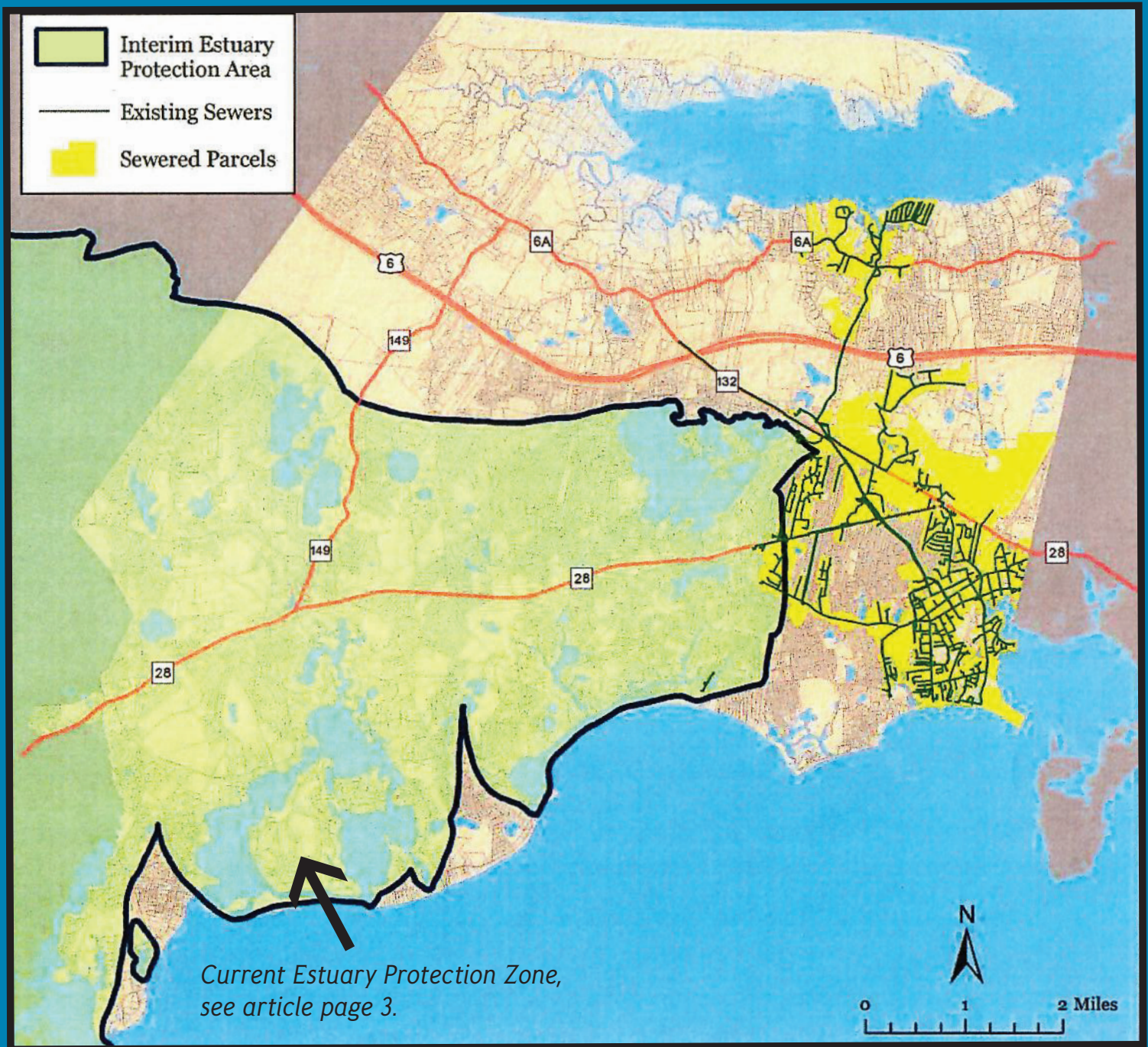




# COALITION Quarterly

## Politics and Partnerships





# A Note from The Helm

It's already February and somehow our slow season got busy!

