**UNITED STATES DISTRICT COURT**
**DISTRICT OF MASSACHUSETTS**

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| CONSERVATION LAW FOUNDATION, INC.,<br><br>Plaintiff<br><br>v.<br><br>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Regina McCarthy, Administrator<br><br>and<br><br>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION 1, Curt Spalding, Regional Administrator<br><br>Defendants | Case No.:<br><br>**COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF** |

Plaintiffs, for their Complaint against Defendants, state as follows:

## NATURE AND PURPOSE OF ACTION

1. Plaintiff, Conservation Law Foundation ("CLF"), brings this action pursuant to the Administrative Procedure Act ("APA"), seeking relief from Defendant United States Environmental Protection Agency's ("EPA") approval of inadequate Total Maximum Daily Loads ("TMDLs") addressing nitrogen pollution in specific embayments located on Cape Cod and Nantucket ("the embayments"). The TMDLs ("Cape Cod TMDLs")[1] do not conform to the

[1] Stage Harbor, Sulphur Springs, Taylors Pond, Bassing Harbor and Muddy Creek (Chatham) TMDLs for Total Nitrogen, approved by EPA Region 1 on June 21, 2006 ("Chatham 2006 TMDL"); Great, Green, and Bournes Pond Embayment Systems TMDLs for Total Nitrogen, approved by EPA Region 1 on July 18, 2007 ("Great, Green, and Bournes TMDL"); Pleasant Bay System TMDLs for Total Nitrogen, approved by EPA Region 1 on Oct. 24, 2007 ("Pleasant Bay TMDL"); Quashnet River, Hamblin Pond, Little River, Jehu Pond, and Great River (Waquoit Bay System) TMDLs for Total Nitrogen, approved by EPA Region 1 on Nov. 7, 2007 ("Waquoit Bay TMDL"); Centerville River – East Bay System TMDLs for Total Nitrogen, approved by EPA Region 1 on Dec. 20, 2007

requirements of the Clean Water Act ("CWA") and its implementing regulations. Therefore, Defendants' approval of the TMDLs was arbitrary and capricious, an abuse of discretion, and in violation of the APA, 5 U.S.C. § 706.

1. Defendants' approval of the Cape Cod TMDLs was also arbitrary and capricious because they ignored entirely an important aspect of the water problem facing the embayments: the actual and potential impacts of climate change on the attainment of water quality standards. As EPA has long acknowledged, a broad range of climate change impacts affect pollution loading and water quality in estuaries such as the embayments. Because the purpose of TMDLs is to attain water quality standards, the CWA requires EPA to consider climate change when reviewing the TMDLs.

2. As a result of Defendants' unlawful approvals of the Cape Cod TMDLs, nitrogen pollution has degraded, and will continue to degrade, the fragile ecosystems of the embayments, causing water quality impacts such as harmful algae blooms and excessive nuisance plant growth, low dissolved oxygen levels, and loss of eelgrass, a cornerstone species.

## PARTIES

3. Plaintiff CLF is a not-for-profit public interest environmental organization incorporated under the laws of the Commonwealth of Massachusetts with several thousand members throughout New England. CLF is a "person" as defined by the APA, 5 U.S.C. § 551(2).

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("Centerville River TMDL"); Popponesset Bay TMDLs for Total Nitrogen, approved by EPA Region 1 on Jan. 22, 2008 ("Popponesset Bay TMDL"); Phinney's Harbor Embayment System TMDLs for Total Nitrogen, approved by EPA Region 1 on Feb. 5, 2008 ("Phinney's Harbor TMDL"); Three Bays System TMDLs for Total Nitrogen, approved by EPA Region 1 on Feb. 13, 2008 ("Three Bays TMDL"); Little Pond Embayment System TMDLs for Total Nitrogen, approved by EPA Region 1 on Mar. 3, 2008 ("Little Pond TMDL"); Oyster Pond Embayment System TMDLs for Total Nitrogen, approved by EPA Region 1 on May 5, 2008 ("Oyster Pond TMDL"); West Falmouth Harbor Embayment System TMDLs for Total Nitrogen, approved by EPA Region 1 on May 5, 2008 ("West Falmouth Harbor TMDL"); Nantucket Harbor Bay System TMDL for Total Nitrogen, approved by EPA Region 1 on May 12, 2009 ("Nantucket Harbor Bay TMDL"); and Stage Harbor/Oyster Pond, Sulphur Springs/Bucks Creek, Taylors Pond/Mill Creek (Chatham Southern Embayments) TMDL Re-Evaluations for Total Nitrogen, approved by EPA Region 1 on June 22, 2009 ("Chatham Southern TMDL").

4. Defendant EPA is the agency of the United States Government responsible for administering and implementing the sections of the CWA relevant to this case.

5. Defendant Regina McCarthy, Administrator of EPA ("the Administrator"), is charged under 33 U.S.C. § 1313(d)(2) with oversight of EPA decisions regarding Massachusetts' TMDL submissions and is sued in her official capacity only. If so ordered by the Court, the Administrator has the authority and ability to remedy the harm inflicted by Defendants' actions.

6. Defendant EPA Region 1 is responsible for administering and implementing EPA's responsibilities under the CWA in Massachusetts.

7. Defendant Curt Spalding, Regional Administrator of EPA Region 1 ("the Regional Administrator"), is charged under 40 C.F.R. § 130.7(d) with oversight of EPA decisions regarding Massachusetts' TMDL submissions and is sued in his official capacity only. If so ordered by the Court, the Regional Administrator has the authority and ability to remedy the harm inflicted by Defendants' actions.

