



If you happened by the TWI bioswale at Owen Little Way early this fall, you may have spotted the sparkling blue and purple fruits of porcelain berry (*Ampelopsis glandulosa* var. *brevipedunculata*). This perennial vine was brought to the United States in the 1870s from East Asia as an ornamental ground cover, but those long-ago horticulturists had no idea what an invader they had unleashed on the native flora of the East Coast. A single vine can grow over 25 feet long, tolerating shade or direct sun, poor or rich soils, dry or moist conditions. It handily outcompetes other plants and can even choke out a fully mature tree! See top of page 3 to learn about TWI's efforts to contain this lovely nuisance at the swale.

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## Tisbury Students Discover Life in Spring Pond (or Not)

This past June TWI was proud to sponsor the 4th year of the Felix Neck Watershed Education Program for 7th graders at Tisbury School, in collaboration with science teacher, Sue Adamo. As in past years, this program featured a classroom session, field work and installation of additional storm drain medallions in downtown Vineyard Haven.



For the first time this year, the field component was a full day, divided between two sites - Tashmoo Spring Pond and the Felix Neck Sanctuary. Among other activities, students used dip nets to discover and characterize life in the pond. Unfortunately, few or no creatures were found in the black muck of Tashmoo Spring Pond. While the school program was a success, the results at Tashmoo Spring Pond point to the urgency to progress with clean-up there. (See article below for some TWI thoughts on improving the health of the pond.)

## TWI ANNUAL MEETING *Picnic at the Pond*

Over 25 friends and supporters of TWI gathered on a sunny August evening at Tashmoo Spring Pond for this year's annual meeting. After the election of Board members and new officers, attendees offered a number of great suggestions for potential TWI activities.



Those gathered also heard an update on shellfish propagation and the phragmites nitrogen mitigation project from Chris Edwards and Emma Green-Beach of the MV Shellfish Group and news on water testing from Sheri Caseau of the MV Commission.

The informal venue for the meeting allowed for great interactions, questions and discussions. Thanks to all who contributed!

## Restoring the Health of a Valued Tisbury Resource

The Tashmoo Spring Pond is a popular focal point for the Town and the Island and a destination for local school trips. But, like many ponds, it suffers from an overload of nutrients and recurring algae blooms. Moreover, the accumulations of muck in the pond has reduced the depth of the pond to a point where it can no longer function for herring spawning.

TWI is looking into potential grant applications for a program that would reduce the algae, lessen the volume of the muck bottom and hopefully, with deeper water and improved water quality, restore the former herring run.

The first step is to reduce or eliminate the surface algae. This, in and of itself, would be of great benefit to the Town since the algae is unsightly, chokes out other aquatic life, and restricts the use of the pond for visitors.

For this, we are currently considering an aeration system that would disperse air along the bottom of the pond (much like a bubbler). The rising air breaks up the warm surface water that the algae depend on and causes the cooler air to lower the surface temperature. The system does not require any chemical additives and is efficient to operate.

Next, to reduce the volume of muck in the pond, we are looking into a process called bio-dredging which is less intrusive than mechanical dredging and much less expensive.

Bio-dredging is a process whereby aerobic bacteria (which use oxygen) are introduced into the pond muck where they interact with anaerobic bacteria (which are destroyed by oxygen). Add-



ing oxygen or oxygenating the muck helps to metabolize the bacteria on the pond's bottom, helping to break down the detritus, reduce the level of muck in the pond, and lead to cleaner more habitable water.

Finally, if the efforts to remove the algae, reduce the muck, and improve the water quality of the pond, are successful, we would work to restore the fish ladder at the spillway. This, along with deeper water, a more consistent water temperature and a firmer pond floor, could allow the pond to become an active herring spawning area once again.

# “Beautiful” Invaders At The Owen Little Way Swale



A small group of TWI “worker bees” gathered at the Owen Little Way swale early in October to attempt to free the vegetation of the jungle-like stranglehold of porcelain berry vines.

