



November 20, 2014

Mr. Paul Niedzwiecki, Executive Director  
Cape Cod Commission  
PO Box 226  
3225 Main Street  
Barnstable, Massachusetts 02630

**Re: Comments on the August 2014 Draft Cape Cod Area Wide Water Quality Management Plan Update**

Dear Mr. Niedzwiecki –

Please accept the following as the Buzzards Bay Coalition's (Coalition's) comments on the August 2014 Draft Cape Cod Area Wide Water Quality Management Plan Update (Draft 208 Plan Update). The Coalition applauds the Cape Cod Commission's efforts to provide an update to the 1978 Area Wide Water Quality Management Plan as required pursuant to section 208 of the federal Clean Water Act and as directed by the Massachusetts Department of Environmental Protection (MassDEP).

The Coalition offers the following comments in an effort to ensure that swift and deliberate action is taken, consistent with the Draft 208 Plan Update, to reduce nutrient pollution in Cape Cod's waters. For more than a decade the declines in many of Buzzards Bay's harbors and coves have been obvious and well documented. We cannot wait longer to reverse these trends. Delaying any longer only makes the problem more difficult and more expensive to solve. In the balance is the clean water that has defined Cape Cod and supports our coastal economy and extraordinary quality of life.

The Coalition is a membership-supported nonprofit organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. We represent more than 8,000 individuals, families, organizations and businesses in southeastern Massachusetts with more than 1,500 members on Cape Cod within the planning area. The Coalition was an active participant in the 208 stakeholder process.

### **Summary and Background**

Since 2010, the Coalition has advocated for an update to the 1978 Area Wide Water Quality Management Plan as a regional strategy to attack the nitrogen pollution problem. Faced with nutrient-related water quality decline Cape-wide and the failure of the federal and state governments to intervene, the Coalition, together with the Conservation Law Foundation, pointed to federal regulations which require updates to water quality management plans to reflect changing water quality conditions. Specifically, federal regulations state, ". . . plans shall be updated as needed to reflect changing water

[www.savebuzzardsbay.org](http://www.savebuzzardsbay.org)

114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913  
21 Luscombe Avenue, Woods Hole, Massachusetts 02543 | Tel: 508-540-6222



quality conditions. . . <sup>1</sup> It was clear a more than thirty year old plan needed a new look. Taking the lead in January 2013, the State directed the Cape Cod Commission to prepare an update to the 1978 Water Quality Management Plan for Cape Cod to address the degradation of Cape Cod's water resources from excessive nutrients, primarily nitrogen.<sup>2</sup>

After 18 months of stakeholder outreach and engagement, investment in state-of-the-art decision making, planning, and financing tools, and extensive evaluation of possible nutrient reduction technologies, a Draft 208 Plan Update has been produced which offers a new approach for the region to combat nutrient-related water quality issues. The Draft 208 Plan Update identifies the barriers that have stalled past implementation such as cost and an outdated regulatory approach, and while the Draft 208 Plan Update also recognizes that solutions are generally expensive, the proposed approach provides a framework for collaboration toward a solution which may be economically sustainable and effective towards meeting water quality standards. **The Coalition agrees that restoration of the region's marine ecosystems requires a new watershed approach as proposed by the Draft 208 Plan Update.**

While the Coalition generally supports the Draft 208 Plan Update, these comments focus on select major components of the plan and concentrate on ensuring that the requisite state and federal enforcement mechanisms exist to ensure plan implementation and achievement of water quality standards.

## **I. Enforcement by the Massachusetts Department of Environmental Protection is a critical component of the Draft 208 Plan Update.**

The watershed planning process proposed by the Draft 208 Plan Update is founded on reaching municipal consensus towards solving the nutrient pollution problem. Positive action towards wastewater management taken in Falmouth and other towns on the Cape illustrate that this collaborative framework can work. However, for the communities who fail to act, or fail to act within a reasonable timeframe, the MassDEP must enforce current regulations and create new enforcement mechanisms to compel action.

### **A. Section 208 of the federal Clean Water Act requires state designation of Waste Treatment Management Agencies in the Draft 208 Plan Update.**

Section 208 of the Clean Water Act requires that the State, in consultation with the Cape Cod Commission, designate one or more Waste Treatment Management Agencies (WMAs) for Cape Cod at the time the plan is submitted to the Administrator of the United States Environmental Protection Agency (US EPA).<sup>3</sup> The Act requires that these WMAs implement the 208 Plan in the following manner:

- Manage waste treatment works and related facilities, directly or by contract;
- Design and construct new works and operate and maintain new and existing works as required by any plan developed under section 208;
- Accept and utilize grants or other funds for waste treatment management purposes;

---

<sup>1</sup> 40 CFR §130.6(e). The Coalition notes that the Draft 208 Plan Update states that the State is "authorized to update these WQM plans". Draft 208 Plan Update at i. In fact, the State is not merely "authorized" to update the plan, but is "required" to update the plan to reflect changing water quality conditions.

<sup>2</sup> Draft Cape Cod Area Wide Water Quality Management Plan Update August 2014 at i. (Draft 208 Plan Update).

<sup>3</sup> Clean Water Act (CWA) §208(c)(1).



