January 28, 2023
Delivered via email

Massachusetts Department of Environmental Protection
Bureau of Water Resources – Division of Watershed Management
Attention: Title 5 & Watershed Permit
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: 310 CMR 15.000-Septic Systems ("Title 5")
314 CMR 21.00-Watershed Permit Regulations

The Citizens for the Protection of Waquoit Bay (CPWB) submits the following comments on the Massachusetts Department of Environmental Protection's (DEP's) proposed amendments to 310 CMR 15.000 in order to reduce nitrogen loads in the Commonwealth's estuaries and embayments and proposed 314 CMR 21.00 Watershed Permit regulations.

Waquoit Bay – A Prelude

To better understand the importance of DEP's proposal to the Waquoit Bay estuary, we submit the following amended from an article published by CPWB in 2020:

> "On a clear summer morning around 1971, a young teenager revved up one of those low slung 9½ hp Johnson outboards on the back of a Collins Brothers' wooden skiff and headed out into the Bay. Some of you remember those summer mornings, those motors, and those legendary skiffs. You may also remember what happened next.
>
> He got about twenty feet before he had to stop, reverse the motor, and clear the prop of eel grass. It was irritating, but something you had to do several times before getting past the eel grass beds into deeper water.
>
> Like most of us, he didn't know that Waquoit Bay had already lost more than half of its eel grass beds. He didn't know that by 1990, almost all of them would be gone. And he didn't know the loss of the eel grass would profoundly endanger this beloved Bay.

If you waded through those eel grass beds, you would have noticed how clear the water was. You would have seen a rainbow of colors as sunlight glinted off the ribbons of grass. You might even have stepped on an ugly, bottom feeding toadfish or dodged a few scallops that zipped by.

On a nearby sand flat, you could have easily dug a bucket of long necks (not the beer kind) in short order. The marsh edges were entirely covered with thousands of mussels and the occasional oyster. An hour or so spent polling in the shallows would be rewarded with a couple dozen blue crabs. Running parallel to the water line, the beaches had grey and white drifts of dried eel grass that had washed up on the shore – so much that it once was raked up and used for mulch in area farms. And an earlier generation would remember wild rice beds in the lower Moonakis River and catching white perch and pickerel further up in the middle reaches.

By the late 1970's, the drifts of dried eel grass on the beaches were replaced by a 6-inch thick mat of a green algae extending twenty feet out into the water. As the summer progressed, it began to rot, stinking like a sewer. By the close of the last century, it was clear that virtually every measure of water quality was headed in the wrong direction. Acting like an unwanted fertilizer, nitrogen, mostly from septic tanks and cesspools, was increasing. Dissolved oxygen, essential for plant and animal life, was decreasing. Greater turbidity was helping heat the water so much that in the shallows, it actually felt hot.

Today, wading through the knee deep murky shallows of the lost eel grass beds is like walking through a virtual marine desert. Few of the species found in a thriving ecosystem remain. The bottom is covered with a squishy layer of mud and several types of non-native, invasive algae. If you can even see the bottom, you may find the newly arrived, invasive, and predatory European Green Crab that loves to snack on oysters, mussels, and young blue crab. Its preferred food: soft-shelled clams. It thrives in muddy bottoms and has been called one of the 100 "world's worst alien invasive species."

The few remaining natural scallops, if any, are gone after the first day of harvest season. The quahog population, like blue crabs and scallops, is also adversely affected by environmental degradation and overfishing. But unlike the others, its population is being sustained by the artificial introduction of seed clams to both maintain commercial harvests and, more recently, an attempt to partially control nitrogen levels.

If you canoe along many of the marsh edges, you'll notice the mussels are sparse - the naked edges of peat now being eroded away by waves and birds along with the Green Crabs pecking for a meal. In some places like the

middle reaches of the Moonakis River and several of the Bay's ponds, there are stands of a tall, aggressive, and invasive reed called phragmites australis. It has begun to replace the existing, diverse ecosystem of native grasses and wild flowers with a vast monoculture of a plant known, at best, to be less hospitable to native wildlife."

