

As pollution worsens on Cape Cod, some are investing hopes in a new type of septic system

By **David Abel** Globe Staff, Updated May 17, 2022, 11:28 a.m.



The Barnstable Clean Water Coalition installed a KleanTu septic system in the Sandy Shores neighborhood around Shubael Pond in Marstons Mills. On Cape Cod and in many other places, poorly maintained and aging septic systems are a primary cause of the nitrogen pollution that plagues coastal ecosystems. JONATHAN WIGGS/GLOBE STAFF

BARNSTABLE — For years, pollution from septic systems has spawned algae blooms, toxic bacteria, and a putrid scum coating the waters of Cape Cod, destroying vital ecosystems, contributing to coastal erosion, and harming tourism.

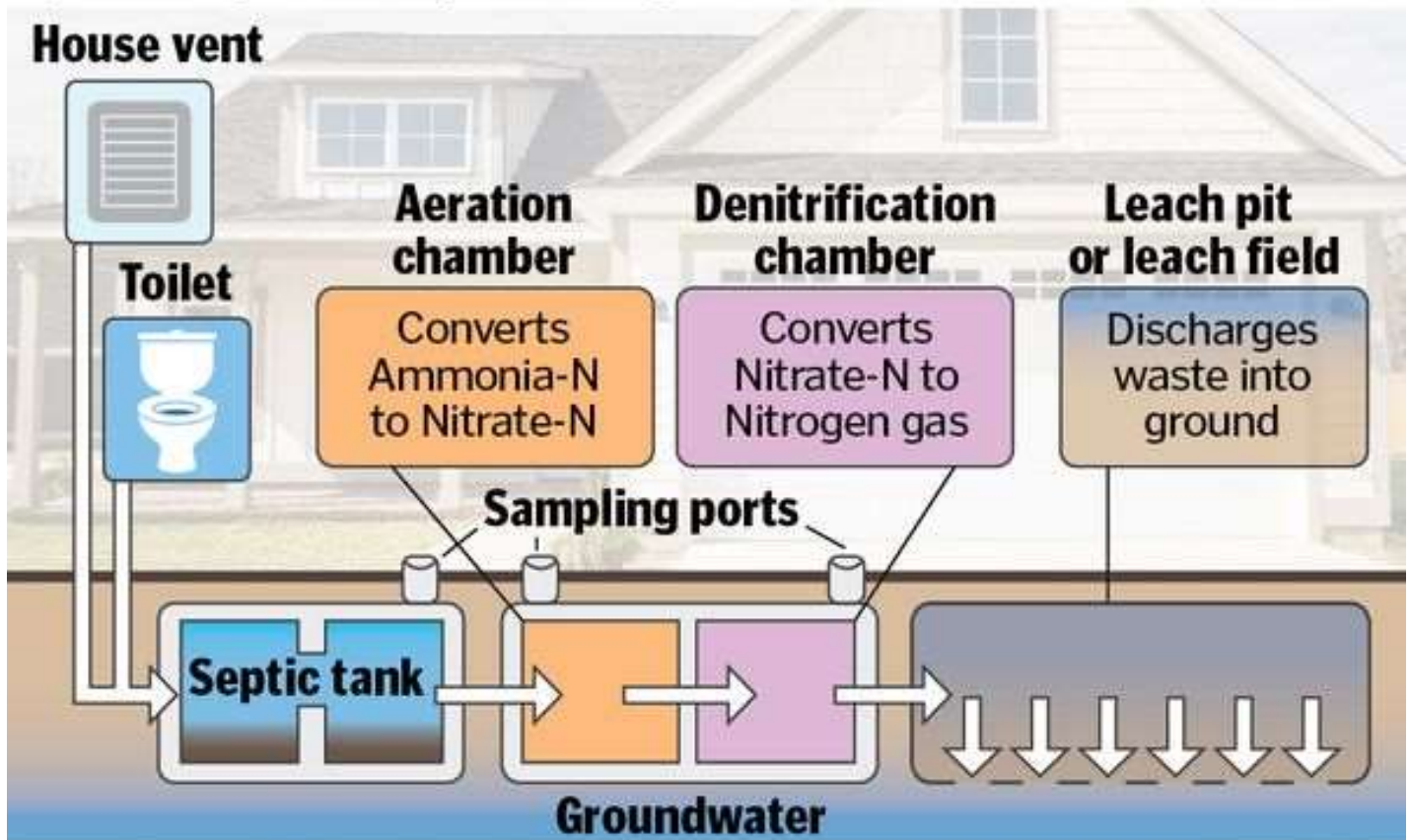
The pollution has also spawned billion-dollar plans to dig up roads and install extensive sewer systems that local officials say is essential to cleaning up bays, estuaries, and ponds from Bourne to Brewster.

