

The Barnstable Patriot

Three Bays Preservation: Coloring in between the lines of a blue economy

February 22, 2017

By: Michael J. Egan

The blue water economy aptly describes how Cape Codders support themselves through tourism and sustainable year-round occupations. Cape Cod's blue water economy and unique ecosystem have been around for hundreds of years. It's just that people have now formally bestowed a cool catchphrase to time-honored Yankee ingenuity.

Why have so many people decided to live here and create the demand for goods and services, which in turn creates the wealth and income necessary for the quality of life and high standard of living we enjoy on Cape Cod?

Simply because this iconic pile of glacial till is beautiful.

In our Blue Water economy, we don't pump oil or mine coal. We don't smelt steel. We don't write software, manufacture drugs or computers. On the Cape, we mine the ocean, the beach, the ponds and sunshine. We harvest wild fish from the ocean and clean air from the sea breeze. We make memories and create experiences with our friends and families. These resources are renewable provided we stop polluting them.

Name me one single job that is not in some way related to the quality of our environment. Obviously, anything to do with fishing, sailing or boating is easy to understand. But even careers of teachers, doctors, nurses, first responders, electricians, carpenters, builders, retail, restaurants and many others can all be traced to providing a service to others who are in turn here because of our beautiful environment.

Tourism is the engine of our economy and our environment is the fuel.

Three Bays Preservation Inc. is an organization dedicated to making a higher standard of living for the citizens of Barnstable and Cape Cod. By mitigating wastewater pollution and safeguarding groundwater, we are trying to increase the wealth, job opportunities and quality of life for people who live and visit here. We can't flush where we drink, swim and fish in the way we presently do and expect our quality of life to increase. We cannot continue to contaminate the fuel that powers our economy.

Cape Cod is an island of 15 towns. In its most ecological sense, geology has woven 53 watersheds throughout, and each of these nature-crafted environments is unique, compromised and vulnerable. The problem is that we have not installed the necessary infrastructure in wastewater management to keep ourselves from polluting these watersheds that for hundreds of years have attracted people here.

Three Bays Preservation Inc. knows that our global economy on the Cape is fueled by the quality of our local environment. We understand how the dots are connected. There is a direct cause-and-effect relationship between the health of our economy and the quality of our water.

Help us save and create a healthy economy. Help us improve your quality of life and that of your neighbors.

Help us to help you increase the value of your home. Help us help you maintain the demand for your skills, labor or knowledge of your job.

The single most important thing Barnstable must do is upgrade its wastewater management so as to reduce or eliminate organic nitrogen leaching from our septic systems and polluting our water table. Techniques exist that are affordable, effective and doable.

Please contact your town councilor and express your interest and support of the improved wastewater management plan, also called the 208 Plan, to be published this summer.

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Michael J. Egan is president of the board of directors of Three Bays Preservation Inc., an organization established in 1996 to advocate for the restoration and protection of West, North and Cotuit Bays, and the coves, ponds, rivers and streams that form our watershed and estuary. Learn more at www.3bays.org.

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The Origins of Barnstable's Drinking Water

January 13, 2017

By: Michael J. Egan

One of our most critical components to life here in the Town of Barnstable lies just beneath our feet.

But have you thought of exactly *where* our drinking water come from?

All drinking water in the Town of Barnstable comes from the ground. We don't get it from reservoirs, lakes or reverse osmosis. We pump it from a thin layer of fresh water, an aquifer, that exists between the ground surface and sea level. And researching this key conservation issue—clean water in our estuary and beneath the ground—is the DNA at Three Bays Preservation Inc.

What is important to understand is that Cape Cod has only a single aquifer. Every well from every home owner, water district, or town municipality taps the same supply. You're walking, running and driving over your daily water supply. What should bother you is that your neighbor is also walking, driving, flushing, and dumping over your only source of drinking water.

Harvesting drinking water from below ground may seem obvious here, but a lot of municipalities around the country source their drinking water from above-ground surface environments including rivers and reservoirs.

We do not here, but think of the Quabbin Reservoir in Belchertown in Western Massachusetts. The Quabbin holds 412 billion gallons of water and is one of the biggest public water supplies in the United States.

This man-made structure was a public utility created in the 1930's and consists of two monstrous and artificially-constructed earthen dams. The Quabbin is fed by three branches of the Swift River, and by smaller amounts, the Ware River. Most importantly it is protected from contamination by thousands of acres of forest land which naturally filters, and consumes any contaminants entering the system. This system which supplies Boston and surrounding towns consistently ranks as one of the highest in reliability, safety and quality.

But here on Cape Cod, and in Barnstable, the water on your supper table was most likely beneath ground a short time ago.