- Raise revenues, incur short and long timer indebtedness and assure that each participating community pays its proportionate share of treatment costs;
- Refuse to receive any wastes from any municipality or subdivision thereof which does not comply with any provisions of an approved plan under this section; and
- Accept for treatment industrial wastes.<sup>4</sup>

The Draft 208 Plan Update considers several groups that may meet the requirements of a WMA under CWA section 208 and as described above, including each of the towns, various water districts, fire districts, a groundwater protection authority, and a recreation authority.<sup>5</sup> However, the Draft 208 Plan Update stops short of making the recommendations at this time and instead recommends that the Cape Cod Commission convene a WMA task force to evaluate waste management agencies for watersheds on the Cape for designation by the State by June 30, 2015.<sup>6</sup>

The State designation of the WMA(s) is a fundamental step towards plan implementation. It is the WMA(s) which are ultimately responsible for meeting water quality standards on Cape Cod under the Draft 208 Plan Update. It is the responsibility of these to-be-designated WMA(s) to hold the watershed permits, develop the watershed plans, and manage both traditional and non-traditional infrastructure to meet water quality standards. **Therefore, the Coalition urges the State to designate the WMA(s), as required by the federal Clean Water Act, as soon as possible and amend the Final 208 Plan Update with those designations to ensure that the Final 208 Plan Update memorializes the responsible WMAs. Furthermore, the US EPA should require such designations as a condition of its approval.**

The Cape Cod Commission has represented at public meetings that it is the hope that entities already in existence will volunteer to act as the WMAs and work collaboratively towards watershed based solutions. It is likely that working together towards solutions will be more effective and efficient, and will result in the attainment of water quality standards more rapidly. However, in the event that the opportunity for collaboration is ignored, the State is required to designate the WMAs under federal law.

**B. MassDEP must mandate Water Pollution Abatement Districts to ensure performance under the Draft 208 Plan Update.**

As stated above, the designation of WMA(s) is the foundation upon which the success of the Draft 208 Plan Update depends. In the event that existing entities fail to volunteer to assume the responsibilities of a WMA or WMAs fail to act in accordance with the Final 208 Plan Update, **MassDEP must exercise its authority under state law to mandate water pollution abatement districts (WPAD) on the Cape.**<sup>7</sup> The Draft 208 Plan Update states that in the event no such WMA is designated by June 30, 2015, MassDEP shall designate a WPAD for each watershed.<sup>8</sup> This recommendation provides a critical enforcement mechanism to ensure that action is taken to remediate nitrogen pollution on Cape Cod.

---

<sup>4</sup> CWA §208(c)(2)(A)-(I).

<sup>5</sup> Draft 208 Plan Update at 5-21 to 5-22.

<sup>6</sup> Id. at 5-22.

<sup>7</sup> Id. at 5-24 to 5-25.

<sup>8</sup> Id. at 5-25.

MassDEP is authorized to mandate a WPAD if it deems that such district is necessary for the prompt and efficient abatement of water pollution.<sup>9</sup> A district is an independent entity administered by a district commission.<sup>10</sup> MassDEP has the power to appoint members including the executive director who must be a professional engineer.<sup>11</sup> The district then has one year, or less, to present an abatement plan to MassDEP.<sup>12</sup>

The recommendation that MassDEP designate a WPAD does not go far enough, however. If by June 30, 2015, existing entities have failed to volunteer as WMAs, MassDEP must act and compel the WMA to develop a watershed plan and permit in order to meet water quality standards. The Coalition suggests adding a recommendation to the Draft 208 Plan Update which states that **MassDEP shall mandate water pollution abatement districts for those watersheds where designated WMAs have failed to act by June 30, 2016.**

**C. MassDEP must reform Title 5 and designate watersheds with nutrient impaired waters as Nitrogen Sensitive Watersheds.**

The Draft 208 Plan Update recommends several regulatory reforms including a recommendation that the MassDEP designate those Cape Cod watersheds contributing to degraded marine estuaries as Nitrogen Sensitive Watersheds.<sup>13</sup> As an incentive for WMAs to act, the Draft 208 Plan Update suggests that the regulatory burden designating nitrogen sensitive watersheds places on homeowners be stayed for a period of 12 months while WMAs are designated. The Coalition agrees that the enforcement of this recommendation be stayed for some interim period to incentivize WMAs to voluntarily act to formulate a watershed management plan to meet water quality standards. However, in the event action is not taken, MassDEP must enforce.

While the Coalition supports this recommendation, in that watersheds on Cape Cod with nitrogen impaired waterbodies should be designated as nitrogen sensitive watersheds pursuant to 310 CMR 15.215, the recommendation falls short. MassDEP must reform Title 5 with respect to discharges within nitrogen impaired watersheds.

It is the ongoing implementation of Title 5 as the default wastewater management regulation for developments discharging under 10,000 gallons per day which is primarily responsible for the degradation of water quality on Cape Cod and throughout southeastern Massachusetts. Title 5 regulations focus on treating residential wastewater for pathogens and not reducing nitrogen. Even the nitrogen sensitive embayment provisions of Title 5 referenced in the Draft 208 Plan Update do not go far enough. Title 5 regulations exclude a new four bedroom home on one acre in a nitrogen impaired watershed from using a nitrogen reducing or innovative alternative septic system, allowing new homes to be constructed within a nitrogen sensitive watershed without nitrogen reducing technology. This is an unacceptable result.