Now, as warming from climate change has exacerbated the consequences of the pollution, a coalition of groups here is pressing local and state officials to consider a controversial new approach to addressing the problem, which they say could reduce costs significantly and remove the pollution more rapidly. Their solution relies on a [new kind of septic system](#) they say would curb the vast majority of nitrogen — one of the main causes of algae blooms — that leaks from traditional septic systems, which aren't designed to remove that contaminant.

“The water that comes from this system is treated to such a high degree that it's almost potable,” said Zenas Crocker, executive director of the Barnstable Clean Water Coalition, which has been overseeing a pilot project here that is installing the new septic systems at no cost to homeowners. “We see this as having an easier runway for expansion than sewers; they can be built more quickly and lower tax bills.”

Advanced septic systems

In an effort to reduce pollution on Cape Cod, a coalition of groups is promoting a new way of treating household wastewater.



Source: Barnstable Clean Water Coalition

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Critics of the proposal worry that promoting the new technology — which the state has yet to approve for general use — could undercut arduous efforts over recent years to persuade residents to support higher taxes or fees to cover the costs of installing tens of thousands of sewers across the Cape.

They also worry that allowing the widespread installation of new septic systems could hamper efforts to reduce the pollution, which has been blamed for killing large swaths of eelgrass — a vital habitat for shellfish and other marine life — and producing a guacamole-like film of algae blooms on ponds and bays. Unlike sewers, the new septic systems — while significantly more effective than traditional systems — don't eliminate all the pollution.



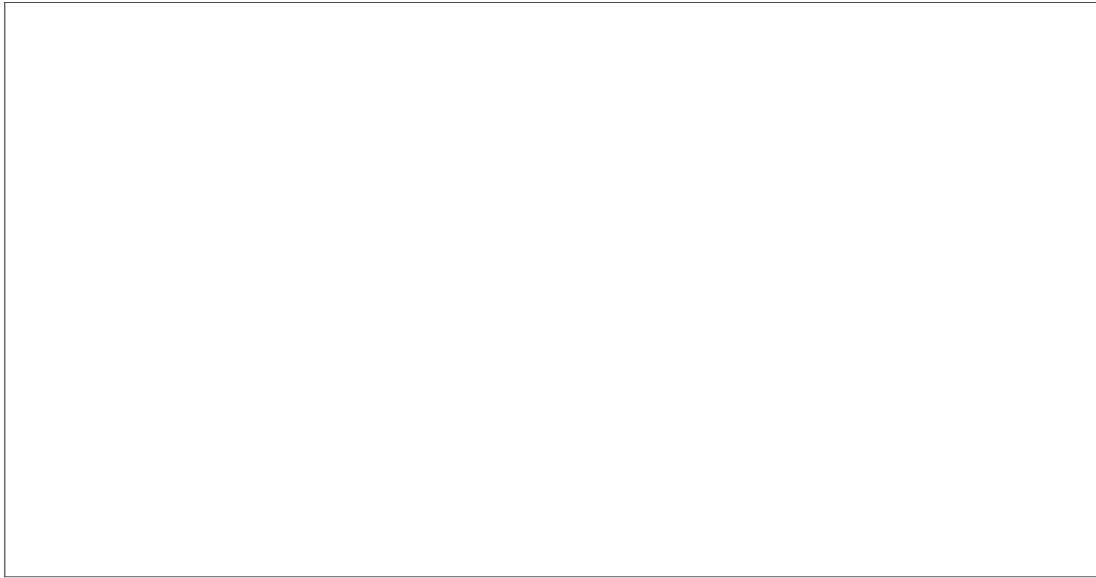
On Cape Cod, the Barnstable Clean Water Coalition installed a KleanTu septic systems in the Sandy Shores neighborhood around Shubael Pond.. JONATHAN WIGGS/GLOBE STAFF

“My underlying concern is that these systems threaten to undermine the hard-fought public consensus on the need for central treatment and collection of waste water in significant areas that contribute to the degradation of the Cape,” said Andrew Gottlieb, executive director of the Association to Preserve Cape Cod, which has spent years advocating for reducing the pollution from septic systems.

His group’s [annual report](#) last year on the state of the Cape’s waters found “continued degradation” and “a consistent pattern of poor water quality” that it attributed mainly to “inadequately treated wastewater” from septic systems. Other sources of the pollution come from fertilizer and stormwater runoff.