## JURISDICTION AND VENUE

8. The subject matter jurisdiction of this Court is invoked under 28 U.S.C. § 1331 (federal question), 28 U.S.C. § 2201 (declaratory judgment), and 5 U.S.C. §§ 701-706 (APA).

9. The relief requested is authorized by 28 U.S.C. §§ 2201-02 and 5 U.S.C. § 706.

10. Venue is appropriate in the District of Massachusetts pursuant to 28 U.S.C. § 1391(e) because the waters that are the subject of this action are located in Massachusetts, Plaintiff organizations are located, in part, in this judicial district, and Defendants have an official place of business in this District.

## STATUTORY AND REGULATORY BACKGROUND

11. The CWA's goal is restoration and protection of water quality. CWA § 101(a), 33 U.S.C. § 1251(a). It aims to eliminate "the discharge of pollutants into the navigable waters" and

to attain "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." *Id*.

12. The CWA defines "navigable waters" as "waters of the United States." CWA § 502(7), 33 U.S.C. § 1362(7). The coastal embayments of Cape Cod are waters of the United States as that term is defined in EPA's implementing regulations. 40 C.F.R. § 122.2.

13. To achieve its end of restoring and protecting water quality, the CWA requires states to establish water quality standards ("WQS") and periodically identify waters that do not meet those standards even after nationwide, technology-based pollution controls standards have been imposed by EPA pursuant to the CWA. CWA § 303(a)-(d), 33 U.S.C. § 1313(a)-(d), 40 C.F.R. § 131.2.

14. States must develop TMDLs for the waters they identify as failing to meet WQS in spite of the baseline implemented controls. TMDLs set the maximum pollutant load that a body of water can receive while maintaining the WQS and must account for all contributing sources of pollution. CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C).

15. EPA regulations require that TMDLs include: (1) the "wasteload allocation" ("WLA"), or the portion of the pollutant load allocated to existing or future point sources; (2) the "load allocation" ("LA"), or the portion of pollutant load allocated to nonpoint sources; and (3) a margin of safety which takes into account any lack of knowledge concerning the relationship between pollution controls and water quality. CWA § 303(d)(4)(A), 33 U.S.C. § 1313(d)(4)(A), 40 C.F.R. §§ 130.7(c)(1), 130.2(i), (g), (h).

16. In other words, the TMDL equals the WLA, *plus* the LA, *plus* a margin of safety.

17. Reassigning the Sources to the WLA as point sources would subject them to the Federal NPDES permitting system rather than the discretionary state regulatory regime that

governs non-point sources. A "point source" is defined under the CWA as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." CWA § 502(14), 33 U.S.C. § 1362(14). EPA's implementing regulations follow this definition. *See* 40 C.F.R. § 122.2.

18. NPDES permits for point source discharges must contain limitations that are "necessary to meet water quality standards." CWA § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d). These limitations are known as water quality based effluent limitations ("WQBELs").

19. EPA regulations recognize that a TMDL WLA is "type of water quality-based effluent limitation." 40 C.F.R. § 130.2.

20. When a NPDES permit is issued for a point source discharging into a water that is subject to a TMDL, EPA regulations require that the permit's WQBELs be "consistent with the assumptions and requirements of any available [WLA]." 40 C.F.R. § 122.44(d)(vii)(B).

21. Once a source is determined to fall within the Act's regulatory definition of "point source," any discharge from such source is subject to the Act's strict liability prohibition of such discharge unless such point source discharge comes into compliance with specified provisions of the law, including but not limited to the requirement to obtain and comply with all the provisions of NPDES permit. 33 U.S.C. §§ 1311(a); 1342. Thus, at the time a discharge is categorized as a point source by EPA, a delegated state, or a court, such discharge is unlawful until either eliminated or in full compliance with a duly issued, final NPDES permit.

22. NPDES permit issuers may not consider cost as a factor in setting WQBELS to meet state water quality standards pursuant to Section 301(b)(1)(C). 33 U.S.C. § 1311(b)(1)(C).

23. EPA determined long ago that Section 302 of the Clean Water Act does not apply to setting WQBELs to meet state water quality standards pursuant to Section 301(b)(1)(C). See U.S. EPA, Office of the General Counsel, Opinion No. 37, 1976 WL 25231 (January 22, 1976).

24. As distinguished from point sources, a "nonpoint source" is any source of pollutants that is not a point source. EPA, Water: Polluted Runoff, http://water.epa.gov/polwaste/nps/whatis.cfm ("The term 'nonpoint source' is defined to mean any source of water pollution that does not meet the legal definition of 'point source' in section 502(14) of the Clean Water Act."). Nonpoint sources therefore fall outside of the definition of point source and are not subject to the NPDES permitting program of the CWA and are not subject to any other mandatory regulatory program.

25. States must submit their TMDLs to the EPA Regional Administrator for approval. CWA § 303(d)(2), 33 U.S.C. § 1313(d)(2), 40 C.F.R. § 130.7. The Commonwealth of Massachusetts submitted each of the Cape Cod TMDLs to EPA for approval.

26. EPA has emphasized that "it is impossible to evaluate whether a TMDL is technically sound and whether it will be able to achieve standards without evaluating component WLAs and LAs and how these loads were calculated. Thus, it is necessary for EPA to review and approve or disapprove a TMDL in conjunction with component WLAs and LAs." 50 Fed. Reg. 1771, 1775 (Jan. 11, 1985). EPA, Guidance for State Water Monitoring and Wasteload Allocation Programs 29 (Oct. 1985) ("When Regions review the state's TMDLs they should also consider how well the States are following the EPA technical guidance for conducting wasteload allocations.").

