



# COALITION Quarterly

## Wind Can Power Clean Water

*Special Double Issue*



*Covell's*

*Craigville*

*Dowses*

**BCleanWater.org**

# A Note From The Helm

Cape Cod is no stranger to controversy around offshore wind power. More than 20 years ago, the first wind project, Cape Wind, was proposed and subsequently defeated in 2017 after years of debate and opposition.

Since then, wind power has grown exponentially around the world. Earlier this year, countries in Europe pledged to build at least 150 gigawatts of offshore wind capacity in the North Sea by 2050 to create a “green power plant” that could power 230 million European homes.

We now have the opportunity and an obligation to lead the way in supporting clean power from offshore wind in the United States. Global climate change, exacerbated by fossil fuels, is causing sea level rise that will change the geography of Cape Cod, including our beaches.

Cape Cod should become a leader in offshore wind power because few communities will face the startling challenge of sea level rise like we will. The sacrifice we are being asked to make is largely through the disruption that construction will cause. Yet here, we have a chance to make “lemonade out of lemons”.

It is easy to miss the urgency of adopting measures to ensure clean energy and clean water. Locally, our iconic coastal waters are now polluted with excess nitrogen from our wastewater and this, not an underground power line, is the real risk to the Cape’s beaches and bays.

The Town of Barnstable can negotiate a cooperative agreement with the wind power company that will allow us to upgrade our local infrastructure more rapidly and at far lower cost than would otherwise be possible.

By “piggybacking” on the engineering and construction of Avangrid’s Commonwealth Wind project, the village of Osterville can be connected to our Town municipal wastewater plant. This connection may happen more than a decade ahead of schedule, thus preventing over one billion gallons of untreated wastewater from entering the Three Bays watershed and Nantucket Sound. Furthermore, cost savings may easily run in the tens of millions of dollars!



That’s not all. Our water supply lines in this village are operated by the Centerville-Osterville-Marstons Mills (COMM) water department and these antiquated pipes date back to 1936! Again, we will be able to replace large sections of aging infrastructure, saving an estimated \$2-4 million dollars!

Besides saving millions of dollars and accelerating required infrastructure, what is the cost? Construction and disruption! And that will only be scheduled in the “off-season”.

So, I ask you, “Is it worth it?” What will we continue to leave our children and grandchildren? Dirty air and water? Rising seas and endangered coastlines?

The answer my friends, could literally be blowing in the wind.



# Piggybacking: A Win-Win for Sewering in Osterville

Municipal sewer is scheduled to come to Osterville as part of the Town of Barnstable's three-decade effort to address our wastewater disposal challenges. However, this isn't targeted to begin until 2030-2040 and not at all on Oyster Harbors and Little Island.

The Massachusetts Department of Environmental Protection (MassDEP) mandated a Comprehensive Wastewater Management Plan (CWMP) requiring the Town to address wastewater. The proposed Avangrid Commonwealth Wind project power line construction could accelerate sewer construction by a decade or more.