---

<sup>9</sup> Id. at 5-9.

<sup>10</sup> Id.

<sup>11</sup> Id.

<sup>12</sup> Id.

<sup>13</sup> Id. at 8-2.



- i. **MassDEP should require nitrogen reducing septic systems within 500 feet of all nitrogen impaired waterbodies.**

MassDEP should follow the leadership of the town of Wareham. In 2012, the town of Wareham's Board of Health passed a nitrogen reduction regulation requiring ANY new construction within 500 feet of a water resource to install a nitrogen removing septic system capable of reducing nitrogen by 50%.<sup>14</sup> This regulation includes all single family residences including those new four bedroom or less homes that would not be subject to current Title 5 regulations. Furthermore, the Wareham regulation applies to existing systems seeking to expand the actual or design flow.<sup>15</sup> The Coalition urges the Draft 208 Plan Update to make the following recommendation with respect to Title 5, **"MassDEP must reform Title 5 to address Nitrogen Pollution from all Single Family Homes."**

- ii. **MassDEP should amend Title 5 to reduce the standard for nitrogen reducing septic systems from 19mg/L to 10mg/L.**

Furthermore, MassDEP must lower the nitrogen limit for state-approved nitrogen reducing systems to 10mg/L to at least meet drinking water standards. It is well established that the average Title 5 septic system discharges 35mg/L of nitrogen to groundwater, more than 3 times the safe drinking water standard of 10mg/L, and 10 times higher than nitrogen levels considered appropriate for coastal water quality. While MassDEP establishes a nitrogen limit of 19mg/L for nitrogen reducing septic systems, this standard achieves only a 50% reduction over a Title 5 system and many approvable technologies exist on the market today to support a limit of 10mg/L.

- iii. **MassDEP should streamline the approval of nitrogen-reducing systems.**

It is important that MassDEP streamline the permitting and use of effective innovative and alternative nitrogen reducing systems in order to provide communities, developers, and homeowners with a variety of viable cost effective options to reduce nitrogen from on-site septic systems. The Coalition urges MassDEP must more effectively research, review, and evaluate innovative and alternative on-site wastewater treatment systems and emerging technologies. Making effective nitrogen reducing systems more mainstream will reduce nitrogen pollution, lower the cost of systems, and improve water quality in Buzzards Bay.

- D. **Successful implementation of the Draft 208 Plan Updates relies on the issuance of strong watershed permits and regulations as well as adaptive management with performance thresholds.**

Actual nitrogen reductions will rely on the strength of MassDEP Watershed Permits. It is the Coalition's understanding that the Watershed Permits will be based on an Adaptive Management approach whereby non-traditional alternatives may be applied and assessed for their ability to remove or remediate nitrogen. This approach may help reduce traditional infrastructure footprints and allows WMAs flexibility to attempt to solve the nitrogen pollution problem in alternative ways and perhaps for

---

<sup>14</sup> Wareham Board of Health Water Quality Protection Regulations.

[http://www.wareham.ma.us/Public\\_Documents/WarehamMA\\_Health/BOH%20Regulations/WATER%20QUALITY%20SEPTEMBER%20FINAL\[1\]%20ed%20pac91813.pdf](http://www.wareham.ma.us/Public_Documents/WarehamMA_Health/BOH%20Regulations/WATER%20QUALITY%20SEPTEMBER%20FINAL[1]%20ed%20pac91813.pdf) last visited November 18, 2014.

<sup>15</sup> Id.

lower costs. While the Coalition supports this model, the Watershed Permits must include specific performance thresholds for non-traditional technologies and must limit the time that under-performing technologies can be considered.

i. **The Draft 208 Plan Update undervalues the utility of traditional wastewater technologies.**

In an effort to cast as wide a net around as many technologies as possible to reduce nitrogen pollution in Cape Cod's waters, the Draft 208 Plan Update paints an overly optimistic picture of non-traditional technologies and underestimates the value of sewerage solutions.

Traditional sewers, whether cluster or centralized, can solve the nitrogen pollution problem. Sewer systems can achieve a 100% reduction in nutrients within a watershed when the wastewater is treated to a high degree and discharged outside the watershed. Unlike many of the non-traditional technologies discussed in the Draft 208 Plan Update, sewerage is a reliable, proven technology with long and predictable life-cycles and is likely the most affordable and effective solution for densely developed areas.<sup>16</sup>

The town of Falmouth's recent experience with the Little Pond betterment exemption program illustrates a clear preference for reliable sewer infrastructure and rejection of non-traditional eco-toilet alternatives. In Falmouth a home in the Little Pond sewer area could opt for an eco-toilet and be exempt from the sewer betterment. However, of the 1400 possible candidate properties, only 2 took advantage of the exemption program.<sup>17</sup>

The Draft 208 Plan Update should not undersell usefulness of sewerage technologies. They are almost certain to play the leading role in cleaning up nitrogen pollution on Cape Cod.