For obvious reasons, water is directly connected to fire departments. And public water is provided to distinct Fire Districts in the Town of Barnstable for fire protection. Drinking water is the secondary benefit.

All Fire Districts have separate municipal Departments and they pretty much run like businesses. What's interesting to know is citizens of Barnstable pay different amounts for water than other citizens based on which Fire/Water district in which they live. It is also interesting to know citizens of Barnstable pay significantly less for water than citizens who get their water from the Quabbin. I hope to discuss the cost benefit and relative quality of our present municipal fresh water system in future articles.

There's the Barnstable Fire District, the Centerville, Osterville and Marstons Mills Fire District, and Cotuit has its own Fire District. West Barnstable maintains its own Fire District, but they don't provide their own water as do the other Districts which maintain a fire arm. The Hyannis Fire District gets its water from the Town of Barnstable and really is only a Fire Department. That sounds funny, but it's true.

West Barnstable, Cotuit, and Centerville, Osterville and Marstons Mills Fire Districts do not chlorinate their supplies, although all water throughout the town is chlorinated, the pH is adjusted so the water is neutral, and there's a protocol for corrosion control so water networking pipes do not rot, unlike the pipes in Flint, Michigan. In West Barnstable, private wells provide water to homes and businesses.

So, what do we do with all this information? Study it, know that the Town of Barnstable is working hard to deliver clean drinking water, and in 2017, Three Bays will continue to advocate for clean water. The clean water that at this moment flows beneath our feet, and those surface waters throughout our watershed so deserving of protection for generations to come.

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Clean Water is a Fundamental Right of Citizenship

November 11, 2016

By: Michael J. Egan

Access to clean water is a fundamental right of every citizen in the Town of Barnstable. After public safety and security, it's the second most important municipal service we as residents provide to ourselves. And our water, that one resource aside from air that we need to live, is in tough shape.

Sure, clean water falls from the sky, but we get ours from pumping it out of the ground. The same ground into which we flush every toilet, empty every sink, and drain every road. Water in the ground flows downhill just like on the surface. This means you drink, wash, cook, swim and fish with whatever your neighbor uphill from you puts into the ground.

Our system of using ground water as both a source of public water supply and a private dumping ground for wastewater is not sustainable.

The problems this closed loop system causes are many. Look no further than the estuary-wide algae bloom in early August. The bloom, a result of excess nitrogen from septic systems, caused a fish kill in North Bay from lack of oxygen. The lack of oxygen also threatened the oyster beds all over the Three Bays estuary. The entire shellfish industry is now closed all over the South Cape. The Wellfleet Oyster Festival was canceled because of concerns of contaminated oysters. This past May Town officials recommended that pregnant women, infants and nursing mothers in Hyannis not drink Town water because thresholds for two contaminants exceeded updated levels set by the EPA. Expensive new Town wells will have to be found, drilled and connected because we flush where we drink.

How do we enforce our rights to Clean Water? The answer is understanding that we don't have a Clean Water problem. We have a Wastewater Management problem. Ask, demand, insist, or protest if you have to—that our community and Town Councilors implement a Wastewater management plan that keeps our groundwater and drinking water clean and our wastewater kept separated.

Three Bays Preservation Inc. has had our eyes on this issue for nearly 20 years. We recognize the problem is 100 years in the making, mostly due to the increase in population. We know we can't solve this crisis overnight but we have studied this issue to death. We know how to fix it. The list of technologies, systems and processes are well known. We just need the political will. The removal of nitrogen and other contaminants isn't as hard or as expensive as people fear. There will be a cost but the old saying of 'an ounce of prevention beats a pound of cure' applies here. The nitrogen and contaminant crisis isn't limited to Barnstable nor the Cape itself. It's a coastal problem wherever humans and toilets share the same resource.

Freedom demands civic participation. Results can come through a chorus of collective voices calling, writing and talking to Town officials demanding their rights to Clean Water.

Clean Water will come when we implement a Wastewater Management plan. This is a right a community gives to itself. Let's work together to solve this environmental injustice. Let's continue this conversation. Please join me on Thursday, November 10 at 5 p.m. at the Osterville Village Library for my talk, *Endangered: The Nitrogen Crisis in Our Shared Ecosystem*, as part of Sea the Vision, a lecture series sponsored by Three Bays.

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Three Bays Preservation: Wastewater is everybody's problem

September 30, 2016

By: Michael J. Egan

Everyone in Barnstable should be worried about a polluted ecosystem, every teenager, adult and senior citizen - but once they are, what can be done? That's what I've been thinking whenever the concern about the nitrogen crisis in the Three Bays Estuary enters my mind. My worry is, unfortunately, a constant companion.