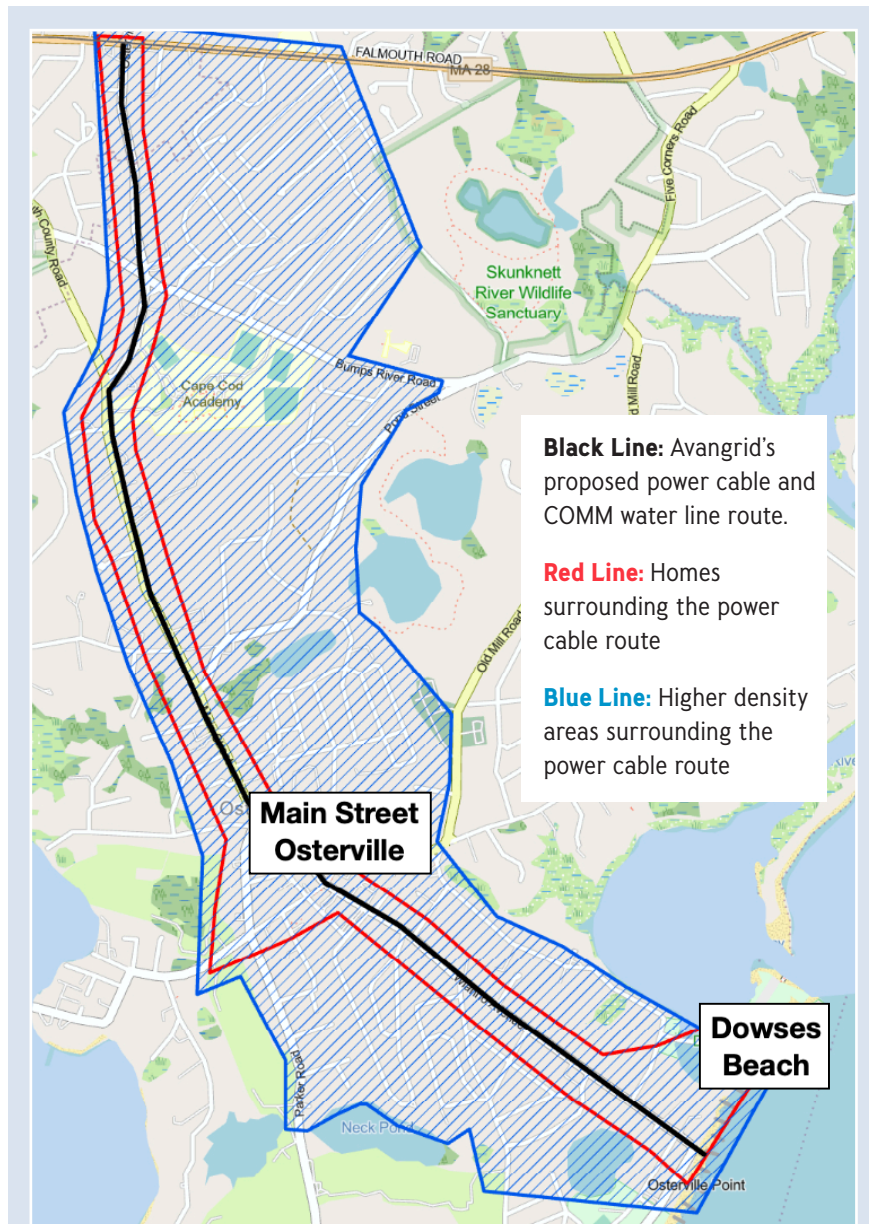
## WHY TIME MATTERS?

Groundwater moves between one and four feet a day on Cape Cod. Drastically reducing the wastewater flow is critical to human health and the health of the Three Bays estuary and our lakes and ponds.

## A DECADE OF WASTEWATER IN JUST THIS OSTERVILLE CORRIDOR

The area outlined in BLUE contributes approximately 275,000 gallons of wastewater per DAY. Eliminating that flow for 10 years would equal over ONE BILLION GALLONS of wastewater and 260,000 pounds of NITROGEN.

This area also includes the smaller area (in RED) immediately adjacent to the proposed power line cables that could be sewered first. This area represents approximately 1/3 of the total nitrogen load.



*Using GIS mapping tools and the Cape Cod Commission's Watershed MVP software tool (WMVP), we can calculate the number of parcels in specified areas, how much wastewater is being discharged from these parcels, and the associated nitrogen loads.*

# What is Horizontal Directional Drilling?

The proposed construction of the power lines along the Town's beaches includes using a well-developed and proven technology known as "horizontal directional drilling" (HDD). For the Commonwealth Wind project in Osterville, this technique allows the power cables to come into the Dowses' beach parking lot **without disturbing and impacting the beach and its sandy dunes.**

In Barnstable, the HDD plan is to begin underwater and under seabed construction approximately 1,200 feet offshore, reaching 50 feet under the seabed and continuing underground and emerging in parking lots thus avoiding any disturbance to the near-shore seabed, coastal beach, dunes, and associated habitat.

*Community engagement and public comment is very important for this project. Please contact the following people with your questions, comments, and support:*

