead student teams using DNA barcoding to study Long Island's inhabitants. After developing proposals, students isolate DNA, amplify barcode regions by PCR, and send amplicons for DNA sequencing so that they can identify species using bioinformatics. In this way, we enable them to answer their own questions and contribute to worldwide barcoding efforts.

At the teacher-student level, the *Barcode Long Island* Program provides insight into the process of scientific research for students. Students begin with a proposal based on a review of the literature. Once their proposal has been accepted, students learn how to obtain collecting permits, field protocols for sample collections, and proper photographic cataloging and sample processing techniques. Once their samples have been processed, they begin the DNA extraction laboratory protocols where they learn how to use primers for polymerase chain reaction, gel electrophoresis, and how to prepare a sample to go off to the sequencing laboratory. The last step in the process is for students to learn skills in bioinformatics and analysis of their data related to the location(s) in which they were collected. Students get to share what they researched with other students, teachers, families, and scientists at Cold Spring Harbor Laboratory each June. Exposure to this process for high school students provides a model for Best Management practices for all future research that students may attempt, as well as improve their critical thinking skills and exposure to multiple STEM disciplines.

Dr. Nash has training in molecular genetics. Since joining the DNALC in 2005, he has helped develop, manage, evaluate, and disseminate training programs for educators throughout the United States supported by NSF, NIH, HHMI, and the Hewlett and Sloan Foundations. He helped develop and optimize the DNALC's DNA barcoding protocols, and has trained high school and post-secondary faculty to implement DNA barcoding with their students. He has a keen interest in the interaction between humanity and nature, and believes that our well-being is intimately connected to our understanding and stewardship of the land – and that engaging students with the wild empowers them and promotes success. Email: nash@cshl.edu

Maria Brown, MS., PWS, GISP was a senior Environmental Scientist before becoming a science teacher in 1999 at Sayville High School. After teaching AP Environmental Science and Earth Science for seven years, she has been the high school science research teacher for the past nine years and was trained in wildlife genetics at Brookhaven National Laboratory where she received an ACE Fellowship for three years. Maria is also a Certified Geospatial Scientist and teaches at Stony Brook University in the School of Marine & Atmospheric Sciences, Sustainability Studies Program. She combines her genetic and geospatial background to introduce students to an emerging field known as Landscape Genetics. She has been involved in the *Barcode Long Island Project* since the initial proposal funding stages and has had four of her student team projects accepted since its inception. She is also a New York State Master Teacher, the Conservation Chair for the Great South Bay Audubon Society, and the Vice President of the Coastal Research & Education Society of Long Island.
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Lizards among us: Italian wall lizards in suburbia

Russell L. Burke, Chair, Biology Department, Hofstra University

Italian Wall Lizards have been successfully introduced into at least four urban and suburban locations in North America, all close to the same latitudes as their native range. Extant Podarcis populations have been studied to a limited extent, and their date of origin, number of released individuals, and source population can be reliably estimated. These are the only successful introductions of lizards into temperate North America. It is not coincidental that they are restricted to urban and suburban areas. Few native North American lizards exploit urban habitats above 35^{o} latitude, so wall lizards encounter few native competitors. Wall lizards thrive in urban/suburban areas in southern Europe, and are common commensals with humans there because they are diet and habitat generalists that quickly habituate to new environmental conditions. They are also apparently well adapted to the specialized guild of potential predators that inhabit urban areas in both their native and new habitats.

Italian wall lizards were introduced to a suburban/light industrial area of Garden City, New York, in 1966. Currently, their range in New York is highly discontinuous but includes the Bronx, over 23 km to the west and Hampton Bays, 105 km to the east. The population continues to spread, primarily along powerline and railroad rights-of-way and through the assistance of individuals. My lab's research on this population has included genetic origin, food habits, freeze tolerance, parasite loads, activity patterns, and basic demography, including reproductive rates and survivorship. They are depredated by raptors and cats. We've found that wall lizards in New York have similarly

diverse diets and predators, much lower levels of activity, but higher reproductive levels, compared to their counterparts in Italy. We have also identified their location of origin in Italy, providing the framework for more detailed ecological and evolutionary comparisons.

Russell L. Burke received his B.S. in Zoology from Ohio State University, his M.S. in Wildlife Ecology from University of Florida, and his Ph.D. in Biology from University of Michigan. He has taught undergraduate and graduate students at Hofstra University in New York since 1996, and is now a Professor, Department Chair, and Donald E. Axinn Distinguished Professor in Ecology and Conservation. He has conducted phylogenetic, ecological, and conservation research on a wide variety of vertebrates and has published 45 scientific papers, primarily on population and community ecology, especially in developed landscapes. He's run a citizen science program involving research on diamondback terrapin in Jamaica Bay, New York since 1998 and has also conducted long term projects on eastern box turtles and wood turtles. Email: Russell.L.Burke@Hofstra.edu