27. "Loading capacity" is a fundamental element of a TMDL because it determines the maximum pollution that a waterbody can receive without violating water quality standards. 30 C.F.R. § 130.2(f) (defining loading capacity). An inaccurate "loading capacity" can eviscerate the TMDL process; even if all pollution sources meet their allocated pollution limits, water quality standards may still not be attained if the waterbody's loading capacity is inaccurate.

28. EPA refers to factors that could affect loading capacity as "critical conditions."

29. A critical condition must be described and related to physical conditions in the waterbody as part of the analysis of loading capacity. 40 C.F.R. § 130.7(c)(1). Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that result in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.

30. EPA defines the "margin of safety" as "[a] required component of the TMDL that accounts for the uncertainty in the response of the waterbody to loading reductions."

31. EPA must address any factor affecting the adequacy of a margin of safety in its TMDL review process.

32. The EPA Regional Administrator must, within 30 days of State submittal, either approve or disapprove the TMDL. *Id*. As detailed in paragraphs 63-64 below, EPA approved each of the Cape Cod TMDLs.

33. EPA approval of a state-submitted TMDL is final agency action reviewable under the APA.

## FACTUAL BACKGROUND

**Factors Contributing to Nitrogen Pollution on Cape Cod**

***Cape Cod's Geology Makes its Embayments Highly Vulnerable to Nitrogen Pollution***

34. Cape Cod has unique soils and geology, and a highly productive groundwater aquifer that directly flows into the embayments.[2]

35. Cape Cod soils are sandy and very permeable, and therefore the aquifer flows through the soils of the Cape and into the affected embayments and other connected surface waters.

36. Discharges from septic systems, stormwater systems, and wastewater treatment facilities ("WWTFs") all add nitrogen to waters. Nitrogen is a "pollutant" under the CWA. CWA § 33 U.S.C. § 1362(6).

37. Nitrogen-polluted water from these sources moves directly through the aquifer and into connected surface waters, and ultimately into the embayments subject to the TMDLs at issue in this matter.

38. Nitrogen added into Cape Cod aquifers travels directly from its source, through the aquifer and into surface waters connected to the embayments. Travel time is further shortened by the presence of numerous sub-embayments within the embayment systems, allowing nitrogen to quickly reach directly connected surface waters.[3]

***The Ecological Threat of Nitrogen Pollution on Cape Cod***

39. The danger created by nitrogen pollution on Cape Cod is dire.

40. Nitrogen pollution is a devastating problem for coastal ecosystems and is the nutrient of primary concern in the waters subject to the Cape Cod TMDLs.

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[2] Cape Cod Commission, *Cape Cod Comprehensive Regional Wastewater Management Strategy Development Project Final Report* (2003), at 1.

[3] *See*, *e.g.*, Massachusetts Estuaries Project, *Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for Centerville River, Town of Barnstable, Massachusetts* (Nov. 2006), at 1.

41. These Cape Cod coastal embayment systems are already severely degraded by nitrogen pollution, and without major corrective action the problem will only get worse.

42. The Cape Cod embayments are partially enclosed waterbodies that cannot easily "flush out" nitrogen that enters them.

43. Increasing levels of nitrogen concentrations result in the unwanted proliferation of algae, epiphyton, nuisance plant species, and invasive species. This proliferation decreases water clarity, produces unpleasant odors and scums, and reduces dissolved oxygen levels. This process has led to decreased biodiversity, dramatic changes in the composition and dominance of species, and increased levels of toxicity. Severe cases of nitrogen pollution have led to major fish kills, increases in undesirable invasive species, reduced biodiversity, and loss of essential plant and animal species necessary for healthy ecosystems.

44. If left unabated, nitrogen will essentially suffocate the embayments of Cape Cod.

45. Excessive nitrogen inputs – and the resulting imbalances in other water quality parameters – kill eelgrass beds, a cornerstone species of the ecosystem in Cape Cod's embayments and an important indicator of water quality.[4] According to the Massachusetts Department of Environmental Protection ("MassDEP"), "[b]efore an ecosystem becomes totally degraded, much of its ecological and economic value has been lost. In many coastal systems, the beginning of this change is the loss of eelgrass." MassDEP, *Embayment Restoration and Guidance for Implementation Strategies* (2003), at 9. Because eelgrass health is such a useful proxy for and important factor in water quality, eelgrass restoration is a primary nitrogen management goal.[5]

[4] *See, e.g.*, Jennifer L. Bowen & Ivan Valiela, *The Ecological Effects of Urbanization of Coastal Watersheds: Historical Increases in Nitrogen Loads and Eutrophication of Waquoit Bay Estuaries* (2001), at 1497.
[5] *See, e.g.*, Pleasant Bay TMDL at 16.

46. Excessive nitrogen has already had dramatic impacts on eelgrass in Cape Cod's bays. Eelgrass beds across the region have significantly declined, and three of the TMDLs report a complete disappearance of eelgrass altogether in their targeted embayments.[6] The formerly healthy plant and animal communities supported by the eelgrass beds in many Cape Cod embayments are severely degraded, and the Cape Cod TMDLs acknowledge that, without proper nitrogen management, nitrogen loading is certain to increase further, accelerating this degradation.

47. Nitrogen discharged from the sources has resulted in degradation of the bays to the point that they currently do not meet the minimum requirements of the Commonwealth's EPA-approved water quality standards and are now listed as "water quality-limited segments" in need of TMDLs. 33 U.S.C. § 1313(d).