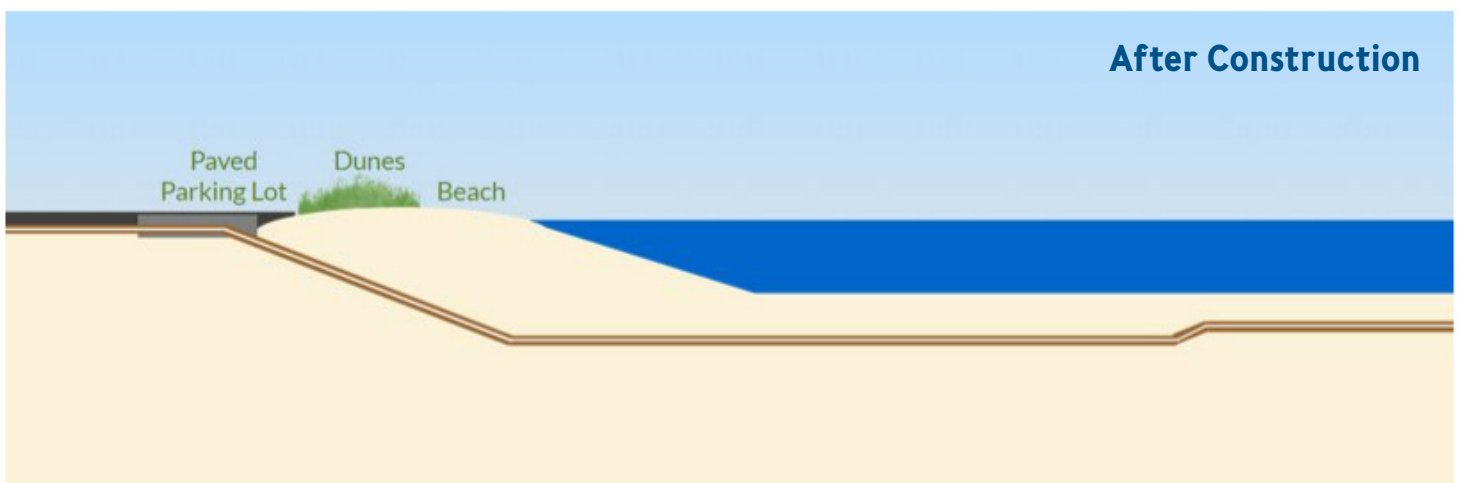
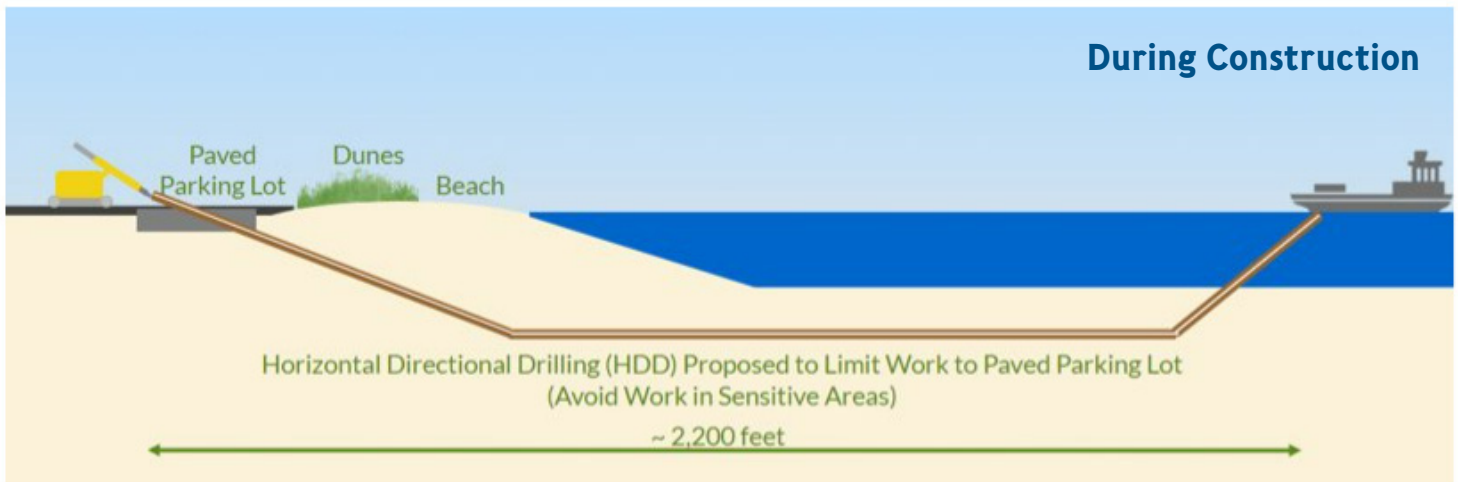
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Paul Cusack, Osterville Town Councilor — [pjcusack1918@gmail.com](mailto:pjcusack1918@gmail.com)

Kip Diggs, State House Representative — [kip.Diggs@mahouse.gov](mailto:kip.Diggs@mahouse.gov)

Julian Cyr, Massachusetts State Senator — [julian.cyr@masenate.gov](mailto:julian.cyr@masenate.gov)



*\*No Harm To Beach, Dunes or Coastal Habitat*

# The Wind Farms May Be a Windfall... But We Still Have Questions

BCWC is supportive of the Town Manager as he enters into negotiations for a host community agreement with Avangrid to bring transmissions lines ashore at Dowses Beach. This project could accelerate the clean-up of wastewater, upgrade the delivery of drinking water, and provide significant benefits to our community.

The Town's estimate for municipal sewer expansion was \$1.45 billion in 2019. With inflation, we expect that estimate could now eclipse \$2 billion. Collectively, payments from Avangrid may offset tens of millions of those dollars and accelerate a timeline when **time is of the essence**.

On a national level, this one project may create thousands of jobs, bring wind powered energy to 700,000 homes, and offset the equivalent of 400,000 cars.