ii. **The adaptive management framework will result in improved water quality only if minimum nitrogen reduction thresholds are met.**

The Draft 208 Plan Update suggests that each WMA will develop a targeted adaptive management plan for each watershed that encompasses a carefully planned set of practices designed to meet the specific nutrient management targets in the most cost effective and beneficial manner possible.<sup>18</sup> This adaptive management framework is structured in five year increments. The Draft 208 Plan Update suggests that at the completion of each five year period, an evaluation of the performance of deployed technologies takes place.<sup>19</sup> **This adaptive management framework will result in the achievement of water quality standards only if minimum nitrogen reduction thresholds are met at the end of each five year assessment.** Watershed permit regulations, and permits issued thereunder, must require that at least 35% of the total nitrogen required to be reduced within the watershed be reduced within the first five years. In the event that the 35% reduction requirement is not met, MassDEP must ensure that the adaptive management plan includes the implementation of proven solutions that will guarantee

---

<sup>16</sup> Draft 208 Plan Update at 3-44.

<sup>17</sup> Cape Cod Times November 17, 2014. <http://www.capecodtimes.com/article/20141117/NEWS/141119663> last visited November 18, 2014.

<sup>18</sup> Draft 208 Plan Update at 4-14.

<sup>19</sup> Id.



nitrogen reductions in the amount of 70% by the second five year assessment, or after 10 years. If MassDEP fails to increase the pressure in each successive five year period, financial and temporal investment in unsuccessful approaches may continue resulting in continued water quality degradation for decades. The permits must drive the WMAs towards proven technologies quickly if non-traditional technologies fail or underperform.

In addition to developing minimum performance standards and best management practices for the use of non-traditional or alternative technologies, a robust, long-term monitoring program must be implemented for each of the technologies in order to measure their effectiveness as well as to assess whether water quality goals have been met in the surface waters. Such monitoring requirements, once established, must be incorporated into the watershed permit as enforceable permit requirements.

The Draft 208 Plan Update indicates that the MassDEP shall implement watershed permit regulations by March 2015. If this ambitious, and requisite, timeframe is to be complied with and allow for meaningful public comment, MassDEP must issue draft regulations within the next four weeks.

## **II. Federal Government must take an active role to ensure implementation.**

The Draft 208 Plan Update outlines the requisite local and state regulatory reforms necessary to support plan implementation. However, the Coalition believes that the US EPA is required to play a role in implementation. The Draft 208 Plan Update's chronic characterization of septic systems as non point sources is a direct result of the US EPA's scientifically-indefensible position that septic systems be abandoned to such definition. The Coalition disagrees with this characterization.<sup>20</sup> The US EPA's rigid approach to wastewater discharges from septic systems is in large part to blame for the wastewater challenge the Cape faces today. Ample evidence exists to illustrate why septic systems on Cape Cod should not be relegated to a non point source definition and the US EPA has the ability and responsibility to assess innovative approaches to this problem. The US EPA possesses the regulatory authority to assert jurisdiction over septic system discharges and must work towards new regulatory approaches to protect the waters of southeastern Massachusetts. The Coalition urges the US EPA to take a more active role in regulating the discharges from septic systems.

## **III. The Draft 208 Plan Update underestimates nitrogen removal requirements in the following Buzzards Bay watersheds without Massachusetts Estuaries Reports: Buttermilk Bay, Little Sippewissett Marsh, Megansett Harbor, Red Brook Harbor, and Pocasset River.**

The Draft Plan appropriately outlines a watershed planning approach which begins with establishment of nutrient reduction goals for each watershed.<sup>21</sup> These reduction goals are determined in

---

<sup>20</sup> In 2010, the Coalition initiated litigation against the US EPA for the agency's failure to designate septic systems as point sources in TMDL documents. It is clear from recent jurisprudence that discharges to groundwater are point sources under the federal Clean Water Act. The US District Court for the District of Hawaii held that the County violated the Clean Water Act by discharging effluent into four underground injection wells without a NPDES permit. Hawai'i Wildlife Fund, et al. v. County of Maui, 2014 U.S. Dist. LEXIS 74256 (D. Haw., May 30, 2014).

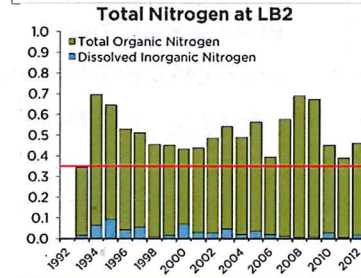
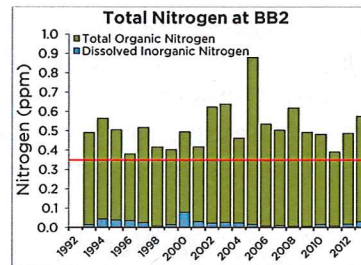
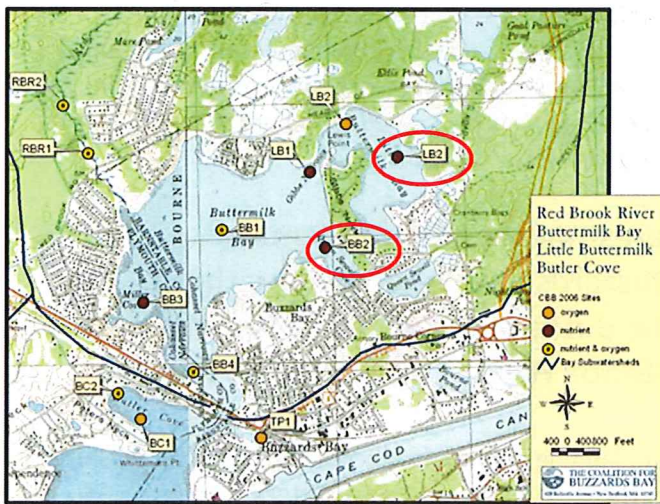
<sup>21</sup> Draft 208 Plan Update at 4-11.