48. Dramatic reductions in current nitrogen loads must be implemented and enforced to meet the TMDLs and ultimately in order to meet water quality standards.

49. None of the reductions specified in the TMDLs have been achieved to date. *See* Table 1.

**Table 1. Total Nitrogen Loads Identified in Cape Cod TMDLs, Target Watershed Loads, and Percent Load Reductions Needed to Achieve Target Loads**

| TMDL | Date approved by EPA | Embayment System | Sub-embayment | Present Watershed Load (kg/day) | Present Septic System Load (kg/day) | Target Watershed Load (kg/day) | % Load Reductions Needed to Achieve Target Loads |
|---|---|---|---|---|---|---|---|
| Great, Green, and Bournes Pond | July 18, 2007 | Great Pond System | Great Pond | 49.10 | 36.36 | 18.81 | 60.50% |
| | | | Perch Pond | 5.37 | 4.47 | 0.90 | 83.30% |
| | | Green Pond System | Green Pond | 23.72 | 18.70 | 10.16 | 54.60% |
| | | Bournes Pond System | Bournes Pond | 12.90 | 10.71 | 3.28 | 74.60% |
| | | | Israels Cove | 2.05 | 1.78 | 0.27 | 86.80% |
| Pleasant Bay | October 24, 2007 | Pleasant Bay | Meetinghouse Pond | 6.20 | 5.14 | 1.06 | 83% |

[6] *See* Centerville TMDL at 5; Popponesset TMDL at 4-5; Three Bays TMDL at 7.

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|---|---|---|---|---|---|---|---|
| | | | The River – upper | 2.77 | 2.07 | 1.74 | 37% |
| | | | The River – lower | 3.88 | 2.87 | 2.44 | 37% |
| | | | Lonnies Pond | 2.44 | 1.63 | 1.63 | 33% |
| | | | Areys Pond | 1.30 | 0.78 | 0.92 | 29% |
| | | | Namequoit River | 2.74 | 2.01 | 1.73 | 37% |
| | | | Paw Wah Pond | 1.86 | 1.51 | 0.73 | 61% |
| | | | Pochet Neck | 8.42 | 6.61 | 4.12 | 51% |
| | | | Little Pleasant Bay | 8.13 | 4.99 | 5.88 | 28% |
| | | | Quanset Pond | 1.78 | 1.40 | 1.08 | 39% |
| | | | Round Cove | 4.23 | 3.16 | 2.96 | 30% |
| | | | Muddy Creek – upper | 9.98 | 7.16 | 4.61 | 54% |
| | | | Muddy Creek – lower | 8.48 | 6.34 | 2.14 | 75% |
| | | | Pleasant Bay | 29.28 | 14.87 | 21.85 | 25% |
| | | | Ryder Cove | 9.82 | 7.14 | 4.47 | 55% |
| | | | Frost Fish Creek | 2.90 | 2.20 | 0.70 | 76% |
| | | | Crows Pond | 4.22 | 3.33 | 4.22 | 0% |
| | | | Bassing Harbor | 1.67 | 1.40 | 1.67 | 0% |
| | | | Chatham Harbor | 17.10 | 14.20 | 17.10 | 0% |
| Waquoit Bay | November 7, 2007 | Hamblin Pond/Jehu Pond System | Upper Great River | 0.68 | 0.41 | 0.32 | 52.9% |
| | | | Lower Great River | 2.95 | 2.48 | 0.60 | 79.7% |
| | | | Upper Hamblin Pond | 5.42 | 4.56 | 2.06 | 62.0% |
| | | | Hamblin Pond | 3.84 | 3.47 | 1.34 | 65.1% |
| | | | Jehu Pond | 3.61 | 2.84 | 0.96 | 73.4% |
| | | | Little River | 1.11 | 0.96 | 0.43 | 61.3% |
| | | Quashnet System | Upper Quashnet River | 25.16 | 14.39 | 15.51 | 38.4% |
| | | | Lower Quashnet Rover | 0.79 | 0.57 | 0.41 | 48.1% |
| Centerville River | December 20, 2007 | Centerville River | | 70.95 | 57.98 | 34.18 | 52% |
| | | East Bay | | 8.63 | 6.30 | 8.63 | 0% |
| | | Scudder Bay | | 52.63 | 43.28 | 52.63 | 0% |
| Popponesset Bay | January 22, 2008 | Mashpee River | | 34.15 | 23.62 | 16.17 | 52.7% |
| | | Shoestring Bay | | 31.24 | 23.00 | 19.72 | 36.9% |
| | | Ockway Bay | | 3.15 | 2.39 | 0.76 | 75.9% |
| | | Pinquickset Cove | | 0.77 | 0.58 | 0.76 | 1.3% |
| | | Popponesset Bay | | 6.75 | 5.56 | 2.77 | 59.0% |
| Phinney's | February | Phinneys Harbor | | 14.75 | 12.61 | 4.69 | 68% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Harbor | 5, 2008 | Back River | | 9.63 | 5.19 | 9.63 | 0% |
| | | Eel Pond | | 4.89 | 4.24 | 4.89 | 0% |
| Three Bays | February 13, 2008 | Cotuit Bay | | 23.77 | 20.23 | 22.34 | 6% |
| | | West Bay | | 17.90 | 15.49 | 15.97 | 11% |
| | | Seapuit River | | 3.77 | 2.92 | 3.77 | 0% |
| | | North Bay | | 27.48 | 24.98 | 4.47 | 84% |
| | | Prince Cove | | 31.30 | 24.84 | 17.89 | 43% |
| | | Warren Cove | | 10.08 | 6.98 | 5.05 | 50% |
| | | Prince Cove Channel | | 5.02 | 4.77 | 0.77 | 85% |
| Little Pond | March 3, 2008 | Little Pond | | 19.07 | 10.42 | 5.36 | 72% |
| Oyster Pond | May 5, 2008 | Oyster Pond | | 5.07 | 3.61 | 1.53 | 70% |
| West Falmouth Harbor | May 5, 2008 | Outer West Falmouth Harbor | | 1.42 | 1.27 | 1.36 | 4% |
| | | Inner West Falmouth Harbor | | 16.48 | 2.09 | 5.30 | 68% |
| | | Harbor Head | | 0.89 | 0.81 | 0.59 | 34% |
| | | Oyster Bay | | 1.07 | 0.98 | 0.72 | 33% |
| | | Snug Harbor | | 15.25 | 1.91 | 3.72 | 76% |
| | | Mashapaquit Creek | | 39.57 | 2.98 | 6.84 | 83% |
| Nantucket | May 12, 2009 | Head of Harbor | | 1.86 | 0.70 | 0.79 | 58% |
| | | Quaise Basin | | 2.12 | 0.39 | 1.14 | 46% |
| | | Town Basin | | 12.22 | 1.51 | 10.71 | 12% |
| | | Polpis Harbor | | 3.52 | 0.43 | 2.18 | 38% |
| Chatham Southern | June 22, 2009 | Stage Harbor | Oyster Pond | 10.0 | 8.10 | 1.9 | 81% |
| | | | Oyster River | 9.4 | 7.10 | 2.3 | 76% |
| | | | Stage Harbor | 2.0 | 1.50 | 0.5 | 75% |
| | | | Mitchell river | 2.6 | 2.20 | 1.5 | 42% |
| | | | Mill Pond | 3.6 | 3.00 | 2.1 | 42% |
| | | | Little Mill Pond | 1.3 | 0.90 | 0.8 | 38% |
| | | Sulphur Springs | Sulphur Springs | 9.5 | 7.90 | 4.6 | 52% |
| | | | Bucks Cr | 3.4 | 2.80 | 3.4 | 0% |
| | | Taylors Pond | Mill Cr | 4.6 | 3.60 | 1.0 | 78% |
| | | | Taylors Pond | 6.2 | 5.00 | 4.2 | 32% |

