



January 9, 2017

Massachusetts Department of Environmental Protection  
Division of Watershed Management  
8 New Bond Street  
Worcester, MA 01606  
Attn: Ms. Barbara Kickham

**Re: Cape Cod Watershed TMDL Control Number 392.0 (Bass River), 393.0 (Swan Pond) and 335.0 (Parkers River)**

Dear Ms. Kickham:

Thank you for the opportunity to comment on the draft total maximum daily load (TMDL) for total nitrogen for the three subject estuarine areas of Yarmouth, Dennis and Brewster. Founded in 1968, the Association to Preserve Cape Cod (APCC) is the leading regional non-profit environmental advocacy and education organization on Cape Cod. Representing more than 5,000 members, APCC's mission is to promote policies and programs that foster the preservation of the Cape's natural resources. APCC focuses its efforts on the protection of groundwater, surface water, and wetland resources, preservation of open space, the promotion of responsible, planned growth and the achievement of an environmental ethic ([www.apcc.org](http://www.apcc.org)).

APCC appreciates the effort of the Department to engage the public and promote public awareness of the problem of excess nitrogen on Cape Cod, particularly nitrogen's negative impact on coastal estuaries across our region. APCC does have concerns about some of the basic assumptions, time delays and reliability of the draft TMDLs. APCC is especially concerned that the Department does not fully comprehend the dynamics of what you refer to as the Cape Cod Watershed and the challenges of a regional economy based on part-time residence. This is a classic case of one size does not fit all. Lastly, APCC would like to take this opportunity to ask the Department to step up and meet its statutory obligations in a more proactive and interventive manner. We recognize that the Department has been increasingly challenged with reduced resources, but some necessary action does not cost money or significant agency staff time.

*Basic assumptions, time delays and reliability of TMDLs.*

To quote from the Massachusetts Estuaries Project (MEP) Linked Watershed Embayment Model Peer Review published in 2011, "The Massachusetts Estuaries Project (MEP) partnership was organized to provide a technical underpinning for development of total maximum daily loads (TMDLs), especially the establishment of water quality goals, source assessments and recommendations for source reductions. Nitrogen delivery to Cape Cod estuaries from human sources is dominated by septic inputs delivered to local waters through groundwater transport. This presents a unique challenge to local stakeholders who desire to protect and restore these

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sensitive ecosystems for their important contribution to the local lifestyle and economy.” *Id.* at 4. The peer review panel specifically recommended “that model sensitivity analyses be conducted for the components and linkages in the watershed-embayment model for each specific estuary. Sensitivity analysis is the principal evaluation tool for characterizing the most and least important sources of uncertainty in environmental models. The Panel believes that a healthy recognition of uncertainty would encourage planning bodies to pursue an adaptive science and management strategy as they move forward to understand and remediate the impacts of excessive nitrogen loadings on the estuaries and embayments.” *Id.* at 31.

APCC notes that independent model sensitivity analyses were not reported in the draft reports. Instead the reports rely on so-called margins of safety as allowed by EPA. We believe that the peer review panel’s approach will provide more reliable results and a clearer picture of uncertainty. Both of these improvements will allow more effective interventions, better adaptive management and likely reduced overall implementation and maintenance costs.

APCC notes that the draft TMDLs published in November of 2016 are based upon data collected prior to 2011. The report does not explain the delay between data collection and promulgation of the draft reports. A great deal has occurred in the intervening years between data collection and issuance of the report, including improved and more extensive USGS groundwater modeling (e.g., Potential Effects of Sea-Level Rise on the Depth to Saturated Sediments of the Sagamore and Monomoy Flow Lenses on Cape Cod, Massachusetts published in 2016). Additionally, there have been new developments and improved understanding of the reduction in atmospheric deposition of nitrogen across Cape Cod. While the subject estuarine systems may not be significantly impacted by the atmospheric deposition of nitrogen because of relatively small surface areas, the assumption in the draft report stating “The loadings from atmospheric sources incorporated into the TMDL however, are the same rates presently occurring because, as discussed above, local control of atmospheric loadings is not considered feasible” is inaccurate. Reductions are documented and are expected to continue.

### *Unique challenges facing Cape Cod*

Cape Cod is not a single watershed. Cape Cod has as many as 57 watersheds and 89 estuaries. Each watershed and estuary is unique and all encompass dynamic interfaces between fresh and saltwater as well as between ground and surface waters. There are no large scale riverine watersheds anywhere on the Cape.

Cape Cod has a disproportionate number of on-site septic systems per unit of population compared to the rest of Massachusetts. The area of the subject reports is dominated by Title 5 systems and include many pre-Title 5 systems such as cesspools. There are relatively few advanced treatment systems in the area and no public wastewater collection or treatment systems. This on-site infrastructure currently exists and is not subject to further permitting, additional development and build out. The area also contains a high proportion of second and seasonal homes that are used for 10 weeks or less per year. Since site specific loadings are calculated upon water consumption and not septic capacity, conversion of properties from seasonal to more year-round will have a detrimental impact on nitrogen loading. This specific uncertainty is not captured in any of the reports. Growth controls do not impact this uncertainty.

The seasonal nature of Cape Cod's population means that nitrogen arrives in estuaries in pulses and is not uniform throughout the year. Travel times (relatively fast) and travel distances (relatively short) do not equalize nitrogen flow arrival into estuaries across the year. While the reports acknowledge seasonal variability, they focus primarily on point sources. Since the report acknowledges that the nitrogen problem is largely non-point sources there is an absolute disconnect between problem and intervention. Ultimately we need to better understand and account for these pulses. Current TMDL computation may miss certain high load tipping points, or on the other hand, make intervention more expensive than is necessary to meet water quality standards.

Swan Pond is at present significantly impacted by high nutrient levels. Efforts currently underway to replace the Route 28 bridge across Parkers River with a wider span bridge will improve nutrient flushing and help restore the upstream marsh; however, this will not address the root source of the problem. Until the nitrogen inputs from wastewater and runoff are addressed, non-point source pollution into this system will continue to negatively impact the community and the natural resources. Ultimately improved flushing is simply a "dilution is the solution to pollution" intervention.

*State action needed now*

The Commonwealth and DEP should take the following steps to help further reduce nitrogen and pathogen pollution:

1. Update Title 5 regulations to improve protection. Immediately begin the phase out of cesspools and pre-Title 5 septic systems.
2. Require pump out of on-site systems every 4 years. Provide a tax credit.
3. Impose statewide fertilizer reductions (exempting agriculture) in all regions of the state that have nitrogen impaired waters, including Cape Cod.
4. Provide for improved wetland buffer requirements utilizing tax incentives, conservation easements and by supporting local wetland bylaws that incorporate more protective buffer strips.
5. Significantly increase penalties for harvesting shellfish in closed areas.
6. Provide additional funding for restoration projects that will improve water quality in impaired waters at the same time as pollutant sources are being addressed and eliminated.
7. Support systematic comprehensive monitoring programs to monitor groundwater, surface water, coastal embayments and nitrogen loading in order to provide up-to-date models of nitrogen loading, track changes and track progress in addressing nutrient loading.

Thank you for the opportunity to comment on this important issue impacting all of Cape Cod.

Sincerely,



Edward DeWitt  
Executive Director

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