Massachusetts Estuaries Project (MEP) Reports. The majority of nutrient impaired waterbodies on Cape Cod have the benefit of an MEP Report establishing nutrient removal rates within each watershed that will restore water quality. Unfortunately, MEP reports have not been prepared for every threatened waterbody on Cape Cod. Specifically, within the Buzzards Bay watershed, Buttermilk Bay, Little Sippewisset Marsh, Megansett Harbor, Pocasset Harbor (Red Brook Harbor), and Pocasset River are all without MEP Reports and are unlikely to receive a report in the near term. This leaves these embayments without the necessary nitrogen reduction targets to move forward with watershed planning. The Draft Plan suggests that for those watersheds without MEP reports an interim target of 25% nutrient reduction is assumed.<sup>22</sup> **We strongly believe that a 25% reduction underestimates the amount of nitrogen that needs to be removed from within these watersheds in order to meet water quality standards.**

More than twenty years of nutrient related water quality data collected by the Coalition’s Baywatchers monitoring program shows that these estuaries are degraded requiring significant reductions in nitrogen.

**Example One: Buttermilk Bay – Bourne**

The mean total nitrogen measured by the Coalition for Buttermilk Bay at monitoring station BB2 is .52mg/L and for Little Buttermilk Bay at monitoring station LB2, .51mg/L with total nitrogen levels as high as .9mg/L, nearly three times the healthy estuarine nitrogen load of .35mg/L. **Nitrogen levels exceed .35mg/L 100% of the time in the last decade for this system.** Compare this average with the average total nitrogen concentration in Phinneys Harbor of 0.375mg/L<sup>23</sup>. A harbor which the Draft 208 Plan Update states requires a 68% of total nitrogen load removal.<sup>24</sup> Clearly, Buttermilk Bay and Little Buttermilk Bay will require more than a 25% nitrogen reduction.



<sup>22</sup> Id.

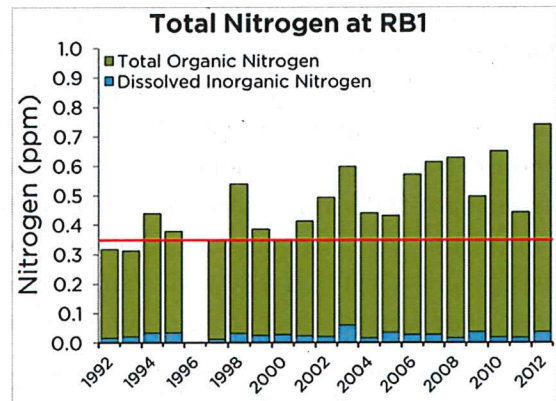
<sup>23</sup> Howes, B., S.W. Kelley, J.S. Ramsey, R.Samimy, D. Schlezinger, E. Eichner (2006). Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Phinneys Harbor- Eel Pond – Back River System, Bourne, Massachusetts. Massachusetts Estuaries Project, Massachusetts Department of Environmental Protection. Boston, MA at 85.

<sup>24</sup> Draft 208 Plan Update at 4-19.



**Example Two: Red Brook Harbor – Bourne**

Similarly, Red Brook Harbor, referred to in the Draft 208 Plan Update as Pocasset Harbor, also exhibits elevated levels of total nitrogen. Coalition water quality monitoring data show that the average nitrogen levels at monitoring station RB1 are .48mg/L, also higher than the average nitrogen concentration for Phinneys Harbor. It is clear that Red Brook Harbor will also require more than a 25% reduction in nitrogen inputs.



Cape-wide, the average amount of nitrogen required to be removed from a watershed is 48%. The average nitrogen removal required in a Cape Cod embayment within the Buzzards Bay watershed is 43%. At a minimum, the nitrogen reduction target for watersheds without the benefit of an MEP Report must be 43% and not 25%. Furthermore, this reduction requirement may be refined by comparing the physical characteristics and land use patterns of a watershed and estuary without an MEP Report to similar physical characteristics and land use patterns of a watershed and estuary with an MEP Report and the nitrogen reduction target estimated. **The Coalition urges the Cape Cod Commission to increase the percentage of nitrogen removal required for non MEP watershed to 43%.**

This underestimation unfairly de-prioritizes these watersheds for the Upper-Cape. In order to prioritize watersheds for study, the Draft 208 Plan Update ranked watersheds with criteria including habitat, total nitrogen load, percent septic nitrogen removal required after attenuation, percent nitrogen attenuated by natural processes.<sup>25</sup> Consequently, the watersheds without MEP Reports ranked at the bottom.