**For Osterville, we ask the following:**

## **WHAT UPGRADES CAN WE EXPECT TO THE VILLAGE'S INFRASTRUCTURE?**

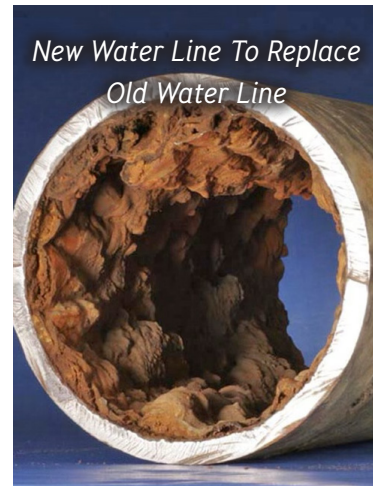
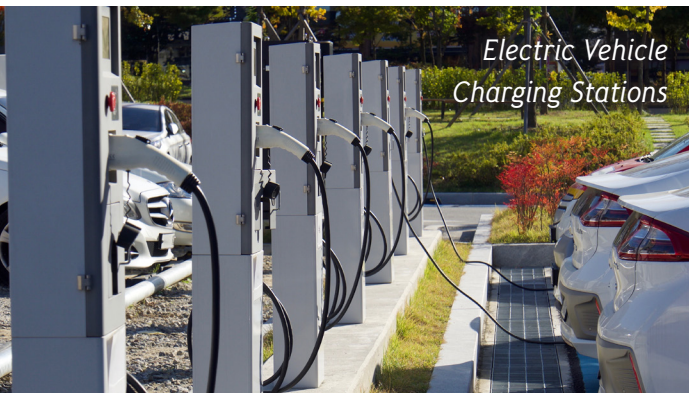
- Replace and expand sidewalks? Sidewalk lighting?
- Electric charging stations for automobiles?
- New beach house and restrooms at Dowses Beach?
- Replace aging water supply lines?

## **WHAT CONSTRUCTION MITIGATION SHOULD WE EXPECT?**

- What is the plan to protect our business corridor?
- Reimburse lost business?
- Ensure temporary roads and sidewalks are safe and passable — Strawberry Hill Road was and is awful.

## **HOW IS AVANGRID PROTECTING OUR HEALTH AND SAFETY?**

- What studies and information are being relied on for the power line safety?
- What information is available on the underground "encapsulation"?
- Regarding the Dowses Beach causeway bridge: what happens if this area is compromised due to sea level rise and hurricanes?
- Who do we contact for construction related questions/concerns?





# BCWC Welcomes New AmeriCorps Member and High School Interns

## AmeriCorps Spotlight: Will Longo

BCWC is excited to welcome **Will Longo** as our 2022-2023 AmeriCorps Individual Placement member. Will hails from nearby Bridgewater and recently graduated from Fordham University, where he studied Environmental Science with a minor in Economics. After his time with AmeriCorps, he hopes to pursue a career in ecology or environmental science. Will likes music and New York City!



## Meet Our 2022/2023 Barnstable High School Interns

BCWC is lucky to have three seniors from Barnstable High School working with us this school year. Four days a week, these rising stars assist BCWC staff with pond sampling, streamflow monitoring, invasive algae surveys, along with data research and entry.

**Penny Clifford** lives in Osterville and plans on studying marine biology. Penny's interest in environmental issues steered her to BCWC, where she wants to help improve water quality in Barnstable's waters.

A Centerville resident, **Ryan Christensen** plans to study environmental engineering. Three years in BHS's Environmental Science & Technology pathway program eventually led him to BCWC. A third generation Cape Codder, Ryan hopes to be part of the water quality solution, so future generations will be able to experience the Cape's natural beauty.

**Lucy Komar** was drawn to BCWC because she believes water conservation can have real impacts in our community. She is excited to be an active participant in BCWC's mission to restore and preserve local waters. Lucy is from West Barnstable and intends to study biostatistics.





# COALITION Quarterly

## The End of Title 5?



**BCleanWater.org**

# A Note From The Helm: Proposed Regulations

The Massachusetts Department of Environmental Protection (MassDEP) is proposing regulations for Cape Cod, the Islands, and south coastal Massachusetts. These proposed regulations will update Title 5 for the first time since the regulations were instituted in 1995.

What is being proposed? All watersheds in areas identified as “nitrogen sensitive” must have either a MassDEP certified “watershed permit” with a plan to reduce the nitrogen load by 75% in 20 years OR all Title 5 septic systems must be upgraded within 5 years to Best Available Controlling Technology (BACT), e.g., innovative and alternative septic systems.

We applaud these proposed changes, which are long overdue. Cape Cod’s glacial moraine and sandy soils have long been recognized as unreliable locations for septic systems. The map on the next page indicates the areas that would currently fall under these new regulations.