The Sharks Found in Our Near Shore Waters: Oh, Just How Little We Know

Gregory M. Metzger, Marine Science Teacher, Southampton High School

The Long Island Shark Collaboration (LISC) is one of the newest organizations to begin studying the large coastal sharks found along the south shore of Long Island. These waters support a host of shark species about which very little information is known. Our mission is two-fold: First, we look to provide data or access to data on sharks of interest to a variety of user groups including scientists, government agencies, conservation organizations, and students. At the same time our goal is to answer our own suite of research questions. Currently, we are working on a systematic survey of sharks found in the ocean waters along the south shore of Long Island. We are also specifically targeting young-of-the-year (YOY) white sharks for electronic tagging purposes. The tags will begin to give us information on the movement of this year's class about which virtually nothing is known. During this upcoming season, we plan to add the real-time tracking of thresher sharks and YOY white sharks using acoustic telemetry. This technology will give us data on both the vertical and horizontal movements of these species as well as provide new insights into their physiology.

Greg Mertzger has been teaching marine science and aquaculture at Southampton High School since September 2001. In his 14 years, he had the opportunity to design and build one of the most state-of-the-art marine labs found in a publicly funded high school in the country. His program educates hundreds of individuals of all ages each year in the area of marine science and the industry of aquaculture.

Most recently, Metzger and a group of fellow researchers formed the Long Island Shark Collaboration (LISC). This team has set out to better understand the population dynamics of all large coastal sharks found along the south shore of Long Island. In addition, LISC hopes to begin to unlock the mysteries of the young of the year white sharks found in these local waters.

Metzger is an adjunct professor of aquaculture at Stony Brook University. He also has held a Master Near Coastal U.S. Coast Guard license since 2005 and runs a successful charter business. He has delivered public lectures and conducted workshops educating citizens on the basic biology of sharks and the scientific methods used by shark biologists to gather data. Email: gmetzger@southamptonschools.org

Drifters: a guide to the stray tropical fishes of New York

Todd Gardner, Suffolk Community College, Riverhead, NY

Off the coast of Cape Hatteras, North Carolina, the Gulf Stream transports approximately 100 million cubic meters of seawater northward per second. Dwelling within this, the world's most powerful ocean current, is a diverse ecosystem of resident, transient, and planktonic marine life. Among the plankton community of the Gulf Stream are eggs and larvae of marine animals that were spawned on distant coral reefs and continental shelf waters from the Caribbean Islands to the Carolinas. Many of these animals are destined to never encounter a suitable habitat. For most, that means starving or being eaten as a larva; for others it means reaching the point of metamorphosis in the open ocean over the abyssal plains; but for one poorly-studied group of fishes, it means being deposited along a temperate shoreline during the summer, where water temperatures are high enough to support them for only a few months of each year.

For 30 years, Todd has been collecting and cataloging tropical fish species in the waters around Long Island, New York. In that time he has recorded more than 100 species of tropical marine fish here and made some observations that demand further attention. There is clear evidence that many of these species simply succumb to the cold at the onset of winter, but for some of them, the situation may be more complex. Regardless of what ultimately happens to these wayward fishes, the sheer biomass of these temporary inhabitants suggests that they are likely to impact temperate ecosystems along the Atlantic coast of North America. Join him as he discusses collection and husbandry techniques as well as the fate and ecology of these tropical drifters.

Todd Gardner is a professor of biology and marine biology at Suffolk County Community College in Riverhead, NY. His life and his career have both been shaped by his passion for marine life and he has written numerous scientific and popular articles about his research and experiences collecting, keeping, and

culturing marine organisms. Todd's professional background includes work on a National Geographic documentary, commercial aquaculture at C-quest Hatchery in Puerto Rico, and an 11-year term at the Long Island Aquarium where he spent much of his time developing techniques for rearing marine fish larvae. To date he has raised more than 50 species. In 2013 Todd received the prestigious Aquarist of the Year Award from the Marine Aquarium Society of North America (MASNA). In his spare time, Todd dives, photographs marine life, runs marathons, and plays in a blues band. Email: gardnet@sunysuffolk.edu

The Historical Ecology of the Great South Bay's Blue Point Oyster

Jeffrey Kassner, Research Associate, Long Island Maritime Museum West Sayville, NY

During the 19th and early 20th century, the eastern oyster (*Crassotrea virginica*) was an important component of the American diet and was consumed in a variety of ways by all social classes. To meet this demand, oysters were harvested from almost every estuary along the east coast of the United States and were oftentimes "cultivated" which entailed transplanting small "seed" oysters from one estuary into another estuary where they would be grown to market size.

Because of their distinctive taste and shell shape which was the result of the particular environmental conditions in the Great South Bay, oysters harvested from the Great South Bay became known as "Blue Points" and were highly esteemed by oyster consumers. Like most of the oyster fisheries, the Blue Point oyster industry began as a wild harvest fishery but by the second half of the 19th century had become dominated by oyster cultivation which dramatically increased the production of oysters above what the Bay was capable of producing naturally and which resulted in the privatization of the public bay bottom that led to social, economic, and political conflicts.