In spite of the invasive porcelain berry, the swale looked quite beautiful, sporting an array of fall colors. Hearty plants such as Goldenrods, asters, Joe Pye weed and milk-weed had managed to avoid the clutches of the vines.

TWI workers significantly cut back the vine, especially along the upper end at the yacht club fence. A smaller crew subsequently worked on cutting back the growth that had crept into the parking area and even covered our sign which explains the swale. The actual entrance to the swale was later dug out by

the Town and cleared of the sand that piles up and blocks water flow after significant rainfalls. This trench is needed to divert the runoff waters into the swale and allow it to do its job of filtering the water prior to it entering the large storm-drain at the lower end, from which it is carried directly to the sea. If the rainwater can't get into the swale it goes directly to this drain.

Now that most of the plants have died off for the winter, we are hoping we will be able to find someone to do one last cutting back for the season. Last year we had a landscaper who did this maintenance free of charge and we are hoping to find another “swale angel” to help maintain this important pollution control demonstration project.



Photo courtesy of MV Times/Rich Saltzberg

## Water, Water Everywhere!

The Town of Tisbury, with guidance from consultants from the Horsely Witten Group, held a full day workshop in October as part of a Municipal Vulnerability Preparedness (MVP) assessment. A diverse group of persons participated with the goal of identifying the hazards facing Tisbury that might be exacerbated by climate change and sea level rise. Participants agreed that the Water Street-Five Corners-Beach Road area was the most problematic. Actions proposed by small breakout groups to address the anticipated hazards ranged from the tangible, such as extending the Eastville jetty, to the less well-defined, such as incentivizing businesses such as the Tisbury gas stations to relocate to higher ground.

The full group prioritized the action list to include the following items for potential future grants:

- Conduct a study of supply chain vulnerabilities (i.e., due to extended ferry disruptions)
- Extend the Eastville jetty to protect more of the inner harbor from nor'east storms
- Conduct roadway/stormwater improvements to vital downtown streets

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## PRB Grant Approved

The Martha's Vineyard Commission, working with the towns of Tisbury and Oak Bluffs, recently won a very competitive grant from the Southeast New England Program (SNEP) of the US Environmental Protection Agency for \$250,000 to site and install a Permeable Reactive Barrier (PRB) near the shoreline of the Lagoon Pond. PRB's have been used for many years to clean up hazardous materials in ground water. Now the technology is being applied to remove nitrogen (primarily from Title 5 septic systems) traveling in ground water, resulting in nitrogen pollution in our coastal ponds. The technology works like a vertical leach field to intercept ground water and, using a carbon source such as wood chips or vegetable oil, react with nitrogen to convert it to harmless nitrogen gas to be released into the atmosphere.

With a focus on proper siting, the proposal put forward by the MVC won the confidence and interest of the grantors. Accurate modeling of the groundwater plume is vital to installing the PRB in order to intercept the water at the right depth and breadth. Already, test wells are being installed at three possible sites with the goal of choosing the most promising one for the PRB.

With improved understanding of the use of PRB's, they may serve as part of the tool kit for towns attempting to mitigate the impact of nitrogen from septic tanks and other groundwater sources.

As part of its commitment to address our wastewater and nitrogen pollution challenges, TWI is working with the Town and MVC to evaluate available technologies such as PRBs and help the Town bring effective and affordable solutions. We will carefully follow these efforts and continue to bring you updates on their progress in future newsletters.