Furthermore, the Coalition requests that Figure 2-11 “TMDL Status for Each Watershed” be amended to reflect current conditions.<sup>26</sup> Only two TMDLs have been approved for Buzzards Bay Cape Cod embayments, Phinneys Harbor and West Falmouth Harbor. MEP Reports are final for Rands Harbor/Fiddlers Canal, Wild Harbor and Quissett Harbor. There are no planned MEP reports for Buttermilk Bay, Sippiwissett, Megansett/Squeteague, and Pocasset/Red Brook Harbor.

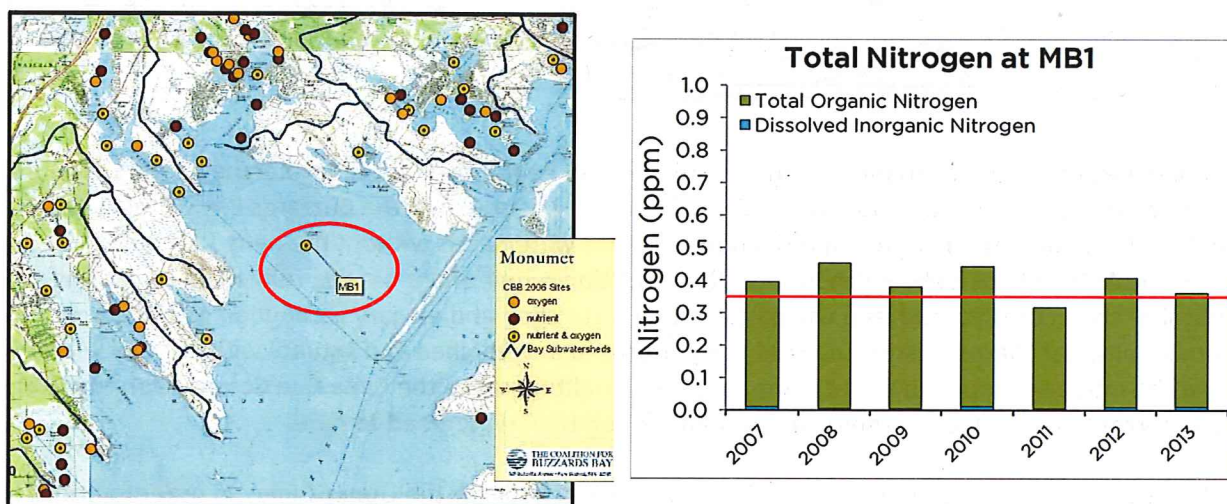
<sup>25</sup> Id. at 4-4.

<sup>26</sup> Id. at 2-9.

Lastly, the Final Plan must indicate what steps are needed in order to avail the non MEP Report estuaries with similar information. The Coalition would welcome the opportunity to work with the Cape Cod Commission to develop nutrient loading reports for these orphaned estuaries.

#### IV. The evaluation of Joint Base Cape Cod as a regional solution.

It is clear that the Draft 208 Plan Update considers Joint Base Cape Cod (JBCC) a potential regional asset for water quality restoration. The Draft 208 Plan Update reports that the Commission is developing a grant application for submission to the Office of Economic Adjustment, US Department of Defense, for funds to conduct a feasibility study of the potential scenarios under which the JBCC wastewater treatment plant and its rapid infiltration beds may be shared with the Upper Cape towns. The results of that study are anticipated this fall.<sup>27</sup> The Coalition looks forward to reviewing the results of that study and while the Coalition is not opposed to consideration of JBCC as a regional solution, a thorough assessment of the impacts to upper Buzzards Bay of any increase in nitrogen from wastewater discharge to the Cape Cod Canal must be completed. Upper Buzzards Bay is already experiencing elevated levels of nitrogen. It is highly likely that discharges of new sources of nitrogen from outside the Buzzards Bay watershed would further cause or contribute to the degradation of Buzzards Bay water quality.



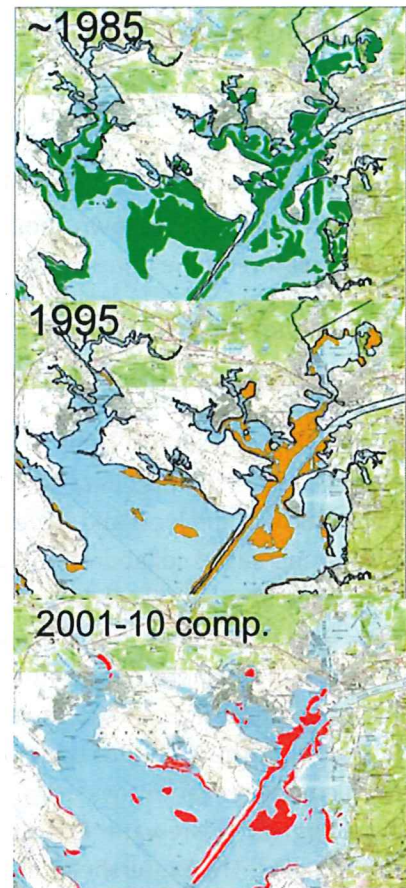
Data collected at the Coalition’s monitoring station MB1 in upper Buzzards Bay, near the southerly end of the Cape Cod Canal, regularly records total nitrogen levels at 0.4mg/L and above. This is a relatively high total nitrogen concentration for an open embayment and a level high enough to make it difficult for eelgrass to grow. The Massachusetts Estuaries Project (“MEP”) has consistently found, for near coastal embayments, that a total nitrogen level greater than 0.35mg/L is likely to result in eelgrass loss.

