



When it comes to the health of our waterways, nitrogen loading and stormwater runoff are two of our biggest threats. Here is the latest on what's being done regarding these on-going concerns.

Nitrogen Regulations:

Where They Stand Now

One of the more controversial issues being discussed by Tisbury residents are the nitrogen regulations the Board of Health have put forth over the past few months for the Lagoon Pond and Lake Tashmoo watersheds. The latest version was unanimously approved by the BoH in October and becomes effective immediately, pending town council approval.

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Keep Out!!

No More Polluted Stormwater in Our Waterways

From 20 years of water testing after heavy rains, TWI established that the current system of drains and pipes leads to serious pollution during high volume outfalls.

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Vineyard Haven Harbor

November 2016

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Water runs through a permeable ball

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Protecting Our Eelgrass: An Update

The value of eelgrass in removing and storing carbon and as a habitat for finfish and shellfish is indisputable. The versatile plant is also an indicator of water quality. Its decline in Lake Tashmoo and Lagoon Pond has been used by the Massachusetts Estuary Project as a sign of diminishing water quality. In Tisbury, safeguarding eelgrass continues to be a controversial issue.

In May, our Board of Selectmen created an ad hoc Eelgrass Advisory Committee (EAC) to consider available literature, research, and maps on eelgrass to develop a plan for its protection in our ponds. Current TWI president, Gerry Hokanson, served as the committee's chair.

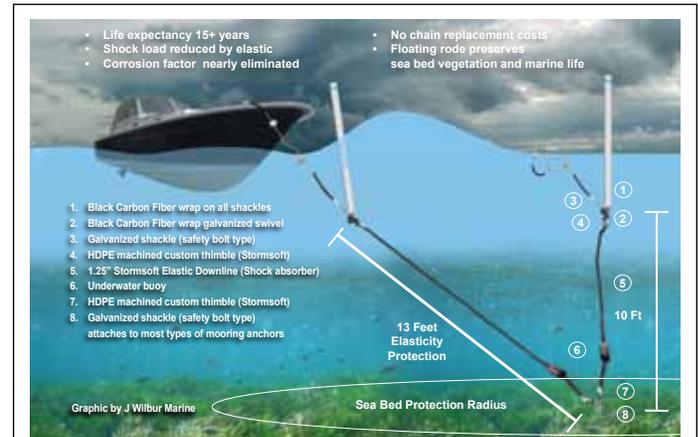
In August, the EAC made three key recommendations to the Selectmen. However, EAC members had differing opinions on what course of action the Selectmen should take:

1. Local decline in eelgrass is due to a number of factors, the most troublesome being poor water quality and boating activities.
2. Conventional moorings that include tackle that drags the bottom scour away eelgrass and should be replaced with alternatives, such as conservation moorings that reduce or eliminate raking of the seabed. The Harbor Management Committee is currently developing a list of conservation moorings that they recommend. Contact the Harbormaster for more information. (Also, see box at right)

3. Dragging anchors from boats anchoring in eelgrass often rip eelgrass from the plant's habitat.

In September, the Board of Selectmen agreed to pursue a plan and timeline for the replacement of conventional moorings, working with the Harbormaster and Harbor Management Committee on the specifics of the plan. In

November the Board voted unanimously to ban anchoring in Lake Tashmoo and Lagoon Pond eelgrass areas as defined by the latest Massachusetts Ocean Resource Information System (MORIS) maps. In October, TWI applauded the Selectmen's passing of new town shellfish regulations that prohibit "drags with teeth, tines, rakes, scoops, fingers or any other extension, attachment, or device the (shellfish) constable finds harmful or damaging to eelgrass or any other benthic zone vegetation."



How Conservation Moorings Can Help

Conservation moorings replace the heavy, dragging chain of conventional moorings harmful to eelgrass, often with an elastic mooring line that floats above fragile eelgrass beds. Former Tisbury Harbormaster Jay Wilbur offers one type of conservation mooring, the Stormsoft Elastic Mooring Rode (graphic). For more on the Stormsoft version, visit jwilburmarine.com or cruise the internet for other alternatives.

Learning from the Pros: Kate Kennen on Pollution Purging Plants!

Whenever possible, TWI board members take advantage of educational workshops. Recently, we headed to West Yarmouth to hear the Association to Preserve Cape Cod's speaker Kate Kennen hold forth on Phytoremediation. The big word has a powerful meaning: the ability of plants to uptake and remove contaminants from the environment.