Background on the Waquoit Bay Watershed

Waquoit Bay with its rivers, ponds, and marshes is the largest coastal system not only in Falmouth but arguably on the entire south coast of the Cape. It is one of seven areas on the Cape designated as an Area of Critical Environmental Concern (ACEC) (https://www.mass.gov/service-details/acec-program-overview).

The purpose of the ACEC program is to:

- "preserve, restore, and enhance critical environmental resources and resource areas of the Commonwealth of Massachusetts" and
- "identify and designate these ecological areas, to increase the level of protection for ACECs, and to facilitate and support the stewardship of ACECs."

Despite this designation and a significant number of required studies and reports, Waquoit Bay and its bays and rivers far exceed their Total Maximun Daily Loads (TMDLs) for nitrogen. The current nitrogen level in the lower Moonakis/Quashnet River is three times higher than its 0.5 mg/L TMDL. You can find significant information about the TMDLs for the bay and the sources of the nitrogen loadings in the following report: *Final Waquoit Bay System; including Eel Pond, Quashnet River, Hamblin Pond, and Jehu River Total Maximum Daily Loads for Total Nitrogen.*
https://www.epa.gov/tmdl/tmdl-report-and-approval-documents-waquoit-bay-and-eel-river-ma

You can find more about the Bay's water quality in these two presentations by the Waquoit Bay National Estuarine Research Reserve:

- *Analysis of 16 years of Trends*
  http://www.waquoitbayreserve.org/wp-content/uploads/WhatsUpWithTheWater_tyrrell2018.pdf
- *After Twenty Years: What Can the Waters in Waquoit Bay Tell Us*
  http://waquoitbayreserve.org/after-twenty-years-what-can-the-waters-in-waquoit-bay-tell-us/

Perhaps the most accurate summary about Waquoit Bay's current environmental condition comes from statements made by the late Chancellor Professor Brian L. Howes, Director of the Coastal Systems Program at the University of Massachusetts Dartmouth's School for Marine Science & Technology to the Mashpee Select Board on October 3, 2022. He said:

- "The Quashnet River [a major tributary of Waquoit Bay] is the poster child for the worst water quality, worst habitat quality in Mashpee, and in fact, probably in most of the south shore and the Cape."
- "You can't get more severely degraded. It is like, if you are dead, you are dead. It is literally like that. You have wiped out most of the animals and fish in the summer."
- "It is just not a happy story. There is no place in Waquoit Bay, either the tributaries or the main or the basins or any place in that bay, that is healthy,"

You can view Professor Howes presentation in the following video at 19:15: https://www.youtube.com/watch?v=vDu3rvqOAJw

You find another presentation Professor Howes made to the Mashpee Select Board on July 26, 2021 here: https://www.mashpeema.gov/home/news/town-mashpee-water-quality-presentation-july-26-2021

Background on CPWB

CPWB has a long and productive history. It was started in 1981 by Falmouth attorney and former planning board member, Winnifred Woods and Mashpee resident Deborah Moore to successfully prevent the development of Washburn Island. Later, under the same leadership, it lobbied successfully for the protection of South Cape Beach and the founding of the Waquoit Bay National Estuarine Research Reserve.

In 1987, under the leadership of Matt Patrick and Donald Bourne, CPWB assembled a group of civic and environmental organizations known as the Quashnet Coalition to convince the Commonwealth to acquire the Quashnet River Valley, where a large condominium project had been proposed. Later under Patrick and Bourne, CPWB became one of the founding sponsors of the Coalition for the Cape Cod Commission, the land use authority that has made Cape Cod a better place to live.

Throughout its history CPWB has benefitted from the hard work of volunteers, members, and officers including individuals such as the late Jayne Abbott and long standing member, Winthrop Munro.