***Septic Systems***

50. The vast majority of the controllable nitrogen threatening the Cape Cod embayments comes from subsurface wastewater disposal systems (i.e., septic systems).[7]

51. In a septic system, a pipe deposits nitrogen-laden sewage and wastewater into an underground septic tank. The septic tank then discharges nitrogen-laden wastewater into a leaching field that is intended to provide further pollutant removal in the soil. However, on Cape

[7] *See, e.g.*, Centerville TMDL at 14 ("In the Centerville River - East Bay embayment system overall, the highest N loading from controllable sources is from septic systems.").

Cod, septic systems add nitrogen into aquifers that flow through the highly permeable soils and then discharge directly into the embayments and connected surface waters.

52. Septic systems produce up to eighty-one percent of the nitrogen load that can be locally controlled (as opposed to, for example, atmospheric deposition, which cannot be locally controlled) in some areas of Cape Cod.[8] Septic systems are the largest controllable source of nitrogen identified in the Cape Cod TMDLs.[9]

53. Nitrogen discharged from septic systems through the Cape Cod aquifer undergoes very little attenuation – i.e., reduction in concentration – before it discharges to embayment systems. Septic systems on Cape Cod are generally not designed to remove nitrogen, and even fully functioning systems remove only one to three percent of nitrogen before the wastewater leaves the tank.[10] Only twenty to twenty-two percent is attenuated in the nearby soil.[11] Virtually no attenuation occurs after the nitrogen is added into the aquifer and travels to the embayments.[12]

54. Septic systems are composed of pipes and other conveyances that add nitrogen as a pollutant to water that flows directly through well-documented aquifer systems carrying nitrogen-contaminated water into the embayments subject to the Cape Cod TMDLs.

***Stormwater Systems***

55. Stormwater systems that discharge through the aquifer or directly into connected surface waters also play a significant role in channeling nitrogen into the embayments. These systems collect stormwater from impervious surfaces and funnel the nitrogen-laden stormwater into pipes. These pipes then add nitrogen pollution into the aquifer and/or surface waters and

[8] *Id.* at 19.
[9] *See, e.g.*, Little Pond TMDL at 4, 5, 19; Oyster Pond TMDL at 4, 6, 11.
[10] *See, e.g.,* Mass. Estuaries Project, Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for Centerville River System, Barnstable, Massachusetts: Final Report, Nov. 2006, at 30-31 http://www.oceanscience.net/estuaries/report/Centerville/Centerville_MEP_Final.pdf . The MEP Technical Reports, on which the TMDLs were based, account for current nitrogen removal rates by existing septic systems.
[11] *Id.*
[12] *Id.*

then into the degraded embayments. In some areas of Cape Cod, stormwater discharges make up as much as forty-five percent of the controllable nitrogen load.[13] In fact, most towns on Cape Cod have NPDES permits issued by EPA Region 1 for their stormwater systems. The TMDLs recognize that municipal stormwater systems are point sources of pollution under the CWA.[14]

56. Stormwater discharges are composed of pipes and other conveyances that add nitrogen as a pollutant to water that flows directly through well-documented aquifer systems carrying nitrogen-contaminated water into the embayments subject to the Cape Cod TMDLs.