In addition to the Coalition’s water quality data showing water quality decline, the loss of eelgrass indicates that nitrogen pollution is degrading the ecology of the upper Bay. Eelgrass surveys completed over the last two decades and reported in the 2013 Buzzards Bay Comprehensive Conservation

<sup>27</sup> Id. at 6-12.



Management Plan indicate that the levels of nitrogen measured by the Coalition in upper Buzzards Bay are consistent with the significant eelgrass losses suffered in the upper Bay (Figure 1).



*Figure 1 Recent losses of eelgrass in northern Buzzards Bay. Costa, J. E., ed. 2013. Buzzards Bay Comprehensive Conservation Management Plan 2013 Update at 68.*

## **V. Queen Sewell Park in Bourne is not an ideal location for wastewater disposal.**

In 2014, on behalf of the town of Bourne, Weston & Sampson completed a hydrogeologic study of a wastewater discharge at Queen Sewell Park. The hydrogeologic study modeled the discharge to determine the path to surface waters from the groundwater discharge at Queen Sewell Park. The results indicate that 32% of the treated effluent discharges to Buttermilk Bay and 68% into the Cape Cod Canal. As stated above, Buttermilk Bay is already overloaded with nitrogen requiring a substantial decrease in the existing nitrogen load. Even the hydrogeologic study acknowledges that mitigation strategies for nitrogen loading to already impaired receiving water bodies, Buttermilk Bay, will likely need to be addressed.

State law requires offsets for new nitrogen discharges into impaired waterbodies like Buttermilk and Little Buttermilk Bay. This “no-net nitrogen” standard, enforced by MassDEP through the groundwater discharge permit program, means that for every new pound of nitrogen discharged, one pound of existing nitrogen must be removed. If the contemplated wastewater treatment facility achieves a nitrogen effluent of 5mg/L, a total of 3,600 pounds of new nitrogen will be discharged to the Cape Cod Canal and 1,600 pounds will be discharged to Buttermilk Bay each year. In the event that the Town pursues a discharge at Queen Sewell Park, the Town will be required to remove 1,600 lbs of existing

sources of nitrogen to Buttermilk Bay to offset the new nitrogen load.

Additional wastewater solutions are available to the town of Bourne and should be considered. Discharging wastewater into groundwater results in near shore discharges into our most sensitive harbors and coves like Buttermilk Bay. Alternatively, an ocean discharge could bypass such sensitive marine resources. The town should assess whether the permitting of an ocean discharge into the well-flushed waters of the Cape Cod Canal is a viable alternative in this instance.

## **VI. Planning and decision making tools created to support the Draft 208 Plan Update will assist the region in considering and developing solutions.**

Several decision support tools were developed to facilitate the assessment of watershed plans. These tools will make complex data sets easier to understand and provide an avenue for increased informed deliberation at the local and hyper-local planning levels.<sup>28</sup> The development of these tools opens the door for increased collaboration around watershed planning. Among the tools created is the Triple Value Simulation (3VS) model. The 3VS model will consider the broader environmental and societal costs of environmental degradation and estimate the costs of doing nothing and then compare policy intervention scenarios of potential actions.<sup>29</sup> The draft plan indicates that the 3VS model will be rolled out in two phases. The Coalition sees this as a valuable decision making tool and encourages the expedition of the rollout of both phases. Other tools include, WatershedMVP (multi-variant planner), which compares various wastewater options at different scales. The Watershed Tracker which tracks parcel-specific wastewater loads to subembayments. The Site Screening Viewer for Non-Traditional Technologies, The Watershed Calculator which tracks cumulative nitrogen reductions through layered applications of technologies and finally the Triple Bottom Line Analysis which considers financial, environmental, and social consequences of water quality investments. The Coalition applauds the creation of these tools and encourages the Cape Cod Commission to roll out a tutorial program to encourage the community to avail themselves of this new information.

## **VII. WMAs may consider ocean outfalls as wastewater disposal alternatives where appropriate.**

After the release of the Draft 208 Plan Update, legislation was signed into law in August 2014 substituting the old variance procedure of the Ocean Sanctuaries Act for a MassDEP approval process for ocean outfalls of highly treated wastewater.<sup>30</sup> The law allows MassDEP to approve an ocean outfall only if a series of conditions are met, including: no adverse impact to ocean water quality, no adverse impact to groundwater quantity, advanced treatment of all new discharges to oceans in southeastern Massachusetts and Cape Cod. Furthermore, the law requires: the completion of a Massachusetts Environmental Policy Act (MEPA) analysis, including the Secretary's Certificate on a Final Environmental Impact Report; a MassDEP-approved Comprehensive Wastewater Management Plan for communities

---

<sup>28</sup> Id. at 4-4.