Septic systems were derived from technology originating in France around 1860. It was thought that household wastewater would be filtered and cleaned as it moved through the soil before reaching groundwater.

However, early on it was recognized that nitrogen and phosphorus did not get removed in a meaningful way. Today, greater housing density, along with higher concentrations of household chemicals and pharmaceuticals, puts large areas of groundwater at even more serious risk.

Wastewater is estimated to be the source of 85% of the nitrogen contamination causing algal blooms in the Cape’s saltwater bodies, and the loss of eel grass. Ultimately, our blue economy, tourism, and property values are at risk. No one approach will solve the problem, so we support the proposed watershed permit approach.

In some high-density areas, municipal treatment and sewers will make the most practical and economic sense. In other areas, improving BACT, such as the woodchip-based septic technologies, will be more suitable. Other

alternative treatments like restoring wetlands and encouraging more shellfish growth can also help improve waters already contaminated with excess nitrogen.

Climate change is a “force multiplier.” We are adding bad things to water and turning up the heat. The wind turbine power lines in the Town of Barnstable will enable more rapid, cost-effective expansion of municipal sewer and as noted, we support these projects.

Groundwater moves at 1-4 feet a day on Cape Cod. Thus, “time to travel” is an important consideration as we tackle wastewater flow. Sewer expansion is critical, but contaminated groundwater will continue to flow.

In this newsletter, we suggest that homes closest to contaminated water bodies and their feeder systems (rivers) should be the first to receive BACT. Homes within a few hundred feet of water are the major culprits causing contamination. If we start with these homes and move to apply BACT gradually inland to meet municipal treatment, we may give our eutrophic waters a chance to recover. Accelerating adoption of BACT in these “close to water” areas should be a major goal for watershed permits.

The math we illustrate with this approach is not a perfect model, but we believe it is heading in the right direction. Homes with contaminating systems like cesspools and aging Title 5 systems should be the first to be “cleaned up”. MassDEP should identify these areas for upgrades and so should municipal Boards of Health and Conservation Commissions.

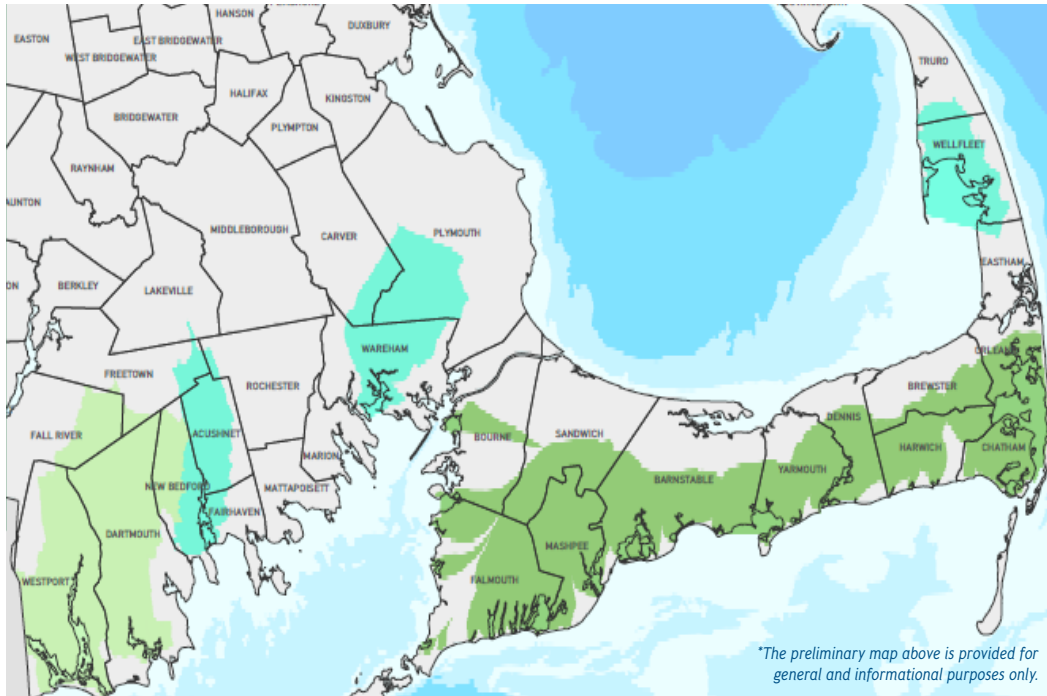
In addition to these regulatory changes, mitigation credits for the towns, as well as grants and low-cost funding for homeowners, should all be considered.

A handwritten signature in black ink, appearing to be 'Zee' or similar, with a stylized flourish at the end.