***Wastewater Treatment Facilities***

57. Wastewater treatment facilities ("WWTFs") also discharge nitrogen-laden effluent to and through the aquifer in an underground plume that flows directly into the affected Cape Cod embayments. These WWTFs contribute substantially to excessive nitrogen pollution. The WWTF in the West Falmouth Harbor system, for example, deposits over 13,000 kilograms of nitrogen into the embayment system each year, and constitutes fully three-quarters of the controllable nitrogen load.[15]

58. The WWTFs are composed of pipes and other conveyances that add nitrogen as a pollutant to water that flows directly through well documented aquifer systems carrying nitrogen-contaminated water into the embayments subject to the Cape Cod TMDLs.

**The Cape Cod TMDLs**

59. Nitrogen loadings, and the resulting elevated nitrogen concentrations in Cape Cod embayments, must be reduced in order to restore and protect these embayment systems. Currently, concentrations of nitrogen in Cape Cod embayments exceed threshold concentrations

[13] *See, e.g.*, Little Pond TMDL at 6, Fig. 4 (describing stormwater as "land use"-based nitrogen loading).
[14] *See, e.g.*, Centerville TMDL at 17.
[15] Massachusetts Estuaries Project, *Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for West Falmouth Harbor, Falmouth, Massachusetts* (May 2006), at 34.

that cause deleterious environmental impacts. The nitrogen TMDLs must be set at a level that will reduce nitrogen concentrations in the waters to a level below these threshold concentrations and that will meet water quality standards.

60. According to the Cape Cod TMDLs: "Excessive nitrogen … has led to significant decreases in the environmental quality of coastal rivers, ponds, and harbors in many communities in southeastern Massachusetts."

61. The Cape Cod TMDLs further found that: "Without proper management [of nitrogen loadings] more severe problems might develop, including: Periodic fish kills, unpleasant odors and scum, Benthic communities reduced to the most stress-tolerant species, or, in the worst cases, near loss of the Benthic animal communities."

62. The Cape Cod TMDLs acknowledge that Cape Cod's economy relies upon "clean, productive, and aesthetically pleasing marine and estuarine waters for tourism, recreational swimming, fishing and boating, as well as for commercial fin fishing and shellfishing." Centerville TMDL at ii.

63. If water quality on Cape Cod continues to degrade, such "commercial and recreational use … will be greatly reduced, and could cease altogether." *Id.*

64. MassDEP has identified numerous Cape Cod embayments that exceed the Commonwealth's WQS for nitrogen and thus require a TMDL.[16]

65. Relying on data contained in technical reports from the Massachusetts Estuaries Project ("MEP"), a collaborative research effort between the MassDEP and the University of Massachusetts, MassDEP began developing nitrogen TMDLs for the embayments in or around

[16] *See* MassDEP, Final Massachusetts Year 2008 Integrated List of Waters (CWA §§ 303d & 305b) (approved by EPA Region 1 on May 4, 2009), *available at* http://www.mass.gov/dep/water/resources/tmdls.htm.

2004. From 2004 to 2009, as required by the CWA, MassDEP submitted the Cape Cod TMDLs to EPA Region 1 for review and approval.

66. To date, MassDEP has developed and submitted thirteen TMDLs for nitrogen-threatened embayments on Cape Cod and Nantucket to EPA for approval. *See generally* Exhibits 2–13; Table 1.

67. None of the Cape Cod TMDLs discusses the actual or potential effects of climate change on the embayments.

**EPA Incorrectly Approved the Cape Cod TMDLs**

68. Following internal reviews, EPA approved each of the Cape Cod TMDLs referred to in paragraph 46, Table 1.[17]

69. Nitrogen discharges to the Cape Cod embayments are transported from source to estuarine waters through groundwater flow in sandy outwash aquifers. The lack of nitrogen attenuation in these aquifer systems results from the lack of biogeochemical conditions needed for supporting nitrogen sorption and denitrification.

70. The Cape Cod TMDLs acknowledge nitrogen transfer through direct groundwater discharge to estuarine waters and refer to studies indicating negligible aquifer attenuation and dilution, *i.e*. 100% of load enters embayment.

71. MEP's technical reports supporting the Cape Cod TMDLs acknowledge that surface waters on Cape Cod are primarily groundwater fed and nitrogen, primarily as plant available nitrate, is readily transported through oxygenated groundwater systems on Cape Cod.

[17] EPA Approvals of the Cape TMDLs can be found on the EPA website, http://www.epa.gov/region1/eco/tmdl/approved.html#ma.

72. The geological conditions on Cape Cod – in particular the highly permeable soils and direct connection between the groundwater and surfaces waters – facilitates the discharge of nitrogen into the Cape Cod embayments via groundwater.

73. The shallow embayments on Cape Cod compound the harm posed by nitrogen impairment. The embayments' semi-enclosed structure increases the time that nitrogen is retained, and their shallow depth decrease their ability to dilute nitrogen, leading to additional eutrophication.

74. The MEP technical reports confirm the relationship between temperature and dissolved oxygen levels, stating that dissolved oxygen levels in temperate embayments vary seasonally, due to changes in oxygen solubility, which varies inversely with temperature. In addition, biological processes that consume oxygen from the water column (water column respiration) vary directly with temperature, with several fold higher rates in summer than winter.