Kennen is founder and president of Offshoots, A Boston landscape architecture firm which focuses on productive planting techniques. Her "Streetscape Designs" are an integration of productive landscape systems for removal of pollutants from not only stormwater, but from the air and soil.



The University of Arkansas Community Design Center's Manual received an award of excellence from the American Society of Landscape Architects when it was published in 2011. "Beautifully composed and very accessibly written. Clear, brilliant, attractive, useful, and pertinent," noted the Professional Awards Jury.

During her presentation she cited a Low Impact Development (LID) Manual published by the University of Arkansas Community Design Center (photo).

Low Impact Development (LID): an ecologically-based stormwater management approach favoring soft engineering (using natural processes) to manage rainfall on site through a vegetated treatment network.

— From "Low Impact Development: a design manual for urban areas"

Kennen credited it as a helpful guide for not only municipalities, but for homeowners who wish to aid their communities with implementing smart stormwater mitigation practices. A free excerpt from the manual can be found at: uacdc.uark.edu. TWI purchased a copy to share its contents with Town officials as they attempt to tackle Tisbury's stormwater runoff trouble spots. There is much to learn from its easy-to-digest texts and illustrative graphics vividly showing the benefits of vegetative bioswales and permeable surfaces.

Nitrogen Regulations: A Status Report

From page 1

The regulations state that properties lying within the afore-mentioned watersheds shall upgrade to an enhanced denitrification septic system capable of achieving nitrogen groundwater discharge standard of not more than 19 milligrams per liter. Title Five systems currently in use are not designed to remove nitrogen.

The regulations are in effect when residents not designated for a future sewer district apply for a building permit that would add nitrogen to the ground water. For specifics, go to the Board of Health's website: tisburyma.gov/health.

The BoH is currently seeking grant funding to pilot on residential properties in the effected watersheds a minimum of 10 NitRoe Advanced Septic Systems that have proven capable of reducing effluent nitrogen by greater than 90%. These systems, it should be noted, are capable of removing nitrogen at a cost substantially less than that of sewerage. Grant funds will also be used to install and monitor groundwater wells to check nitrogen levels along designated shorelines of Lagoon pond.

TWI applauds the efforts of the BoH in the countless hours the board has spent, including over eight hours of public hearings, to develop these measures targeting the future health of our waterways. Because of its importance, TWI is evaluating its most effective participation in this project, potentially funding equipment for Tisbury's Wastewater



A cautionary septic system message along the bike path in Falmouth, as it skirts the beach

Lab to make it viable for nitrogen testing and/or aiding in homeowner recruitment to test pilot systems. The Wastewater Lab was partially funded and set up by TWI and is dedicated to one of our founders, Harriet Barrow.

What Other Communities are Doing

Tisbury is not alone when it comes to dealing with the harmful effects of nitrogen loading. *The New York Times* recently reported that on Long Island's Suffolk County where 75% of households are on septic systems, a pilot program was recently started. The program involves the installation of denitrifying units (eco-friendly septic systems) in about 40 properties whose owners were chosen by lottery. The county's Great South Bay has been affected by leaking septic systems and stormwater runoff containing lawn fertilizers and herbicides. The excess nitrogen has spawned pervasive brown tides and algal blooms which led to the collapse of clamming and imperiled the bay's ecosystem.

In October Orleans voters agreed to spend \$3.2 million in further wastewater planning by passing Article 2 which in part pays for the design and implementation of pilot projects that could validate nontraditional technologies like using shellfish aquaculture to reduce nitrogen in ponds.

TWI's Annual Meeting Highlights the Nitrogen Problem on Cape Cod

Concerned citizens were among the TWI members that packed Tisbury's Community/Training Room at the Emergency Services Facility for our annual meeting in October. After TWI's business was conducted, the 2017 budget and our slate of officers approved, Dr. Kenneth Foreman (photo), our featured speaker took the floor. Dr. Foreman is Director, Semester in Environmental Science, Ecosystems Center, Marine Biological Laboratory, Woods Hole.



In Waquoit Bay, permeable reactive barrier intercept and denitrify nitrates in groundwater.

Cape Cod faces many of the same challenges we do when coping with nitrogen and its damaging effects on the Cape's waterways. Dr. Foreman's focus has been on two

of the Cape's southern estuaries, Waquoit Bay and West Falmouth Harbor. He is also involved in evaluating alternative approaches to remediating nitrogen pollution.

