



# United States Department of the Interior

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IN REPLY REFER TO:  
D18

November 20, 2014

Paul Niedzwiecki  
Cape Cod Commission  
3325 Main Street, PO Box 226  
Barnstable, MA 02630


Dear Mr. Niedzwiecki:

We have reviewed and discussed the Draft 208 Cape Cod Area Wide Water Quality Management Plan Update. The Commission and Consensus Building Institute should be commended for the excellent work in the compressed timeframe. The stakeholder process was well run and worth the time spent by seashore staff.

We commented along the way on the main body of the report as stakeholders. Therefore, our comments on the document tend toward the technical side (see attached). We have some comments on the Executive Summary, Outer Cape watershed plans, and Recommendations and Implementation sections. We will also want to comment when Lower Cape watershed plan recommendations are available.

We appreciate the hard work of the Commission, your inclusion of CCNS staff in the stakeholder working groups and technical assessment processes. We hope you find these comments useful to make the extensive report as good as it can be. You may contact Park Planner Lauren McKean or Aquatic Ecologist Sophia Fox if you have any questions or would like further information regarding our comments.

Sincerely,

  
George E. Price, Jr.  
Superintendent

cc:  
Rich Delaney, CCNS Advisory Commission

**CCNS Comments on Draft 208 Plan**  
**November 2014**

**General**

- The text boxes at the beginning of chapters should be repeated in the body of the text, so the reader doesn't skip over it. It is not clear that they are to be read first as the beginning of the chapter.
- The need for pilot programs in Cape Cod estuaries for many technologies is understated. It is incorporated in the technology matrix, but not addressed directly in the summary and elsewhere, which would be worthwhile.
- Also, express that you see a role of CCC in communicating results of ongoing activities successes and lessons learned to all watershed groups, particularly pilot programs.

**Executive Summary**

- There is so much information that it is difficult to tease out the purpose, scope, and bottom line of the project, so we recommend it be reorganized for better flow and focus. The executive summary seems to have a bit of each chapter. Those readers who have not been involved in the stakeholder process will be easily lost in the all of the details that are well laid out in the chapters.
- The order that information appears in the chapters may not be the best order for the summary. However, the text boxes and next introductory paragraph at the beginning of each chapter convey the plan message in a cleaner fashion, and some of them should be reused as a starting point for a concise executive summary.
- The summary could be simplified to outline the synthesis of the plan: goals, process, watersheds, the watershed approach vs. parochial approach; uniqueness of the Cape; nitrogen sources; and then, the problem, cost of doing nothing, and how the plan addresses the problem – the technologies, the watershed adaptive management approach, traditional vs. alternate and hybrid solutions, and permitting and financial solutions.
- The alternate technologies matrix and problem solving approach chart would be a good insert.
- The Three Bays hypothesis testing could be an inset box, or pare the message down to a few sentences or a paragraph.
- The Regulatory framework section is best left to background chapters, although the gist of it could be included in a paragraph.
- When talking about Title V septic systems, it seems more accurate to say little nitrogen removal rather than incomplete.
- When describing the problem, it is great to talk about the ecological impacts, but also mention the public health issues.
- When talking about the cost of doing nothing, it would be relevant and important to include a direct discussion of the tourism economy for restaurants, hotels, and communities.
- The idea that freshwater ponds are phosphorus limited has been disproven for Cape Cod ponds, which are nitrogen and phosphorus limited (see Kniffen et al 2009, Smith and Lee 2012).
- Some of the sentences in the Groundwater and Emerging Concerns contradict each other concerning water quality, particularly the last paragraph