Early winter reminded me of the adage "two steps forward, one step back". Proposals before Barnstable's Town Council and Board of Health threatened to roll back or eliminate critical estuary protection in order to promote development without an approved Comprehensive Wastewater Management Plan (CWMP). While BCWC favors sustainable economic and housing development, we must fight hard to protect our precious water resources for this and future generations. The proposals in question are targeted to benefit the few at the expense of us all, and more importantly, at the expense of clean water.

*See Politics, next page.*

BCWC officially kicked off our partnership with the U.S. EPA Office of Research and Development in late October with a workshop attended by over 65 regional stakeholders. Scientists, regulators and town officials were all involved in examining alternative methods to mitigate nitrogen in Barnstable's watersheds and throughout the region.

This year, BCWC will begin an effort with the U.S. EPA called "translational science." The first steps involve securing the permitting for, and installing, alternative technologies to remove nitrogen from the Three Bays watershed. These innovative systems will be studied to better understand their effectiveness so that we can eventually scale up to remove significant quantities of nitrogen.

*See Partnerships, page 6.*

On pages 4 and 5, you will find an illustration showing a simplistic view of how our watershed works including existing and proposed nutrient mitigation approaches. The captions explain the different nitrogen management options that are being considered. Stay tuned for more details.

Phase one of our long anticipated Dead Neck Sampson's Island dredging project began in early November and was completed on January 14th. Permitted to create and enhance shorebird habitat through beach nourishment using dredge spoils, this project is also important for improving water quality, navigation and safety in Cotuit Bay.

*See Meg's Field Notes, page 7.*



In addition, BCWC has a busy calendar of events planned for 2019 (see back page). We hope you will support BCWC by attending these events or volunteering your time with us.

See you on the water!

Zenas "Zee" Crocker  
Executive Director



*The eastern end of Dead Neck Sampson's Island before dredging began.*

# Politics

In 2008, the Town of Barnstable adopted interim regulations for on-site sewage disposals, specifically for the "Protection of Salt Water Estuaries". These regulations were put in place by the Board of Health as a result of region-wide studies conducted by the UMASS School of Marine Science and Technology (SMASST), in conjunction with the Massachusetts Department of Environmental Protection (DEP). These studies, known as the Massachusetts Estuaries Project (MEP), identified allowable levels of nitrogen in estuaries, commonly referred to as TMDLs (Total Maximum Daily Load). In the Barnstable estuaries, TMDLs far exceeded these limits, creating the catalyst for these regulations.

Nearly every estuary on the southern coast of Cape Cod exceeds the TMDLs for nitrogen. For instance, in the Three Bays watershed we must reduce the nitrogen load by about 20,000 kg/year to reach compliance. All towns on the Cape are mandated to have their watersheds reach a balance on their nitrogen loads, which in many cases means dramatic reductions must be achieved.

On the Cape, we are victims of our own success as years of development without proper wastewater treatment has caught up to us. Nonetheless, pressure continues to mount for more regional economic growth and affordable housing solutions, which BCWC supports, but which threatens to further shift the burden of pollution onto future generations.



*Fall 2018 Dead Neck Sampson's Island dredging begins.*

The cover image shows the area currently under review for the removal of these salt water estuary regulations in the Town of Barnstable. BCWC encourages the Board of Health not to rush and lift these protective measures for our estuaries.

The Town is working on a comprehensive water management plan (CWMP), which will be sent to Mass DEP for approval this fall. Through our partnerships (page 6), BCWC is striving to develop methods that will complement the Town's initiatives.

Let's get the CWMP in place first and learn more about new approaches to nitrogen mitigation, before we start to lift regulations meant to protect our estuaries.