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Last summer, the group documented 35 ponds that required use restrictions as a result of the pollution, and all but five of them were closed to swimming. All of them contained cyanobacteria, the toxic ingredients of algae blooms that can be harmful to human or pets' health if ingested, inhaled, or touched.

“As responsible public officials, we can only ask people to pay once for a solution,” Gottlieb said. “Because we know that central collection and treatment will be sufficient to meet water quality and restore our bays, that’s where the lion’s share of the public investment should be going.”

The efforts to reduce the pollution with new septic systems has attracted the attention of state and federal environmental officials. If the technology proves effective in Barnstable, they said, it could become more widely used around the country, where more than 20 million households rely on septic systems.

State officials did not say whether the new septic systems — which use wood chips and limestone to convert much of the waste water into an innocuous gas — would be approved for general use.

“While there are still some unknowns, we are hopeful advanced septic systems will be a part of the solution,” said Nathaniel Keenan, deputy director of the Massachusetts Clean

Water Trust, a state agency that helps finance clean-water projects and has provided more than \$200 million in funding to improve water quality on the Cape.



One of the new septic tanks was lowered into the ground. JONATHAN WIGGS/GLOBE STAFF

The Environmental Protection Agency has [joined](#) the coalition to help the pilot project, which involves the installation of nearly 50 new septic systems in the Three Bays watershed in Barnstable.

EPA scientists have drilled monitoring wells and plan to spend the next three years observing the impact of the new systems on ground water and on Shubael Pond, which has been [repeatedly closed](#) to swimming during recent summers as a result of toxic algae blooms.

The agency has also provided grants to help create “responsible management entities,” organizations with sewage experts who will ensure that the new septic systems are

properly operated and maintained. Homeowners eventually will cover the costs of that oversight in fees.

Agency officials said their participation wasn't meant to promote the replacement of sewers, which they noted remains the most effective way of removing waste water, especially in densely populated neighborhoods. Instead, it's "a complementary effort," they said.

How local officials address the pollution has been a source of tension for years.

Last year, the Conservation Law Foundation in Boston sued the towns of Barnstable and Mashpee, as well as the Department of Environmental Protection, arguing they have known for decades about the harm from septic systems but failed to enforce their own regulations by allowing the pollution to continue.

"Ultimately, we can't continue to blindly add more pollution from septic systems that don't remove nitrogen on the hope that sewers will someday, somehow solve the problem decades from now," said Christopher Kilian, director of the foundation's clean water program. "None of the towns or MassDEP have demonstrated a track record supporting trust in such unenforceable multidecade plans."

He sees promise in the new septic systems, especially for the thousands of homes not slated to be connected to sewers and those that aren't scheduled to receive them for decades.



A view of Shubael Pond. TOWN OF BARNSTABLE

“All of this inaction has allowed this problem, and the pollution . . . to become a catastrophe that threatens the Cape’s economy,” Kilian said.

But others raised concerns that too much emphasis on new septic systems — which don’t remove phosphorous and other contaminants that also cause algae blooms — could hamper efforts to carry out plans to install sewers, which do eliminate the contaminants.

They also raised concerns about the durability of new septic systems, and the likelihood they would need to be replaced more frequently than sewers. The new septic systems cost between \$25,000 and \$35,000 — roughly one-third of the cost per household of sewers — and those costs would likely be borne by homeowners.

“Centralized public sewer systems are the most environmentally sound and cost-effective way to remove and manage nitrogen,” said Paul Niedzwiecki, chief executive of the Cape Cod Chamber of Commerce.

But proponents of the new technology urged their neighbors to keep an open mind.



One of the homes that has had one of the new septic systems installed. JONATHAN WIGGS/GLOBE STAFF

“We’re not looking to unnecessarily divert funding from sewerage projects,” said Brian Baumgaertel, director of the Massachusetts Alternative Septic System Test Center, a division of Barnstable County. “We are looking for the most economical and socially equitable solution to help fix what is a slow-moving environmental disaster.”

On a recent morning in the backyard of Juanita Sweet’s home overlooking Shubael Pond, the 69-year-old watched as a crane lowered into a deep hole a 2,000-gallon version of one of the new septic systems.

Sweet, along with several neighbors who also received new septic systems in a neighborhood not slated for sewers, hoped they would enable the pond to be reopened for swimming.

“If the pond is polluted, my house is worthless,” she said. “I’m hoping this helps.”

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