# A Good First Step: Proposed Title 5 Regulations

Scan QR  
code to learn  
more about  
the proposed  
MassDEP  
regulations.



*The colored areas in the map show areas the state will designate as NSAs or Nitrogen Sensitive Areas. This is a good first step and, as noted, it comes with regulations that are meant to address the deficiencies of Title 5 regulations.*

The Massachusetts Department of Environmental Protection (MassDEP) has drafted much needed regulations that specify how Cape Cod communities must deal with their wastewater. These proposed regulations pertain to Title 5 septic systems and watershed permits. The two options being proposed by MassDEP that will require reduction in nitrogen migrating to impaired estuaries are:

- Communities must develop and implement a Watershed Permit that meets nitrogen reduction load targets, specifically 75% less in 20 years.

**OR**

- Mandatory upgrades of current septic system technology to best available innovative and alternative nitrogen reducing technology (I/A) within 5 years of the effective date of the new regulations.

**BCWC'S view is that all towns should adopt the watershed permit approach.** These permits can and should be adaptable to local conditions and challenges. Some permits, like Falmouth's, should be

able to incorporate multiple watersheds without overly burdensome planning and documentation costs. We believe that these permits must prioritize the most troubled areas in our estuaries with "time to travel" considerations incorporated into all models. In that regard, the associated CWMP should only be certified when it is designed to accelerate treatment of our most troubled waterbodies.

Our two newsletters highlight the importance of BOTH sewer expansion and the replacement of aging and polluting Title 5 septic systems and cesspools with BACT. As we highlight here, the replacement cycle should start at the water's edge and work back even as municipal treatment starts further inland. Only this two-pronged effort at source reduction will give our estuaries a chance to recover on the timeline proposed by Mass DEP.

Ultimately, we hope to see all Cape waters – not just estuaries – protected as Title 5 household systems are replaced with new, high performing, individual wastewater treatment systems, or homes are connected to municipal treatment facilities.

# Mapping Clean Water

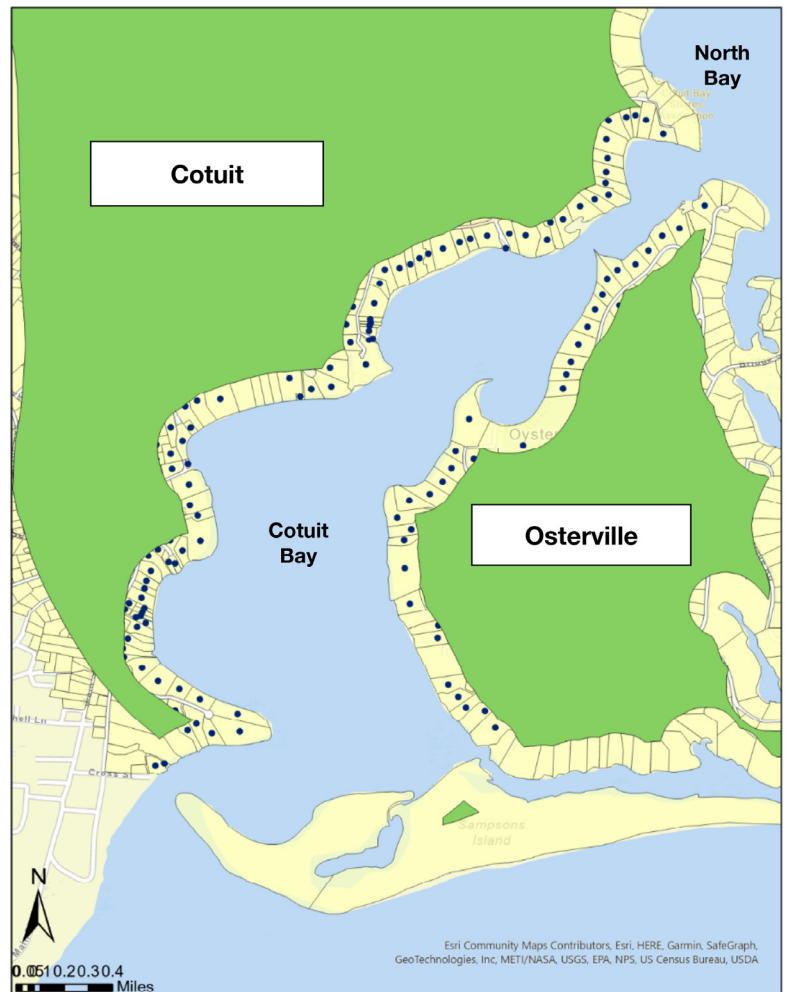
## THE FALMOUTH MODEL

Recently, the Town of Falmouth completed a study looking at four impacted waterbodies that discharge wastewater into Buzzards Bay and have Total Maximum Daily Load targets. The study's model demonstrates how to replace Title 5 septic systems and cesspools at those homes closest to the estuary (300 feet) with new I/A septic systems. The study indicated that estuary health would improve using these alternatives alone. Another study in Falmouth indicates that estuary health, as measured by nitrogen load, recovers significantly in a matter of months once treatment occurs.

