



# Tisbury Waterways, Inc.

## Newsletter

Summer 2017

### Tisbury Waterways Invites You to join us for Seafood & Cocktails

At the home of Denys and Marilyn Wortman  
231 Hines Point, Vineyard Haven

**Sunday, June 25th 5:30-7:30 p.m. \$45**

RSVP Pamela Street  
pamelagstreet@gmail.com 508-696-1893

I/we are unable to attend but would like to contribute to keep Tisbury's water clean and healthy

*Here are views of TWI's demonstration bioswale in its autumnal glory at the base of Owen Little Way. A stormwater workhorse, it helps filter contaminating runoff before it enters the harbor. We're partnering with the Town to install more LID measures such as this where needed.*

What is *Low Impact Development* (LID) and how can it be employed in Tisbury to alleviate our stormwater runoff problem? LID, an ecologically-based stormwater management approach to manage rainfall, is increasingly being used in municipalities across the country.

Come to our tasty seafood fete to hear about the benefits of LID and several approaches to reducing pollution in our town's waterways. Learn how Tisbury can add attractive filtering landscapes to our streets and how we can even improve our own backyards!

For more on LID, turn to page 3.

## What's Inside



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# *Lending a helping hand...*

**Family Shellfish Day** is back for an encore Saturday, June 17. TWI board members will help introduce adults and small fry to the joys of shellfishing and exploring the nature around the Lagoon.



The event is being held on Beach Road behind Wind's Up in Vineyard Haven. Email shellfish constable Danielle Ewart at [dewart@tisburyma.gov](mailto:dewart@tisburyma.gov) to register for this free event.

Sheri Caseau, Martha's Vineyard Commission's Water Resources Planner, will be testing our waters – Lake Tashmoo and the Lagoon. Her **TWI-supported intern** will be assisting in the MVC's important water testing program this summer which provides critical data to keep our waters healthy.

Suzan Bellincampi, Director at the Felix Neck Wildlife Sanctuary helps wind up the school year with her 3rd **TWI-funded stormwater educational program** for 7th graders. This earnest tutorial includes classroom sessions on watersheds and water quality, field trips to test water quality at Felix Neck and more drain medallion installations on town drains. More news on this worthwhile endeavor in our winter newsletter.

The Harbor and Lake Tashmoo will be well covered thanks to the **TWI-supported summer intern** who will assist Harbormaster John Crocker and Shellfish Constable Danielle Ewart in welcoming seasonal boaters and informing them of our guidelines to keep us and our environment safe and healthy. There's lots of key information for boaters including pump out and shellfish requirements and regulations and a new policy of not anchoring in eelgrass beds.

## **TWI Continues to Support Tisbury Testing Lab**

Beginning in 2008 TWI helped create a testing laboratory adjacent to Tisbury's centralized wastewater treatment plant. Now, to enable the lab's ability to test influent and effluent samples from enhanced denitrifying septic systems (see adjacent story), the TWI Board recently approved funds to upgrade the laboratory with the equipment needed for this testing.

Periodic sampling and analysis of wastewater effluent is an important step in the verification of the proper functioning of denitrifying septic systems. This sampling and testing could cost a homeowner as much as \$2000 beyond the capital cost of the system. Test results give the operator of the treatment system both an overall picture of system performance as well as diagnostic information for troubleshooting issues at the various steps in the treatment process. The results are sent to the local Board of Health and MassDEP.

It is hoped that the Town of Tisbury will support citizens who install a denitrifying septic system by covering the cost of sampling and testing. TWI supports this objective and believes that an in-town testing lab is part of the solution.

## **Tisbury Gives a Nod to Conservation Moorings**

Studies have shown that conservation moorings help preserve eelgrass since their elasticized mooring lines do not drag along the bottom as do the chains of traditional moorings. So, TWI applauded when the Selectman recently approved a portion of new mooring regulations as "interim regulations." Earlier, the Selectmen had approved a temporary moratorium on installing additional conservation moorings in Tisbury waters.

Town Administer Jay Grande estimates the regulations will be finalized later this summer.

## **New Denitrifying Technology Receives Grant**

Reducing nitrogen inputs into our ponds requires a variety of strategies, including fertilizer controls, shellfish propagation, green stormwater management such as Low Impact Development (LID) measures, and a major reduction in the nitrogen output from wastewater.

Over 93% of wastewater in Tisbury flows from Title 5 septic systems which do not provide the needed reduction in nitrogen output to protect our waters. Denitrifying septic discharge requires converting organic nitrogen and ammonia in the septic influent to nitrate and subsequently to nitrogen gas. The chemistry is clear but coming up with a system that achieves this has been problematic.