<sup>29</sup> Id. at iii.

<sup>30</sup> Chapter 259 of the Acts of 2014.



seeking a discharge; a robust scientific assessment of the location of the proposed discharge, and a scientific assessment of the potential impacts to the aquifer.

It is the Coalition's position that solving the nitrogen pollution problem will require a diverse mix of technologies and approaches. Consideration of an ocean outfall, where appropriate, gives communities an additional tool to consider to remediate nitrogen pollution in our coves and harbors. Specifically, an ocean outfall allows a community or a WMA to discharge the nitrogen outside the watershed. Prior to the recent legislative amendment, the direct discharge of treated wastewater to state ocean sanctuaries was prohibited. This prohibition forced communities to pursue groundwater discharges of wastewater. Groundwater, moving at an average rate of one foot per day on Cape Cod, carries and ultimately discharges the nitrogen to near coastal embayments.<sup>31</sup> The impact that nitrogen discharged to the groundwater has on coastal embayments is a major cause for concern because these coastal embayments are primary habitats for shellfish, spawning grounds for commercially-important fish stocks, and primary recreational areas.<sup>32</sup> Now, municipalities or WMAs may consider whether highly treated wastewater discharged directly to deep well flushed ocean waters through an ocean outfall, bypassing near coastal embayments, is a solution. The Draft 208 Plan Update should include this as an option it supports for analysis.

### **VIII. Future updates to the 208 Plan must evaluate climate change impacts to water quality.**

The effects of climate change, including increasing water temperatures and rainfall, have the potential to exacerbate the extent of water quality degradation from well-known pollution sources such as wastewater and stormwater runoff. Currently, the Buzzards Bay Coalition is working with partners at the Woods Hole Oceanographic Institution, the Buzzards Bay National Estuary Program, and the Marine Biological Laboratory to examine how climate change may be influencing water quality in Buzzards Bay. Preliminary data suggests that rising water temperatures may be intensifying the impacts of nitrogen pollution. The average summer water temperature in Buzzards Bay since 2003 has been about 1 °F higher than the average summer water temperature for the first decade of monitoring (1992-2002). Water quality degradation over the last 20 years has occurred in areas where nitrogen concentrations have remained relatively constant, which may be a result of warmer waters supporting a longer growing season for algae. This suggests that nitrogen pollution loads may result in greater water quality degradation than currently anticipated due to rising water temperatures from climate change.

An additional threat to coastal water quality is ocean acidification, which has only recently begun garnering serious attention from the scientific and marine policy communities. Coastal ocean acidification is caused by both rising atmospheric carbon dioxide and from nutrient pollution that stimulates algal blooms. Acidification makes it more difficult for shellfish such as oysters, quahogs, and bay scallops to produce their shells and is already damaging shellfish aquaculture operations in the

---

<sup>31</sup> Draft 208 Plan Update at 2-7.

<sup>32</sup> *Id.* at 2-6.

Pacific Northwest.<sup>33</sup> As filter feeders, shellfish provide a natural means of removing algae from the water column and stimulating denitrification, thereby removing nitrogen from the system. The 208 Plan indicates that seeding/culturing shellfish may be a mechanism for reducing nitrogen in local waters. As better information develops, it will be necessary to consider how climate change impacts will influence the ability of local waters to support healthy populations of shellfish and thereby maintain their ecosystem services.

Climate change will lead to warmer, more acidic waters. The impact of these changes on coastal water quality is an area of active research. The Coalition urges the next update of the 208 Plan to take into consideration the impacts of climate change on water quality.

### Conclusion

The Draft 208 Plan Update recommends a novel approach to solving the wastewater issue plaguing Cape Cod. The Draft 208 Plan Update builds upon a framework of collaboration and engagement to formulate solutions which meet water quality standards. However, enforcement backstops including MassDEPs designation of WPADs, critical Title 5 regulatory changes, and the requirement for traditional wastewater technologies where non-traditional approaches fail or underperform, are necessary to ensure that the positive forward momentum achieved in this document continues through implementation.

Thank you for the opportunity to participate as a stakeholder and comment on the Draft 208 Plan Update.

Sincerely,



Mark Rasmussen  
President  
[rasmussen@savebuzzardsbay.org](mailto:rasmussen@savebuzzardsbay.org)  
(508) 999-6363 ext 201



Korrin N. Petersen, Esq.  
Senior Attorney  
[petersen@savebuzzardsbay.org](mailto:petersen@savebuzzardsbay.org)  
(508) 999-6363 ext 206

Cc: US Environmental Protection Agency  
MA Department of Environmental Protection

Town of Bourne Board of Selectmen  
Town of Falmouth Board of Selectmen

---

<sup>33</sup> Washington State Blue Ribbon Panel on Ocean Acidification. 2012. Ocean acidification: From knowledge to action, Washington state's strategic response. H. Adelsman and L. Whitely Binder (eds). Washington Department of Ecology, Olympia, Washington. Publication no. 12-01-015.