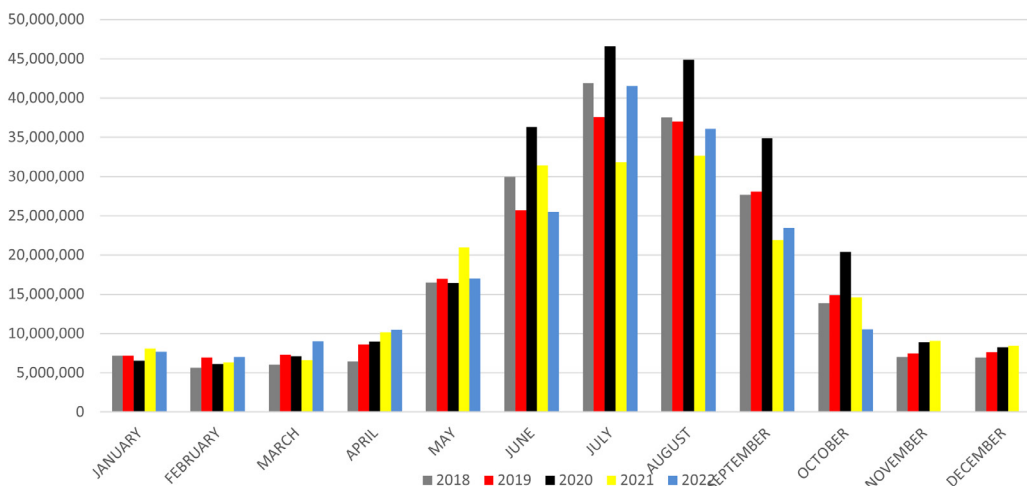
We have applied the same model to our own Three Bays estuary with the following results:

First, we applied the Falmouth study's "math" to homes within 400 feet of Cotuit Bay. For Cotuit Bay, switching over 90 of the 106 homes shown on the map to I/A septic systems would achieve "compliance" with the target nitrogen load.

Using this same math and approach with the remaining 400 homes in the Three Bays estuary that are within a 400-foot boundary, thousands of kilograms of nitrogen load can be eliminated.