## Can you identify your Barnstable Town Councilor?



*Town of Barnstable website*

## Act Now!

**BCWC needs your help to advocate for keeping these regulations in place. You can do this by sending a message to our Town Council and Town Manager voicing your concern and letting them know that "waters in our town must be a top priority."**

### CONTACT

**Town Council President**

**James Crocker Jr. at [wiannore@verizon.net](mailto:wiannore@verizon.net)  
and Town Manager**

**Mark Ells at [mark.ells@town.barnstable.ma.us](mailto:mark.ells@town.barnstable.ma.us)**

*For individual Town Councilor emails -  
[http://town.barnstable.ma.us/boardscommittees/towncouncil/  
Town\\_Council/Town-Councilor-Contacts.asp](http://town.barnstable.ma.us/boardscommittees/towncouncil/Town_Council/Town-Councilor-Contacts.asp)*



# Nitrogen and Groundwater: Existing Conditions and Proposed Solutions for Local Watersheds

**Publicly Owned Treatment Works (POTW):**  
 With POTW, effluent (liquid waste/sewage) is removed from homes via sewers and is treated at a wastewater treatment plant before being discharged into the ground. Nitrogen is significantly reduced.

**Traditional Septic (Title 5):**  
 These systems remove the parts of effluent harmful to human health, such as E. coli and other bacteria. Minimal nitrogen is removed.

**Advanced Denitrification Septic:**  
 These systems can remove substantial amounts of nitrogen, as well as providing Title 5 treatment.

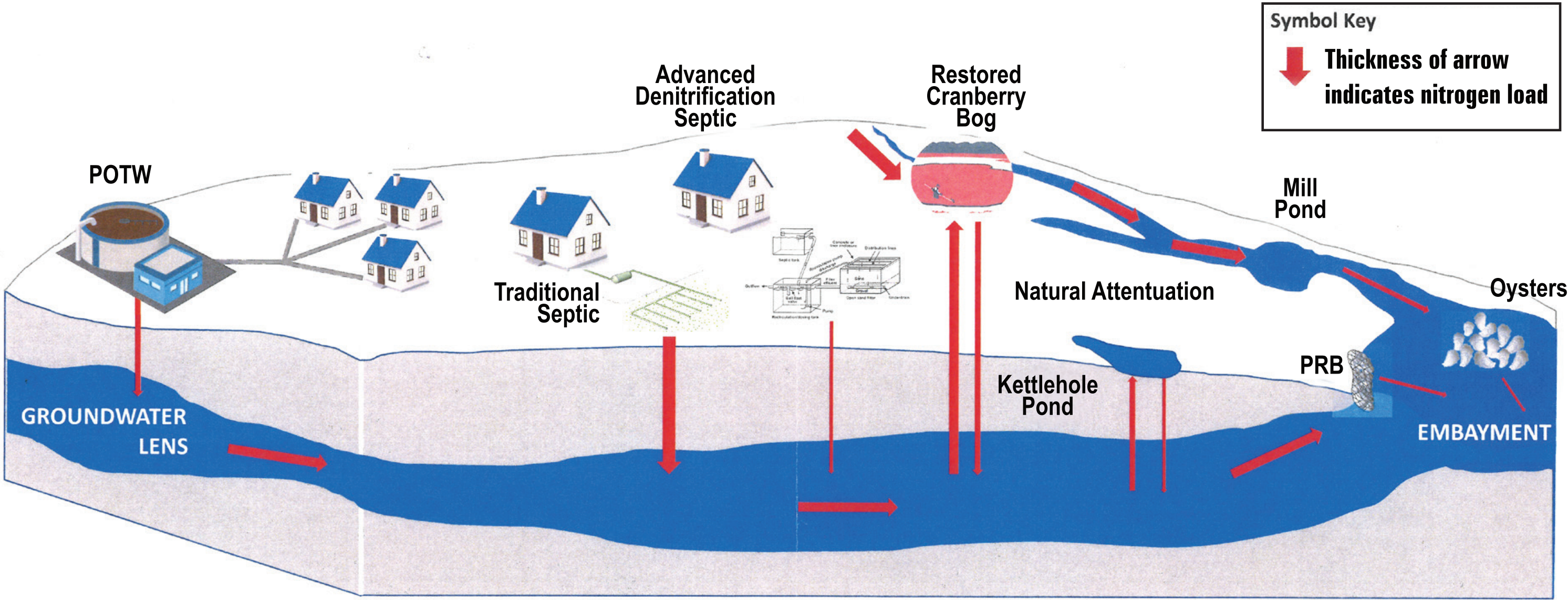
**Restored Cranberry Bogs:**  
 Plants in a restored bog will use nitrogen to grow, decreasing the amount that enters the estuary.