In late 2016, John Smith of CES Clean Water took on this challenge and designed the NitROE system, based on technology proven on an industrial scale. Recognizing the potential for NitROE, the Massachusetts Clean Energy Center recently awarded Tisbury a grant for \$150,000 to pilot the system in 10-12 Tisbury homes.

The NitROE tank, which sits between a conventional septic tank and the leaching field, includes an aeration chamber to convert septic nitrogen to nitrate, and a wood chip chamber to convert nitrate to harmless nitrogen gas. The goal is to reduce nitrogen in the effluent to the leaching field to  $\leq 5$  mg/L, similar to centralized wastewater plants. To demonstrate the technology, a NitROE unit was installed in December 2016 at the Massachusetts Advanced Septic System Test Center on the Cape. Results to date are fantastic, with total nitrogen values  $\leq 2$  mg/L and nitrate levels non detectable.

Michael Murphy, MassCEC director of water innovation, indicated "It has the potential to benefit not only the Vineyard, but also the Cape which is dealing with all the same issues." TWI is an advocate for new technologies for denitrifying wastewater that are cheaper and much more effective than current commercialized systems. It looks like NitROE could be just such a technology.

# LID: The Right Route to Managing Our Stormwater Runoff

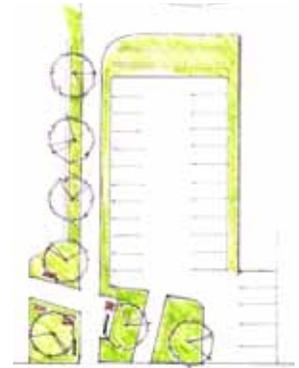
Google Low Impact Development (LID) and you get over 16 million results touting this ecologically-based stormwater management approach. One of its many plusses: it tackles rainfall through a vegetative treatment network that filters out harmful pollutants. You'll find detailed drawings and photos of rain gardens and bioswales (and appropriate plant lists for them), two key LID elements, from the U.S., U.K. and beyond. There are create-your-own rain garden tutorials and success stories from municipalities big and small.

Here, in Tisbury, LID ideas are taking hold. Tisbury Waterways was among the first to see LID potential when it created the bioswale at the base of Owen Little Way in 2011, complete with educational signage. We are currently partnering with the town's Vision Council, established by the town's planning board to foster community dialogue on town projects and issues, and our Department of Public Works. Both are major players in initiating and following through on LID projects. TWI's role: to encourage the town's participation in these projects and to educate the public about them. Rain gardens and bioswales require maintenance. TWI members are no strangers to pulling weeds and spreading mulch. Help wanted!!

While TWI has identified LID target areas including Lake Street, Grove Avenue (see story below) and Lagoon Pond extension, work is to begin on a key trouble spot, the former fire station site on Beach Street this fall thanks to Complete Streets. Complete Streets is a state funding program which,



*Before and After* — The sloping fire house lot and the rendering of the design to replace it which includes a rain garden at the intersection of Beach Street, bottom right



among other things, aims to improve and connect a network of sidewalks, crosswalks and bike paths.

With its downward slope, the fire house lot adds to the runoff along Beach Street contributing to a flooded Five Corners during significant rainfall. A preliminary design for the lot's redo shows a rain garden at the intersection of Beach Street where before unrestricted runoff flowed from the top of the lot. Success for any LID project is funding, via grants and donations, and community involvement. That's where you come in. Familiarize yourself with the A to Z of LID. A good educational place to start: [www.greenscapes.org](http://www.greenscapes.org). Assess your own property and your neighborhood. Are there spots which could benefit by creating a rain garden or installing permeable pavements to curb runoff?

With your help we can keep our waterways healthier by implementing LID measures.

## *A Silver Lining*

TWI recently spoke with Andrea Braga, a consultant with Geosyntec, a specialized consulting and engineering firm. Braga specializes in stormwater system design, modeling and analysis. Much of her work includes LID design technologies. Working with Jamie Magaldi, Operations Manager, Town of Wilmington DPW, she was involved with the Silver Lake LID Demonstration Project completed in 2006. Silver Lake is in Wilmington, a suburb north of Boston. Here, some thoughts on that project.

"Since the project was complete we have yet to have a beach

closure due to bacteria counts, so we attribute that to an improvement in runoff quality as a result of the project," Magaldi told TWI.

Raingarden Day, right, in Wilmington where MA Department of Conservation and Recreation and Geosyntec staff volunteered one weekend to help mulch and re-plant the rain gardens installed in the neighborhood. "It is a hugely important item to make sure you are thinking about maintenance from the beginning," noted Braga.



## Halting Runaway Runoff on Grove Avenue: It's all about the Catch Basins

As any reader of this Newsletter knows TWI has long sought solutions to mitigate stormwater runoff on sloping Grove Avenue. That effort began back in 2004, when TWI helped fund a network of catch basins which now need attention.