Overall Comments on DEP Proposals

Despite all the studies, water quality data, clear evidence of major environmental decline, public statements acknowledging the problem, causes, and potential solutions, and Waquoit Bay's designation as an ACEC, the Towns of Falmouth and Mashpee have made little, if any progress in actually solving the problem.

Indeed, from the only information publicly available to us, the Town of Falmouth does not plan to address Waquoit Bay until 2035 when it may sewer the densely populated areas of Seapit Point and Seacoast Shores (sub areas of the Bay). During the intervening 12 years, it appears the town will allow the conditions to worsen and the TMDL to continue to be violated. While in the headwaters of the Quashnet/Moonakis River, the Town of Mashpee, as an example, continues to permit construction of a significant number of new houses that will further add uncontrolled nitrogen to the watershed.

This failure to act raises two major issues which DEP's proposals address:

1. The Waquoit Bay watershed is shared by two differing political jurisdictions with little incentive to cooperate in any timely manner.

2. Much of the Waquoit Bay watershed is not densely populated and is not amendable to traditional sewers. As such, many of the alternative approaches inherent in watershed plans as DEP envisions would be more appropriate.

Specific Comments

As part of its public comments on the proposals, DEP will have received comments from the Association for the Preservation of Cape Cod and the Conservation Law Foundation. We associate ourselves with those comments.

In addition, we make the following specific comments:

- Timelines:
    - Once implemented, actions to correct our current water quality problems will still take years before actual environmental improvements will become visible. The final regulations should be crafted to preclude towns from delay. The 20-year permit term in the Watershed Permit regulation should not be extended.
    - The Watershed Permit regulation should be amended to include a time limit for DEP to approve or deny a watershed permit application

- Close the “bedroom-that's-not-a-bedroom” loophole:
  - Under current practices, residential buildings often include spaces that are not initially called bedrooms, but ultimately are used as such. If spaces not officially designated as bedrooms are actually used as bedrooms, the amount of water that could be used is undercounted and, therefore, the amount of potential pollution emanating from related septic systems is also undercounted. The regulations need to both stop and prevent the practice of undercounting living spaces that affect the true amount of water and septic use at a property
  - As currently written, these regulations use the number of bedrooms to evaluate a property’s water use, but many bedrooms aren’t “officially” bedrooms, which leads to undercounting the amount of pollution coming from those septic systems

- New construction/renovations/additions:
  - These regulations define “new construction” and “renovations” too narrowly and should be broadened to trigger upgraded requirements for more types of building and improvements.

- Complete vs. 75% compliance:
  - It needs to be clear in the Watershed Permit regulation that communities are obligated to achieve complete compliance with the water quality standards and may only receive a Watershed Permit if the community proves that it is (1) not realistic to achieve complete compliance within the life of the 20-year permit and (2) the environmental harm from achieving only a 75% reduction is not significant.
  - Communities are already required to meet water quality standards and are currently violating those standards, so allowing communities 20 years to achieve complete compliance is already an easing of standards. Communities should not be allowed to lower the bar for water quality unless they prove that nothing else is possible

- Strategic approach to water quality improvement plans:
  - The Watershed Permit regulation should encourage communities to prioritize those actions that will result in the greatest, earliest reductions in nitrogen loadings.
  - Plans that include large-scale sewering should not be the only strategy. Plans should require, when appropriate, other mechanisms such as the use of Responsible Management Entities to oversee the monitoring and maintenance of nitrogen removing septic systems; alternative residential

systems such as urine diversion appliances; testing of creative solutions such as use of floating islands, permeable reactive barriers; etc.

Summary

We support DEP's proposal 310 CMR 15.000-Septic Systems ("Title 5") and 314 CMR 21.00-Watershed Permit Regulations. We also understand the difficulty DEP often faces when taking significant, breakthrough actions and appreciate your effort. As you move forward to resolve the water quality problems of Cape Cod and the south coast, we urge you to work with all appropriate parties to address the associated financial challenges.

Thank you for your efforts and thank you for considering our comments,