**Kettlehole Ponds:**  
 Naturally remove approximately 50% of the nitrogen that enters them.

**Oysters:**  
 A single adult oyster can filter up to 50 gallons of seawater per day. An acre of oysters can remove up to 150kg of nitrogen annually. For example, 20 acres of oysters in the Three Bays watershed could result in 3,000 kg/year of nitrogen removed, roughly 15% of total nitrogen that must be removed.

**Permeable Reactive Barrier (PRB):**  
 As effluent flows through the PRB, nitrogen is removed, limiting the amount that reaches the embayment.

**Mill Ponds:**  
 Our Mill Pond is currently only removing 15% of the nitrogen. Deepening the pond may allow for more natural attenuation (retention) of nitrogen, significantly decreasing the quantity moving downriver.





# Partnerships

As a coalition, BCWC has long believed that solutions to our problems will only be realized through partnerships. Including the Town of Barnstable, the most important partnerships we have formed are with the U.S. EPA Office of Research and Development (ORD) and The Nature Conservancy.

The Problem Formulation Workshop we co-hosted with U.S. EPA ORD in Woods Hole in October 2018 brought together scientists, experts and stakeholders to examine various alternative approaches to nutrient mitigation that are shown on pages 4 & 5. This effort was more about questions than answers. How can we test these various ideas in a real-world environment? What permits will be needed? How will we measure and monitor pilot projects?

U.S. EPA ORD has agreed to partner with us on a project we are calling "translational science". The plan is to study a variety of concepts and identify those whose price and performance characteristics indicate the potential for expanded application and use. Together, our goal is to find and develop tools to help solve nitrogen overload problems both on the Cape and around the country.



The Nature Conservancy is active in all 50 States and in over 70 countries. Our partnership with TNC's Massachusetts chapter is focused on how to finance the various nitrogen and nutrient reduction approaches we are developing. Whether we look to individual alternative septic systems or expansion of shellfish aquaculture, finance will be key. Systems that attenuate nutrients will only be successful in the broader environment where they can be deployed to scale. For the Cape, at-scale deployment of alternatives could save tens of millions of dollars versus traditional municipal treatment.



BCWC Executive Director Zee Crocker delivers the welcome address at the workshop.



Workshop participants discussing alternative solutions to nitrogen loading in the afternoon breakout sessions.

# Field Notes from Meg

Dead Neck Sampson's Island (DNSI) is a barrier island south of Grand Island in Osterville that is co-owned and managed by BCWC and Mass Audubon. Years of erosion and longshore drift has resulted in sand from the eastern tip (Dead Neck) moving and collecting down at the western end (Sampson's) of DNSI. Consequently, the Cotuit Cut has narrowed over time, slowing tidal flushing and impeding navigation. This erosion and deposition have also negatively altered the nesting habitat for threatened coastal shorebirds including Least Terns, Common Terns and Piping Plovers.

To combat these issues, BCWC, Mass Audubon, and the Town of Barnstable have partnered on a three-phase dredging project at the western tip of DNSI. The material from the dredging operations will be used to create critical nesting habitat for the shorebirds and for beach nourishment. The hope is that these habitat enhancements will increase the number of shorebirds nesting on DNSI.