75. MEP's Linked Watershed-Embayment Management Modeling Approach ("Linked Models") identified and quantified the major sources of nitrogen loading and documented the connection between those sources and the Cape Cod embayments.

76. The Linked Models use a holistic approach that incorporates the entire watershed, embayment, and tidal source waters and can be used to evaluate all projects as they related directly or indirectly to water quality conditions within its geographic boundaries.

77. EPA's TMDL Approvals state that the "The Linked Model, as stated in the TMDL document, is a robust and fairly complicated model that determines an embayment's nitrogen sensitivity, nitrogen threshold loading levels (TMDL) and response to changes in the loading rate."

78. EPA's TMDL Approvals also state that:

> The Massachusetts Estuaries Project analytical method is the Linked Watershed-Embayment Management Model (Linked Model.) It links watershed inputs with embayment circulation and nitrogen characteristics, and:
>
> - requires site-specific measurements within each watershed and embayment;
> - uses realistic "best-estimates" of N loads from each specific type of land-use;
> - spatially distributes the watershed nitrogen loading to the embayment;
> - accounts for nitrogen attenuation during transport to the embayment;
> - includes a 2D or 3D embayment circulation model depending on embayment structure;
> - accounts for basin structure, tidal variations, and dispersion within the embayment;
> - includes nitrogen regenerated within the embayment;
> - is validated by both independent hydrodynamic, nitrogen concentration, and ecological data; and
> - is calibrated and validated with field data prior to generation of additional scenarios.

79. The MEP Reports reflect that a great deal of data was collected in the field to support the technical analysis, including lot-by-lot data; they further state that "Determination of the nitrogen loads required obtaining watershed-specific information regarding wastewater, fertilizers, runoff from impervious surfaces and atmospheric deposition. The primary regional factors were derived for southeastern Massachusetts from direct measurements."

80. Ultimately, in justifying reliance on the record to support approval of the TMDL margin of safety, EPA concluded that: "the hydrodynamic and water quality models have been demonstrated to have a high level of accuracy and a high degree of confidence." EPA also states that: "Agreement between the modeled and observed values has been approximately 95%."

81. Further, the TMDLs state:

> The hydrodynamic and water quality models have been assessed directly. In the many instances where the hydrodynamic model predictions of volumetric exchange (flushing) have also been directly measured by field measurements of instantaneous

> discharge, the agreement between modeled and observed values has been >95%. Field measurement of instantaneous discharge was performed using acoustic doppler current profilers (ADCP) at key locations within the embayment (with regards to the water quality model, it was possible to conduct a quantitative assessment of the model results as fitted to a baseline dataset - a least squares fit of the modeled versus observed data showed an R2>0.95, indicating that the model accounted for 95% of the variation in the field data). Since the water quality model incorporates all of the outputs from the other models, this excellent fit indicates a high degree of certainty in the final result. The high level of accuracy of the model provides a high degree of confidence in the output; therefore, less of a margin of safety is required.

82. The MEP Reports explain that:

> The Linked Watershed-Embayment Model when properly parameterized, calibrated and validated for a given embayment becomes a nitrogen management planning tool, which fully supports TMDL analysis. The Model suggests "solutions" for the protection or restoration of nutrient related water quality and allows testing of "what if" management scenarios to support evaluation of resulting water quality impact versus cost (i.e., "biggest ecological bang for the buck"). In addition, once a model is fully functional it can be "kept alive" and corrected for continuing changes in land-use or embayment characteristics (at minimal cost). In addition, since the Model uses a holistic approach (the entire watershed, embayment and tidal source waters), it can be used to evaluate all projects as they relate directly or indirectly to water quality conditions within its geographic boundaries.

***EPA Inappropriately Categorized Septic Systems as Nonpoint Sources of Pollution in the Load Allocation Sections of the Cape Cod TMDLs***

83. Defendants erred in their approval of the Cape Cod TMDLs by arbitrarily and capriciously approving MassDEP's flawed allocations of point and nonpoint sources.

84. Assigning nitrogen loads from septic systems to the LA is clearly erroneous. Septic systems on Cape Cod add pollutants to the embayments through the aquifer and are

therefore "point sources" under the CWA and EPA regulations. Point sources must be included in the WLA of a TMDL, not the LA.

85. Septic systems are "discernable, confined and discrete conveyance[s]" that receive wastewater through a pipe and discharge nitrogen to the embayments through the aquifer system. CWA § 502(14), 33 U.S.C. § 1362(14). Septic systems add nitrogen into the aquifer, which then flows through the sandy soils at a well-documented rate and then discharges into the connected surface waters including, ultimately, the degraded embayments. The hydraulic connection is direct and the contamination discharged from the septic system is traceable to the connected surface waters.

86. Given the characteristics of Cape Cod soils and the traceability of the contamination from these septic systems into connected surface waters, neither the TMDLs nor EPA offer any reasoned explanation for why Cape Cod septic systems were treated as nonpoint sources and assigned to the LA.

87. Scientific evidence available to MassDEP and EPA shows that the nitrogen from septic systems is added into and travels directly through Cape Cod's highly permeable, sandy soils, from the septic system into the threatened embayments.[18]

88. The administrative record does not support inclusion of septic systems in the LAs as nonpoint sources and therefore, EPA's approval of the Cape Cod TMDLs is arbitrary and capricious, an abuse of discretion, and not in accordance with law.

