Arial view of the Dodge Paddock and Beal Preserve. Photo credit: Roger Wolfe, CT DEEP.

The Restoration of Dodge Paddock and Beal Preserve – Uniting a Community in Achieving Climate Resiliency

by MaryEllen Mateleska

Nestled between the tree-lined streets of Stonington Borough and the rolling waves of the Sound lies the Dodge Paddock and Beal Preserve; a tract of land with a rich history and an even richer biodiversity. On any given day, visitors walking the path along the edge of the Preserve may see elementary school students participating in a lesson on Long Island Sound while searching for crabs and snails along the rocky shore, artists with their easels painting the breathtaking views of the historic homes among the backdrop of the salt marsh, or hear a chorus of song birds flying through the grassland hunting for their afternoon meal. Over the last few decades, the introduction of invasive plant species and the aftermath damage of strong storms have left the Preserve in need of some work to restore native plants and prepare this area for future climate related challenges. In January 2015, Mystic Aquarium and Avalonia Land Conservancy, under the guidance of the CT Department of Energy and Environmental Protection, began a collaboration to restore the 2.6 acres of coastal marsh and grassland habitats by engaging volunteers in on the ground stewardship activities.

Located in the Stonington Borough section of Stonington, Connecticut, the Dodge Paddock and Beal Preserve, owned by Avalonia Land Conservancy, is the last publicly accessible green space in this popular coastal tourism destination. The eastern boundary of the Preserve faces Little Narragansett Bay and overlooks Sandy Point Preserve and is comprised of several habitat zones including dunes, coastal grasslands, and a tidal wetland area. In addition to boasting precious resources of significance to the health of Long Island Sound, the site's former role as a stoneware kiln in the 1800s makes it an important historic preservation site. Pieces of pottery can still be found strewn around the area and finer works are preserved at a nearby museum. Today, the Dodge Paddock and Beal Preserve is open to the public for passive recreational activities (motor vehicles, bicycles, horses, and hunting prohibited). A dedicated corps of Avalonia volunteers work year-round to ensure that boundary signage is in place and that hiking trails are maintained.

As with many sites in the Long Island Sound watershed, the Preserve has faced natural and anthropogenic challenges to its health. These threats are most evident in tidal areas of the Preserve, which encompasses grassy marsh habitat, tidal pools, gravel and sand pockets, and rock outcrops. This area provides critical feeding and roosting areas for migratory birds including cormorants, geese and ducks, shorebirds, egrets, and herons. Despite past projects to allow upland storm water drainage and to restore tidal exchange in the marsh, surface water failed to drain from the marsh and the highest tides did not fully recede. What was intended to be a tidal system with some level of tidal exchange turned into a system with intermittent depressions of stagnant water. This restriction of tidal circulation promoted *Phragmites* growth which dominated much of the marsh. The loss of regular tidal flow and stagnant conditions also produce

A group of students from the Marine Science Magnet School in Groton, CT work to remove Phragmites debris in preparation for planting. Photo credit: MaryEllen Mateleska.

This photo was taken immediately following the first planting stewardship event, which included the creation of a new walking path to minimize human impact on the marsh. Photo credit: Emily Bodell.

Taken in May of 2014, this photo illustrates the extent of invasive species debris removal that was necessary prior to the first planting stewardship events. Photo credit: Beth Sullivan.

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unbearable numbers of mosquitoes, which necessitates several pesticide applications per season. The mosquitoes created a nuisance and potential disease vector to the surrounding neighborhood and to preserve visitors, thereby lowering their quality of life and creating a public health hazard. Complicating the already challenging conditions at the Preserve, in 2012 Superstorm Sandy overtopped the dune, which pushed sand and gravel into the marsh. The sand covered marsh vegetation and partially filled a drainage channel, bringing with it flooding, debris deposits, erosion, and a decreased ability to serve as a buffer from land-based runoff. In summation, there was a great need to restore balance to this system.

In an effort to prepare the site for future restoration and mitigate the mosquito infestation, CT DEEP's Wetlands Habitat and Mosquito Management Program (WHAMM) worked to open a new drainage area, eradicate invasive *Phragmites*, and create channels for better flow of floodwaters. The result of this intensive work was a coastal wetland area that was primed for the replanting of native marsh plants.

Both Avalonia Land Conservancy and Mystic Aquarium share a mission to inspire the community to protect and conserve our natural resources through direct hands-on stewardship actions. This project was recognized by both organizations as an ideal opportunity to educate the community on coastal resiliency in light of rising sea levels due to climate change and the potential for increased storms. "Using a climate adaptive planting plan and engaging the community in a shared vision of coastal stewardship makes this project a model for how people can join us in fulfilling our conservation based missions" explained Beth Sullivan, Avalonia Land Conservancy Stonington Committee Chair. Using their breadth and depth of resources – including a robust education and conservation department – Mystic Aquarium is leading this charge with a goal of engaging up to 2,800 volunteer hours in the restoration of the Preserve. Beth Sullivan adds, "Community participation in the restoration of the Preserve will not only encourage the community to be part of something big but will also instill a greater sense of ownership of this local treasure."

Since its onset, there has been overwhelming support for this project. Stonington Borough neighbors offered water supplies to cultivate the growth of new plants and college students conducted soil tests to assist with the selection of appropriate plants for each habitat. As of September 2015, more than 170 volunteers participated in the first planting season. High school students from the Marine Science Magnet School of Southeastern Connecticut in Groton and college students from Mitchell and Connecticut Colleges in New London prepared the site by removing *Phragmites* and other debris while groups of volunteers participated in the planting of grass plugs and native shrubs. Although there is still much work scheduled to be accomplished the success of this community effort is evident with an increase in the presence of both native marsh flora and fauna.

By using a climate adaptive planting plan to accommodate for climate change effects including saltwater intrusion and extreme precipitation, while engaging the community through stewardship initiatives, this project could serve as a model for regional coastal communities. It seeks to "rebalance the system" by restoring and protecting habitats for the species that rely on this site, but also ensures optimal health and balance for the last public green space available in Stonington Borough. Public visitors can enjoy having access to the site as they learn about and gain a sense of appreciation for the Sound well into the future.

ABOUT THE AUTHOR

MaryEllen Mateleska, Director of Education & Conservation at Mystic Aquarium, serves as the project manager for the Dodge Paddock and Beal Preserve restoration project. Mateleska works with community members of all ages in immersive conservation programs designed to engage the next generation of environmental stewards.

Planted *Spartina alterniflora* plugs begin to grow and spread throughout the Dodge Paddock and Beal Preserve. Photo credit: MaryEllen Mateleska.