In addition, widening the Cotuit Cut will allow more dilution to occur in Cotuit Bay, which should improve water quality. Testing and monitoring over the next several years will provide us with important data. Navigation and safety will also improve through the Cotuit Cut.

Phase one began in November 2018 with the removal of approximately 130 feet of the western tip of DNSI. Some of the dredge material was placed in the middle of DNSI to enhance nesting habitat for shorebirds. The remaining material was deposited on the eastern end of DNSI for beach nourishment and bird habitat.

Next fall, phase two, will see the removal of an additional 130 feet at the western tip of DNSI. Again, some material will be placed in the middle of the island for habitat enhancement with a larger amount added to the eastern end for habitat and beach nourishment. In phase three, to be completed in 2021, we will remove an additional 130+/- feet from the west end and "back pass" that material to the east end.



Dewatering basin on eastern end of DNSI



Final result of Phase 1 dredging on western end of DNSI



Final result of Phase 1 dredging on eastern end of DNSI

**Our most important partner is you! Please support BCWC today with a donation in the envelope provided or online at [BCleanWater.org](http://BCleanWater.org)**





P.O. Box 215  
 Osterville, MA 02655  
 508-420-0780  
 BCleanWater.org

Non-Profit Org.  
 U.S. Postage  
 PAID  
 Permit No. 58  
 Hyannis, MA

**Mission Statement**

*Barnstable Clean Water Coalition works to restore and preserve clean water in Barnstable. BCWC utilizes science as its foundation to educate, monitor, mitigate and advocate for clean water.*

**Board of Directors**

- Michael Egan  
President
- John G. Kassakian  
Vice President
- Lauren Pfizenmaier  
Treasurer
- Mark C. Curley  
Clerk
- Jack Ahern
- Edward M. Crosby, Jr.
- Travis Cundiff
- John T. Fallon, Jr.
- Thomas Lloyd
- Audra Parker
- Margaret Rowland
- Dan Schwinn

**Staff**

- Zenas Crocker  
Executive Director
- Heather Rockwell  
Director of Operations
- Meg Materne  
Science Associate

*Susie Perry, Graphic Designer  
 Photo Credits: BCWC Staff*

# Upcoming Events! [BCleanWater.org](http://BCleanWater.org)

*Join BCWC in support of clean water in 2019 at one of these events. Visit our website for more details.*

**Saturday, March 16th**  
 Herring Count Volunteer Information Meeting  
 9am-11am, Osterville Village Library, Osterville

**Friday, March 29th**  
 Watershed Action Alliance Conference - Water: New England's Next Big Challenge  
 8am-4pm, Needles Lodge at Camp Kiwanee, Hanson  
 To register, visit [www.watershedaction.org](http://www.watershedaction.org)

**Saturday, April 27th**  
 4th Annual Cape Cod Beer Race to the Pint  
 5K/10K road race to benefit BCWC  
 3pm-6pm, 1336 Phinney's Lane, Hyannis

**Monday, August 26th**  
 2nd Annual Clean Water Challenge Golf Tournament  
 8am, Oyster Harbors Club, Osterville

**Saturday, September 7th**  
 10th Annual Cape Cod Wildlife Festival  
 10am-3pm, Long Pasture Wildlife Sanctuary, Cummaquid

**Saturday, September 14th**  
 9th Annual Paddle for the Bays RACE Cape Cod and Beach Party  
 9am-3pm, Oyster Harbors Club, Osterville

**Saturday, October 5th**  
 SHUCK! A Day of Oysters and Beer  
 1pm-5pm, Cape Cod Beer, 1336 Phinney's Lane, Hyannis

Printed on 30% recycled paper.

**Help BCWC continue its work for clean water by donating today.**



**Donate online at:  
[BCleanWater.org](http://BCleanWater.org)**



**Donate by mail:  
 BCWC  
 P.O. Box 215  
 Osterville, MA 02655**