Dr. Foreman began his talk with a brief history of the rise of nitrogen levels and moved on to describe current methods being investigated to mitigate them such as the "layer-cake system" being tested at the MA Alternative Septic System Test Center in Sandwich at the Otis Air National Guard Base and permeable reactive barriers (PRBs) being used in Falmouth.



Graphs used to study nitrates since the PRBs installation at the Falmouth location showed "good success." Dr. Foreman noted that after six years the wood chips used in the PRBs were still intact.

Keep Out! Ending Polluted Stormwater in Our Waterways

From page 1

We have addressed the issue through the watershed education and The Storm Drain education Project in partnership with Felix Neck (see page 5). TWI also took the initiative to work with the Town to build a bioswale at the bottom of Owen Little Way. Despite these efforts, flooding on many of our streets during and after heavy rainfall remains: Five Corners often becomes impassable.

TWI believes Tisbury can reduce the flow of polluted stormwater into our harbor and ponds through the use of Low Impact Development (LID) (more on LID, page 2) As a start, TWI has contributed several suggestions on LID approaches that could be applied to the ongoing Beach Road redesign project. Regarding the project, MassDOT has designed more drains and larger pipes which only lead to continued outfalls of untreated stormwater. This is not the way to go! TWI believes strongly that alternative design features must be built into the plans. We have communicated this message to MassDOT officials.

Downspouts at The Mansion House flanking Main Street

become waterfall torrents during heavy rainfall, leaving the sidewalk practically impassable and leading to unrestricted runoff making its way towards Beach Road and the harbor. We were pleased to see a solution to the flooding downspout problem at the newly constructed Island Housing Trust Water Street Apartments, a stone's throw away from often-inundated Five Corners. Here, dry wells take care of stormwater runoff on its site.

The web is filled with information about and examples of LID practices. In Florida, we learned there are no curbs to carry stormwater to storm drains at an inventive 44-acre Gainesville subdivision. The roadside seamlessly meets the grass and earth that runs alongside it, allowing any stormwater runoff to filter through vegetation. Another

internet trolling mission brought up countless visuals of permeable paving.

TWI has passed on our LID comments to town committees. The health of our waterways is at stake! We encourage all members and supporters of TWI and town residents to encourage the Town to support alternative approaches to stormwater management: Write Letters to the Editor, Email your Selectmen, Attend Town Committee Meetings.

“If I had to do it over, I would not grout the patio but would lay the bluestone pavers in a permeable base of decomposed granite because there’s less rain-water runoff if it can percolate into the ground.”

– Michelle Slatalla, *editor of the gardening website Gardenista, talking about her garden in Mill Valley, CA*

Problems and Suggested Solutions

Recently TWI board members took a walk-about to assess Beach Road stormwater runoff trouble spots. Here, examples of problem areas with current and possible future solutions.



Downspouts at The Mansion House flanking Main Street (above left) allow unrestricted runoff to make its way towards Beach Road and the harbor. At the newly constructed Island Housing Trust Water Street Apartments, a stone's throw away from often-inundated Five Corners, dry wells take care of stormwater runoff on site (above right).



A November photo shows the current uninterrupted curb line at the town-owned Stop & Shop parking lot (above left). TWI proposes vegetative islands with curb cut-outs allowing for stormwater to flow into and be filtered by vegetation.



An example of permeable paving in Tisbury, a gently sloping driveway with pavers that allow runoff to fall between them.

Family Shellfish Day - A Whale of a Good Time



Quahogs! and Crabs! and Toadfish! Oh, my! On a blue sky June day over 70 strong gathered at Lagoon Pond, just behind Wind's Up, for the first Family Shellfish Day. Judging from the enthusiastic small-fry and adults, the free event is sure to become an annual affair which suits Danielle Ewart, Tisbury's Shellfish Constable, just fine.

Ewart, who organized the event which included many TWI board members helping out, would like to see the scope expanded to include more hands-on classes to teach the joys of and regulations regarding shellfishing for a

more personalized experience.

From exploring the pond's ecology to learning how to harvest and prepare shellfish, the day was educational with a big helping of fun. Ewart handed out "Family Shellfish Tips" brochures which can also be viewed on the Shellfish Department's link on the new-and-improved! Town website: tisbury.ma.gov. "It was a huge success," noted Ewart. "There was one child who had a fear of going into the water and thanks to one of our volunteers ended up quahogging by the end of the day."