Beginning around 1910, the production of Blue Point oysters began to slowly decline due to a combination of environmental changes in the Great South Bay that made the Bay less suitable habitat for oysters, a scarcity of seed oysters for cultivation, economic forces, and shifting consumer tastes that decreased the demand for oysters. By the 1950s, the Bay's natural abundance of oysters had become insignificant and the Blue Point oyster industry was essentially over even though the phrase "Blue Point oyster" continued to be associated with high quality oysters. These changes in trajectory of the Blue Point oyster industry will be described in the context of historical ecology.

Jeffrey Kassner is a volunteer research associate at the Long Island Maritime Museum in West Sayville and a first mate on the Museum's 1888 National

Register oyster sloop *Priscilla*. He is a member of the adjunct faculty at Suffolk Community College (Biology), Stony Brook University (Marine Science), and Dowling College (Biology). He was previously the Town of Brookhaven's Director of Environmental Protection. jkassner2@gmail.com

Hide and Seek in the Wilds of Long Island

Dave Taft, Jamaica Bay Coordinator, Gateway National Recreation Area

Long Island is home to many overlooked, charismatic plants. Their fascinating survival strategies rival more heralded animal neighbors, and incorporate subterfuge, parasitism, predation, mimicry, camouflage, and a new term for some, mycoheterotrophy. Some of these plants may not appear above ground for years, others grow leaves which remain buried by snow for months, losing them just as the sun warms their native woodlands, still others lack leaves and have given up on photosynthesis completely. It's enough to make us question our concepts of "dormancy," our ideas about seasonal cycles, and our notions of the passive lives plants lead. Dave Taft offers portraits of a few notable Long Island plants of fields, woods, and wetlands.

Dave Taft was born and raised on Long Island's "other end" - Brooklyn. He is currently the Coordinator of the Brooklyn and Queens units of Gateway National Recreation Area. A contributing writer for the *New York Times*, Mr. Taft's NYC Nature column takes aim at the overlooked plants and animals that lead their lives alongside 13 million fellow New Yorkers. Email: d.j.taft@att.net

Science Illustration: Art as a Tool for Scientific Inquiry and Understanding.

Jan Christopher Porinchak, M.F.A
Amanda Levine, M.A. Marine Biology
Amanda Furcall, B.A. Conservation Biology

Art can be used to open the way to further understanding Science concepts. This is a hands on workshop in which participants will learn to create artwork which their understanding of Natural History. A variety of hands-on guided art experiences will equip participants to sharpen their observation skills and inspire student desire to learn! Art activities will be mixed with guided outdoor (weather permitting) exploration of the environment with the instructors to make this class a rich educational opportunity.

Jan C. Porinchak is a Middle School Art teacher at Jericho UFSD. He is a Sierra Club hike leader, Cornell Cooperative qualified Master Naturalist, and a member and presenter of the Guild of Natural Science Illustrators. E-mail: beachtowel1@verizon.net

Amanda Levine is a Marine Biologist. She has an M.A. In Marine Conservation and Policy, Stony Brook University, and a B.S. in Marine Vertebrate Biology and Environmental Studies, Stony Brook University. E-mail: amalevine00@gmail.com

Amanda Furcall attended SUNY Environmental Science and Forestry, earning a degree in Conservation Biology and studied Public Administration at CUNY Baruch. She works at the North Shore Land Alliance. E-mail: afurcall@gmail.com

Spreading Adders? Ecology and Natural History of the Eastern Hog-nosed Snake on Long Island

John Vanek, PhD candidate, Cooperative Wildlife Research Laboratory at Southern Illinois University

Historically widespread and abundant across Long Island, the Eastern Hog-nosed Snake (*Heterodon platirhinos*) was once so common that it could be collected by the hundreds on Rockaway Beach. Today, few people have even heard of a "hognose snake," let along observe one in the wild. Declines in this fascinating species are both enigmatic and predictable, with some populations disappearing for no apparent reason, while others succumb to the region's oppressive urbanization. However, recent field studies suggest that some populations may persist in higher numbers than once thought, display unique phenotypes, and utilize novel habitats. Radio-telemetry has revealed these populations also exhibit small home ranges, communal nesting, and the ability to thrive in harsh environments. Conservation of this once quintessential Long Island species will require different groups of stakeholders to work together and ensure habitat preservation, habitat connectivity, and the management of invasive species and subsidized predators.

John Vanek is a PhD student in the Cooperative Wildlife Research Laboratory at Southern Illinois University where he studies the urban ecology of Striped Skunks. He is a native of South Huntington, NY, and went on to earn a BS in Wildlife Science from the SUNY College of Environmental Science and Forestry. He then completed an MS in Biology at Hofstra University, studying the biology of Eastern Hog-nosed Snakes on Long Island. He has been fortunate enough engage in field research involving Black Bears, Timber Rattlesnakes, Chorus Frogs, and Eastern Hellbenders. In his spare time, he updates the NYS Chapter of The Wildlife's Society facebook page, goes herping, and plays with his Australian Cattle Dog, Carlin. Email: john.p.vanek@gmail.com