## Technologies matrix

- There are unedited cutting and pasting typos throughout the matrix. They detract and can serve to discredit the great information provided here.
- We still have concerns regarding the lumping of dissolved nitrogen (nitrate and ammonium) with total nitrogen (primarily phytoplankton & other particulates in eutrophied systems). Removal of nitrogen in terms of reaching target reductions should not include particulates. Those technologies that focus on total nitrogen are truly water quality remediation, and should be distinguished from nitrogen remediation.
- Calculations of nitrogen removal by bivalves based on nitrogen in tissues of animals removed from the estuary at maturity should be per 2 years, not per year, since a mature oyster is about 2 years old, although hatchery seed can be sellable after only 1 year.
- These nitrogen removal technologies will be more effective in locations with smaller tidal ranges. In areas with large tidal flows, much of the phytoplankton consumed may be from a source outside of the embayment. Thus bivalves may serve to import nitrogen to the embayment from external sources.
- Advantages related to biodiversity, eelgrass, and fish proposed by this option are not likely in an active shellfishing environment (where animals are being harvested annually or biannually), and can be associated with all nutrient reduction technologies. It seems disingenuous to only mention them here and not for other technologies. Positive marine community impacts may be directly linked to an oyster reef restoration, but that is not an effective nitrogen removal option.
- There is growing evidence that up to 80% of nitrogen consumed as phytoplankton by oysters is deposited in the sediments as pseudofaeces. Depending on the ambient conditions, e.g. tidal range, flow regime, sediment microbial activity, and oxygen conditions, some of that sediment nitrogen may be released as bioavailable forms of nitrogen, e.g. ammonium. That sediment nitrogen release may increase nitrogen in the estuary rather than reduce nitrogen (see Thiet et al. 2014, Ecological Restoration).

## Chapter 8: Recommendations and Implementation:

- Clarify what “this” is in first sentence of middle column; paragraph needs editing. There is also some awkward phrasing that detracts from the chapter.
- Under **Support**, consider a stronger statement than “continued cooperation” about Mass DOT participation in reducing nutrient contributions from stormwater flowing from state roadways due to the significance of the negative impacts on nitrogen sensitive embayments. On the Outer Cape we have collectively identified specific Mass DOT problem areas, including Salt Pond, Ministers/Schoolhouse Pond, Bakers Pond and Mary Chase marsh in Eastham; Wellfleet Harbor, Hatches Creek, Fresh Brook, Blackfish Creek, and the wetlands surrounding the Main Street intersection with Route 6 in Wellfleet; Snow, Great, Ryder and Round Ponds, Pamet River and East Harbor/Pilgrim Lake in Truro. Stormwater improvements need to be defined, prioritized and implemented with strong participation by Mass DOT. Stormwater management is identified as a low hanging fruit, but this hinges on towns and Mass DOT coming to the table with corrective actions.
- The Joint Base Cape Cod issue should be separated from MassDOT as they are such separate concerns.

## Watershed Plans

### Pamet River:

- Make it clear whether there will or will not be an MEP report – the problem statement and degree of impairment text need to be consistent – why is there no report? - is it pending, not a priority, not planned, etc.? (this is applicable to all watersheds)
- The degree of impairment discussion does not include wastewater.
- Explain why the traditional and non-traditional targets don't start with the same number of Nitrogen kg/y. The target for non-traditional should not be higher simply due to fertilizer management and stormwater mitigation. The traditional approach should have to have fertilizer & storm water credits too.
- The oyster bed figure is incorrectly based on a one-year life cycle of oysters when should be based on three years. The figure should therefore be 83.3 kg/y of N removed, not 250 kg/y.
- Inlet/culvert widening at Pamet River by the post office should be considered an added option since the oyster bed reduction figure too high and more reduction is needed.
- Under management approaches, clarify what the preferred scenarios are versus what they are not – that this plan is an exercise to identify possible options, and the feasibility on the ground will help determine implementation choices.
- The scale of the Permeable Reactive Barriers is large, considering it is largely untested and town projects are generally not of this scale; we are hopeful that this technology will be cost effective so it can achieve desired results.
- Can there be more detail on how the CYCC golf course fertigation well is conceived?

### P-Town & Hatches Harbor:

- The ocean outfall information is presented as the same as Truro - Is this accurate, or an unedited cut and paste?
- Explain the “scenario nitrogen limit”. This is a new, unexplained concept on pg. 4-3.
- A 20-acre constructed wetland near the sewage treatment would be very difficult to implement due to the large number of ponds and wetlands and their associated protected species because constructed wetlands should not intersect natural pond & wetland water bodies.
- This watershed approach seems different from the others going well beyond the N removal target; it is unclear why.
- Why does Hatches Harbor have a symbol? The project is an existing condition.

### Wellfleet Harbor:

- The Gull Pond complex should be included in the watershed area (See USGS watershed maps)
- Inlet/culvert widening of Blackfish Creek has been suggested as an added option by the stakeholder group, and since oyster figure is high added measures would be needed.
- N removal target in W.H. is same as Pamet for Non-Traditional approach. This is a typo. The countdown appears to be from 8,461 N kg/y, although it says 1,086 N kg/y.