TWI's Drain Medallion Program: Phase II

Suzan Bellincampi, Director at Felix Neck Wildlife Sanctuary, accurately called it "A Partnership for Cleaner Waters," in a recent Mass Audubon magazine article. That partnership between Felix Neck and TWI epitomizes the type of program that empowers students to educate their community. The Storm Drain Education Project's first phase took place in June 2015 when Tisbury School seventh graders placed the iconic blue and gray "No Dumping/Drains to Waterway" medallions along the commercial area of Vineyard Haven's Main St. The program expanded to Water St. (photos) this past June when a new crop of seventh graders placed the medallions from Five Corners to the Steamship Authority.

"When I see these medallions," noted Bellincampi



(center photo), it reminds me that everyone has a role to play in protecting Island waters. We hope this project becomes a rite of passage for students before graduating to the high school," she continued, "because we know that successful action is a positive way to inspire, educate and instill a stewardship ethic."

REHABILITATING BEACH ROAD

The MA Department of Transportation held its 25% design hearing in September for the project to rehabilitate Beach Road in Vineyard Haven. A local committee is working with the MassDOT team to refine stormwater management plans.

Because this road, with its deplorable sidewalks, is virtually at sea level with groundwater not far below, creative methods must be brought to bear to manage stormwater to minimize adverse environmental impacts. As noted on page 4, TWI is offering LID (Low Impact Development)

Best Management Practice alternatives for consideration in the hopes that pollutants can be mitigated before entering the waterways. The project is due to begin in late 2017 and continue for two years. No construction work will take place during the summer season.



A Pulling Culprit: The drain cover at Five Corners hide pipes that lead unfiltered stormwater runoff to the harbor



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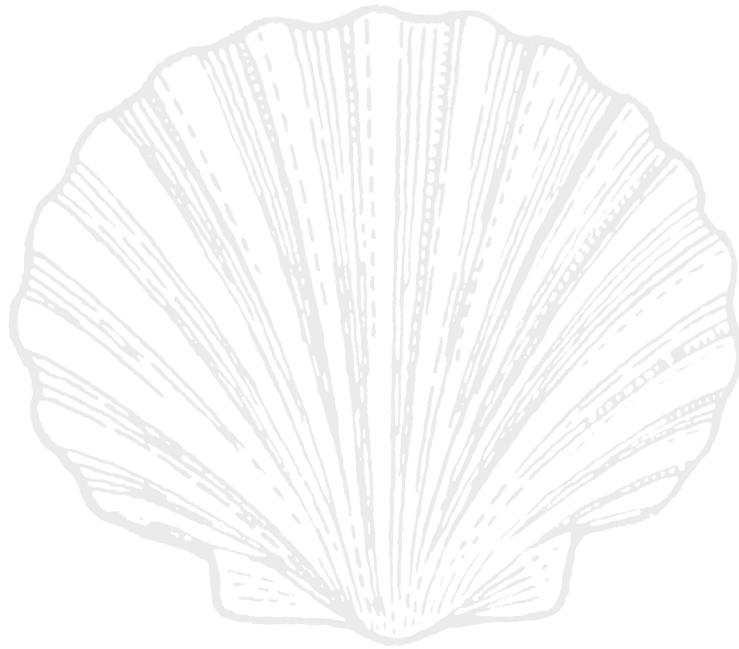
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Visit our Website: www.tisburywaterways.org



TWI SHOWS OFF AT TWO SIGNATURE SUMMER EVENTS



As summer drew to a close, Tisbury Waterways anchored a booth at the Agricultural Fair. Our detailed poster (photo left, on wall) highlighting our projects and

educational endeavors won third prize, while Ryan Overton guessed the number of scallop shells crammed into a jar which awarded him a gift certificate to Wind's Up. We were honored to bestow \$50 to Felix Neck Wildlife Sanctuary, awarded in honor of June Cronig Kapell, one of our founders. The award is for the best exhibit whose display or project shows

dedication and need to conserve our land and/or waterways' natural resources.

The shell guessing game was repeated at our booth (photos bottom) at the Living Local Harvest Festival held in early October. With just one shell off, John Collette had the winning number: 117, which granted him a Net Result gift certificate. TWI board members manning the booth were pleased to note the number of visitors interested in our literature concerning the ill-effects of and mitigating suggestions to combat stormwater runoff.

TWI's Signature Summer Intern Programs

Once again this summer, TWI sponsored an intern to help Martha's Vineyard Commission's Water Resources Planner, Sheri Caseau, with her water testing program at Lagoon Pond and Lake Tashmoo. By contributing funds to the town, TWI also helped sponsor a harbormaster assistant, David Radcliffe, to aid Harbormaster John Crocker with the heavy boating traffic in Lake Tashmoo.



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.