TWI has hired Vineyard Land Surveying and Engineering (VLS) to study the system of pipes connecting the catch basins along Grove and Harborview Lane which intersects Grove. In addition to the blocked pipes on Grove, pipes from Oak Tree and Pine Tree Lanes which feed into Harbor View are also blocked. The actual layout of these pipes is unknown. Hopefully more can be learned when the catch basins are cleaned. VLS will coordinate its research with Tisbury's Dept. of Public Works which schedules catch basin cleaning.

Bottom line: The existing series of catch basins cannot cope with the volume of water cascading down Grove and Harbor

Lane during significant rainfall. This flooding erodes, pollutes and runs directly into the beach.

After its preliminary inspection, VLS advised the following:

1. Clean existing catch basins, add pebbles and gravel around them to tame the flow of runoff
2. Replace damaged connecting pipes
3. Alter the pitch of Grove to raise its southern edge
4. Install a detention pond at the easternmost part of Grove. Include a path for beach goers and kayakers

TWI believes the base of Grove is a key location to demonstrate an LID element such as a rain garden. Upgraded catch basins and a rain garden's absorbing and filtering properties would greatly minimize stormwater pollution reaching the harbor.



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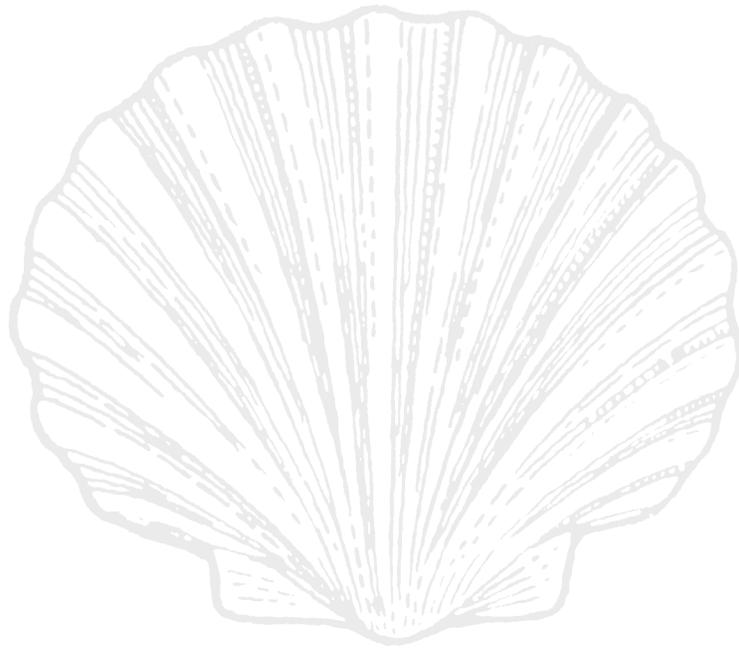
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**MISSION STATEMENT** Tisbury Waterways Incorporated (TWI) is a citizens' non-profit organization whose mission is to provide a community presence in matters involving the quality and improvement of waterways in the Town of Tisbury. TWI acts as an 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)

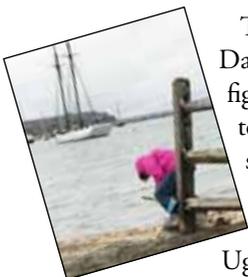


## The TWI Scholarship

*“Education is the most powerful weapon which you can use to change the world.” – Nelson Mandela*

With college costs soaring and grants shrinking, we can't think of a better way to foster the understanding and need for proper environmental stewardship in young minds than to give those brains a boost towards their educational goals. Initially funded by donations given in honor of two of our founders, Jo Wood and Betty Feldman, TWI will be offering an annual scholarship to a local junior or senior in college or a graduate student who is majoring in a field related to environmental science, water quality, fisheries or an equivalent marine science.

## Earth, Wind and Mire...



The Vineyard Conservation Society's Earth Day Beach Cleanup had TWIers and others fighting raw wind and damp unspring-like temperatures as they gathered the usual suspects along Tisbury's shorelines: lots of nips, assorted bright-colored plastic ropes and bits and pieces of styrofoam.

Ugly stuff. In a possible sign of the times, a mattress and quilts were found nestled in the protective shelter of some bushes - an al fresco dwelling?



## The Fair-est of Them All



Nathaniel Packer, Katharine Roberts, Rose Engler, Daniel Gaines

Tisbury Waterways is always proud to participate in what has become one of its signature winter involvements: funding the top three prize awards, honoring our former president, Dr. James H. Porter, at the MV Regional High School Science Fair. And the winners are Daniel Gaines in First Place, Rose Engler & Katharine Roberts sharing Second Place and Nathaniel Packer in Third Place.