Cotuit, North and West Bays are ill in an ecological sense. Every day, nitrogen from overloaded septic systems is deposited into the Three Bays estuary, equal to sixty-five 50-pound bags of fertilizer. Over the course of a year, that's 23,530 bags weighing 50 pounds apiece in the water where you fish, swim, kayak, paddleboard, sail and boat. This means the very waters that look blue and clean and inviting, really aren't. Let's not forget that the water is still polluted, and this is a year-round problem. The fact that summer is behind us doesn't mean the problem has gone away.

Remember, in August we had a fish kill in North Bay most likely caused by the Rust Tide algae bloom that wove itself through the 1,251-acre estuary. Remember the warning to pregnant women not to drink the water in Hyannis? It's not a clean water problem. It's a wastewater problem. Our drinking water wells and estuaries are contaminated because we flush where we drink and swim. We shouldn't need these reminders to activate within ourselves the duties of being a citizen.

Everybody should be talking about the wastewater management problem when they are out and about anywhere in Barnstable. This should be a conversation everyone should be having with family, friends and neighbors. But once a citizen gets it, what's next? What are the answers for concerned citizens in an enlightened, informed and effective electorate? I have the answer: your pen. Write to members of the Barnstable Town Council. That's the governing body presiding over local

affairs.

Let them know that you as a taxpayer in the town of Barnstable expect a solution to our wastewater problem. Asking “Where’s my ‘fair share’ of clean water and wastewater management” might just be a good way to start. Installing sewers and other technologies where appropriate in parts of the town of Barnstable is a way to begin tackling clean water and wastewater issues. Monies exist. The Sewer and Private Road Fund has a balance of \$11,536,000 and grows at over \$2.4 million dollars a year. A comprehensive waste resource solution may require additional revenues, but considering that our water bills are some of the lowest in the state and we can’t continually relocate our drinking water wells, I know we can afford it. I certainly know we can’t afford not to fix it.

This natural resource emergency belongs to us all, and so does a potential solution. The phrase, “We the People” doesn’t just resound at the federal level. Write to the town council today, and tell them that you as a citizen have a right to clean water and a clean environment. Here’s their address:

Town Councilors
Town Manager, Town of Barnstable
367 Main St.
Hyannis, MA 02601

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Told You So

August 22, 2016

By: Michael J. Egan

If ever there was a sign that West, North and Cotuit Bays are severely wounded from toxic doses of excess nitrogen, look no further than the large, ugly masses of brown algae grasping into the water column across the 1,251-acre estuary, leaving a community and visitors in stunned disbelief.

You’ve got to see this stuff to believe it: the worst algae outbreak I’ve seen in 20 years. the Three Bays estuary has been turned into a cup of hot chocolate. Most people with whom I have spoken recently have the same visceral reaction: they are disgusted and they may be suspending any water-based activities in Barnstable’s Three Bays.

It’s all because of excess nitrogen pollution flowing from septic systems that has combined with hot

temperatures and sunny days and have resulted in huge algae blooms. These algae are a natural part of the marine ecosystem, but this much of it is neither normal nor healthy for the environment. Algae dine on nutrients, and the king of this estuarine buffet is nitrogen, which by our careful measurements over the last fifteen years far exceeds the state's recommended threshold. Adding to the crisis is road runoff that sends lawn fertilizers, detergents from washing vehicles, and metals and hydrocarbons pouring into an overwhelmed marine environment. These, too, are on the menu of pollutants that are flowing into our bays.

Three Bays Preservation Inc. has been banging the drum on the issue of excess nitrogen for years. And we have been warning the community that this could happen. Just because the water seems to look clear most of the time, we have said, doesn't mean it's healthy. Now, nearly anyone who casually looks into the water can see that it is at a precarious tipping point.

Less than a week ago, dozens of scup died in a fish kill from a probable lack of oxygen in North Bay caused by microscopic and macro algae that deplete oxygen from the water. We have had to move 200,000 juvenile oysters out of Middle Pond because the measured dissolved oxygen was zero. The eelgrass, a key indicator of ecosystem health was once plentiful in vast underwater meadows of bright green grasses. That eelgrass that acted as a nursery for finfish and shellfish, died away several years ago because of lack of sunlight from algae blooms. Will be the few remaining beds of native shellfish be next, and is this a tipping point of no return for the health of our bays? Any question as to whether property values, and subsequent property tax revenue, are threatened, has been answered.

On the heels of the worst outbreak of algae that is covering much of North, West and Cotuit Bays in nearly two decades, Three Bays Preservation Inc. continues aggressive water quality testing across the 1,251-acre estuary. "It is a huge bloom," according to Three Bays long-time Executive Director Lindsey B. Counsell, who added "these brownish masses of algae will now rot on the shores and add to the brown muck that covers much of the bottom of the bays and coves," he noted, "from large clumps of macro algae to microscopic plankton, and all this added organic material further fuels the worsening nutrient problem in the bays."