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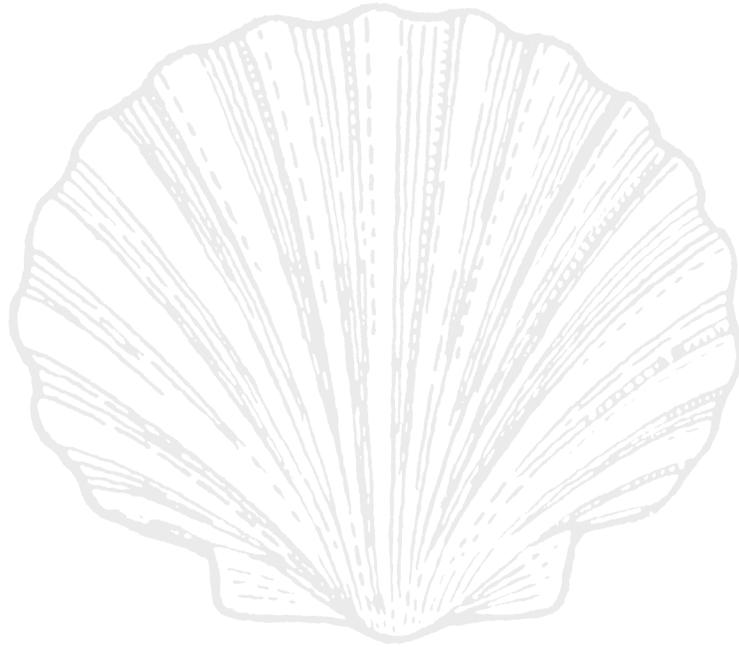
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**MISSION STATEMENT** Tisbury Waterways Incorporated (TWT) is a citizens' non-profit organization whose mission is to provide a community presence in matters involving the quality and improvement of waterways in the Town of Tisbury. TWT acts as an advocate and catalyst to enlist the active participation of the public in support of municipal, educational and research programs designed to improve local marine water quality.



Visit our Website: [www.tisburywaterways.org](http://www.tisburywaterways.org)

# STORMWATER EPA Grant

The Town of Tisbury recently participated in the kick off meeting for an EPA SNEP (Southern New England Program) grant won by EPA Region I researcher, Ray Cody. The grant focuses on development of the best Green Infrastructure (GI) approaches to management of stormwater in urban downtown areas.

The research team has selected downtown Tisbury to focus its research and provide direct assistance to the Town. It should come as no surprise to drivers on the Island that the recently completed stormwater study, completed by Environmental Partners, the Town's consultant, in consultation with a team from Tisbury, identified Five Corners as the highest priority for improved stormwater management.

As the next step, Tisbury will host the research group for a site visit and planning session. By the end of the grant period, Tisbury will receive a minimum of two intervention designs that will address flooding in Five Corners in the most cost-effective and sustainable manner. Ease of maintenance and affordability were the criteria highlighted by the Tisbury Department of Public Works. The EPA team fully appreciated the Town's goals and plan to work alongside us to bring effective solutions to our flooding problems while developing a handbook for other towns to follow.

## TWI Environmental Studies Scholarship

For the second time, TWI will be offering our Environmental Studies Scholarship for an Island resident in their sophomore to senior years of college or in graduate school. The scholarship is given in honor of Betty Feldman, Jo Wood, and June Kapell, early TWI Board Members who were especially devoted to environmental education. Applicants must be majoring in a field, such as marine biology or environmental science, which reflects the priorities of TWI. Previous applicants are welcome to re-apply. The application form for the \$1000 scholarship will be posted on the MVRHS guidance dept. postgraduate scholarship page in January, 2019; applications are due by April 30, 2019.

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- Improve and increase community education and outreach with regard to emergency preparedness and sheltering options
- Review current Town regulations to identify potential changes that would decrease vulnerabilities to climate change and sea level rise in environmentally sensitive areas.
- Develop and finalize a comprehensive stormwater plan

A public listening session was held in early November to present the findings and hear comments and suggestions from the public. A report will be prepared to enable Tisbury to become MVP-certified by the state, providing the Town access to other state grants that will assist in addressing the Town's priorities.

The workshop was funded by a grant from the Massachusetts Executive Office of Energy and Environmental Affairs.