**Cotuit Water Usage — Gallons per Month**



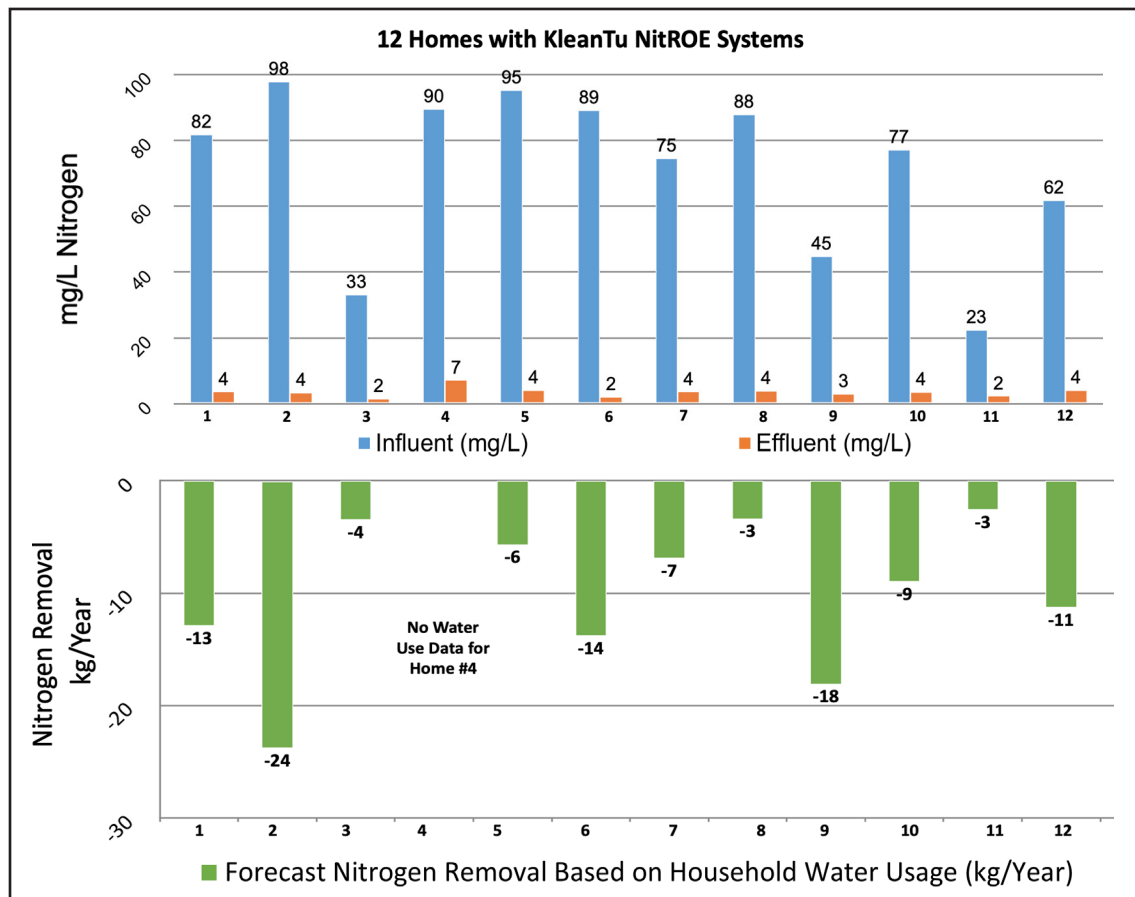
Source: Cotuit Water Department

## Treatment When it Matters

It should be common sense that homes closest to a sensitive waterbody should be first in line to be treated. In season, these homes are in full use, producing outside loads of nitrogen-contaminated wastewater that quickly reaches the estuary. With help from the Cotuit Water Department, we were not surprised to learn that 70% of water is delivered between May 15<sup>th</sup> and September 15<sup>th</sup>.

# Perfect is the Enemy of Good

BCWC has been working hard to trial, test and collect data on new I/A septic system technology. At our Shubael Pond I/A project, evidence is mounting that at least one system can achieve nitrogen reduction equal to or better than almost all municipal treatment plants.



The bar chart illustrates the latest results from the Shubael Pond I/A project. Each bar chart (blue/orange and green) shows the results from one home with a total of 12 homes. Generally, these are 1-3-bedroom homes on 10K square foot lots and most are occupied full time. The BLUE shows INFLUENT or how much nitrogen is in the septic tank. This load is far higher than numbers commonly used by the State.

The ORANGE shows EFFLUENT or how much nitrogen is coming out of the treatment system. These numbers may be 50% BELOW those of many municipal treatment systems.

Finally, the GREEN chart shows the annualized kilograms of nitrogen being removed by each home based on HOUSEHOLD water use.

System testing and monitoring is being performed by the Massachusetts Alternative Septic System Test Center (MASSTC), the U.S. EPA and the United States Geological Survey. MASSTC is also collecting water usage.

## Our Conclusion

We need to deploy a full toolbox to address our water contamination challenges on the Cape — sewer expansion, I/A systems to replace Title 5 systems and cesspools not reached by sewer, along with other alternative approaches like wetland restoration, permeable reactive barriers and shellfish propagation.

Nitrogen reduction is not a zero-sum equation. Groundwater moves in ways we cannot always model. Nature plays a significant role through climate change and annual weather patterns.

According to the Massachusetts Estuary Project report, the Three Bays Estuary has a total nitrogen load of 47,700 kgs/year. The sustainable level is 25,700 kgs, so we need to eliminate 22,000 kgs annually. In these two newsletters, we have provided a roadmap that could get us 90% of the way to that number in 10 years.

No, it's not a perfect plan. But it would be a step in the right direction. The real answer to how much nitrogen we need to remove is "when does eel grass start to grow again!"





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### **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.*

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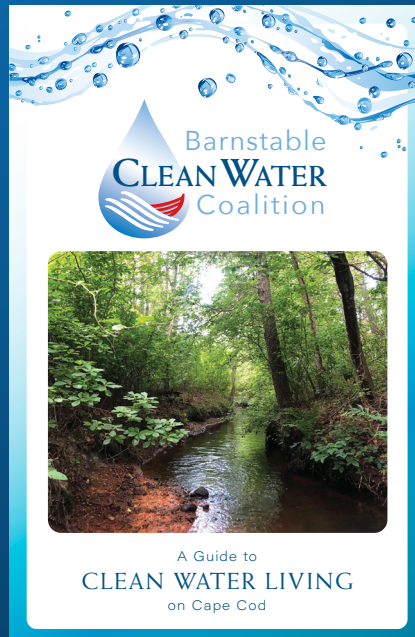
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*A Guide to Clean Water Living on Cape Cod* today.



Stop by the BCWC office in Osterville (864 Main Street)  
to pick up a printed copy or scan the  
QR Code for the online version.