We need to improve our wastewater management to prevent the nitrogen and other pollutants from septic systems from entering our estuary. We need wastewater treatment policies and processes that are effective and sustainable, now. Let's stop living only a step away from the Middle Ages when we used to throw out our human waste into the street; today we just throw it under a couple feet of dirt in the backyard.

Our community should extend and add sewer lines where possible. We need to use alternative methods to restore freshwater ponds that eventually flow into the Three Bays estuary, including historic Mill Pond in Marstons Mills that is polluted by heavy, organic sediment deposits. We need to actively develop an enhanced Title V septic system that removes nitrogen at its source. I implore Town Management and our elected officials to finish the wastewater management plan they are obligated to produce. The solutions are known and there is a collective will to fund it. The cost of the cure is much less than the cost of the status quo.

Remember, the cost of prevention is much less than the cost of a cure of where we are now, the unfortunate status quo.

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Three Bays Preservation Inc. is dedicated to restoring and protecting West, North and Cotuit Bays, and the coves, ponds, rivers, and streams that form our watershed and ecosystems. Since 1996, Three Bays Preservation Inc. has continued stewardship efforts through applied science, educational programs, and ecosystem-based management practices. To learn more, visit Three Bays Preservation online at

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Three Bays Preservation: We are one Cape

July 1, 2016

By: Michael J. Egan

It's an uncomfortable conversation everyone should have, even at the dinner table: excess nutrients seeping from septic systems, fertilizers and stormwater runoff overloading our freshwater ponds, rivers and marine estuaries.

Just how impaired is our own Three Bays watershed?

Each day, the nitrogen from septic systems deposited into the Three Bays estuary is equal to 66 50-pound bags of fertilizer. Every 24-hour cycle that goes by, we continue to poison the very waters in which we drink, swim and fish. This accurate assessment is proven by our 20 years of in-house research.

Last Thursday and Friday I attended One Cape, a summit on clean water sponsored by the Cape Cod Commission, at the Resort and Conference Center in Hyannis. Regulators from the EPA, DEP, scientists, non-profit organizations, lawmakers, concerned citizens, municipal employees and others convened to share and report on observations, data and plans to restore impaired water bodies to sustainable health. What did I learn? We don't have a clean water problem, we have a wastewater management problem, and every person, home and bathroom is the source. It's not a nameless, faceless conglomerate or evil company at fault, it's all of us.

The One Cape conference provided the audience with an update on what Cape Cod is doing to clean up its lakes, ponds and estuaries to comply with Section 208 of the federal Clean Water Act. The Cape Cod Commission announced the release and certification of the area-wide 208 Plan, which gives each municipality the responsibility and tools to create their own wastewater management plan, and to do so on a watershed-to-watershed basis.

I learned that each town and each watershed would be asked to create, permit, implement and monitor a wastewater management plan. Chatham has decided to install a town-wide sewer collection wastewater management plant. Mashpee has implemented a plan to increase aquaculture by growing an additional two million oysters that they believe will solve 60 percent of their nitrogen problem. Each town and watershed must find their own combination of methods or technologies and do so soon. Failure will result in the loss of local control, and state or federal regulators may impose more expensive solutions.

Within our own organization, Executive Director Lindsey B. Counsell is leading the charge to restore Mill Pond in Marstons Mills, a site beset by hundreds of years of thick sediment accrual. Our consultant,

Scott Horsley, designed an innovative urine reuse pilot project underway on a small patch of land at Cape Cod Academy. It uses diluted and sanitized human urine as a lawn fertilizer instead of disposing urine into the groundwater via septic systems. In partnership with the Barnstable Department of Public Works, green infrastructure in the form of a rain garden to catch nutrients from storm water before they flow into Cotuit Bay is up and running. An extensive aquaculture initiative on Middle Cove will use filter-feeding oysters to rid the water of excess nitrogen. And at Prince's Cove, permeable reactive barriers, or PRBs, will be tested for their efficacy to cleanse groundwater.

In the Three Bays watershed, we need to remove and prevent excess nitrogen pollution. If we increase aquaculture as they are doing in Mashpee, and when we restore Mill Pond, we will have removed 25 percent of the excess nitrogen flowing into our Three Bays. But only by preventing pollution at its source can we reliably manage the problem. There are more than 8,000 homes in the watershed, and every septic system is a point source contributing to the pollution of our ponds and bays. The time to have the urgent conversation in every neighborhood, every community, every region, is right now. Only by working together can we solve the largest environmental and complex problem Cape Cod has ever faced.

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