***Cape Cod Stormwater Discharges are Point Sources of Pollution Properly Included in the WLA of the TMDL***

89. Twelve of the Cape Cod TMDLs[19] are based on a division of stormwater systems into two categories. Stormwater systems serving impervious areas located more than 200 feet

[18] *See*, *e.g.*, Cape Cod Commission, *Regional Wastewater Management Strategy Development Project*, at 1.

from the shoreline were assumed to travel initially into groundwater and were therefore categorized as nonpoint sources and included in the LA. Systems serving impervious areas located less than 200 feet from the shoreline were assumed to enter into surface waters and were categorized as point sources.

90. The distinction between systems more than or less than 200 feet from surface water is arbitrary and lacks any legal or factual support in the record.

91. As a result of this categorization, the vast majority of the nitrogen pollutant load from stormwater systems was assigned to the LA portion of the Cape Cod TMDLs.

92. Stormwater systems within the areas subject to the Cape Cod TMDLs are "municipal separate storm sewer systems" ("MS4") as that term is defined in EPA's regulations, and are therefore point sources under the CWA that must be included in the WLA as a matter of law. 40 C.F.R. §§ 122.26(b)(16) & 122.32(a)(1); *see also*, 64 Fed. Reg. 68722, 68818-19 (Dec. 8, 1999). MS4s on Cape Cod are "point sources" under the plain meaning of the CWA and EPA regulations, as these systems collect nitrogen-laden stormwater from impervious surfaces before discharging it into surface waters or into aquifers that in turn discharge into surface waters. CWA § 502(14), 33 U.S.C. § 1362(14). EPA-generated maps associated with the MS4 stormwater program delineate the regulated MS4 area of certain Cape Cod towns and clearly include geographic areas beyond 200 feet from a surface water body.

93. EPA's approval of this arbitrary categorization of stormwater systems, therefore, is also contrary to law.

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[19] The Nantucket Harbor BayTMDL calculated loadings from all impervious area and placed these in a WLA portion of the TMDL. However, EPA's approval letter for the TMDLs concluded that the WLA was zero, placing these sources in the LA portion of the TMDL. EPA Approval Letter to MassDEP, Nantucket Harbor Bay System TMDLs for Total Nitrogen, May 12, 2009, at 7, 12, *available at* http://www.epa.gov/region1/eco/tmdl/pdfs/ma/NantucketHarbor.pdf (last accessed 10-22-10).

94. As the TMDLs recognize, EPA interprets 40 C.F.R. § 130.2(h) to require allocations for NPDES-regulated discharges of stormwater to be included in the WLA component of the TMDL. Neither the TMDLs nor the administrative record provide any explanation that supports the 200-foot "cutoff" for stormwater from particular impervious areas.

95. The 200-foot cutoff is arbitrary, capricious and contrary to EPA regulations. EPA's approval of the TMDLs, with inclusion of stormwater systems more than 200 feet from surface waters in the nonpoint source category, is contrary to law.

***Cape Cod Wastewater Treatment Facilities are Point Sources of Pollution Properly Included in the WLA of the TMDL***

96. Six of the TMDLs cover embayment systems receiving WWTF discharges. These TMDLs classify WWTFs discharging pollutants to the embayments through the aquifer as nonpoint sources and assign the nitrogen from the WWTFs to the LA with no explanation.

97. Assigning nitrogen loads from WWTFs to the LA is erroneous, and the record lacks any reasoning or basis for doing so.

98. The WWTFs identified in the TMDLs are point sources. First, these WWTFs comprise systems of pipes, ditches, catch basins, or other "discrete conveyance[s]." CWA § 502(14), 33 U.S.C. § 1362(14). Second, these facilities discharge pollutants into the waters of the United States. *See* 40 C.F.R. § 122.2 (defining "discharge of a pollutant"). The identified Cape Cod WWTFs add pollutants into the aquifer, which, due to Cape Cod's hydrogeology, are connected to and directly flow into the endangered embayments carrying nitrogen.

99. In fact, in the technical reports developed as the basis for the TMDLs, MEP recognizes that these WWTFs are point sources of pollution.[20]

[20] MEP, *Embayment Restoration and Guidance for Implementation Strategies* (2003), at 10 www.mass.gov/dep/water/resources/mepmain.pdf; Massachusetts Estuaries Project, *Linked Watershed-Embayment*

100. The record for EPA's approval of the TMDLs does not include any rationale for including the WWTFs in the LAs as nonpoint sources.

***Failure to Analyze Climate Change in Approving the Cape Cod TMDLs***

101. In approving the Cape Cod TMDLs, EPA unlawfully failed to consider scientific findings demonstrating an ongoing and increasing trend of accelerated climate change and the impact of that change on affected embayments.

102. For two decades, EPA has, through its involvement with and contribution to the reports and papers consistently identified climate change as a factor affecting water quality problems for waters like the Cape Cod embayments.[21]

103. In its 1989 report to Congress titled The Potential Effects of Global Climate Change on the United States, EPA stated that "[i]ncreased storm size and intensity could tax many storm sewer systems,"[22] "[s]ea level rise also would have important impacts on coastal sewage and drainage systems,"[23] "[w]ater quality is directly affected by climate,"[24] and "[t]he combined pressures of warmer waters, saltwater intrusion, and a rising sea level would significantly affect estuaries".[25]

104. A team of scientists working with input from EPA under the auspices of the federal Global Change Research Project produced a new national climate change assessment released in September 2000, The Water: The Potential Consequences of Climate Variability and Change for the Water Resources of the United States ("National Assessment"). The National

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*Model to Determine Critical Nitrogen Loading Thresholds for West Falmouth Harbor, Falmouth Massachusetts*, at 2, 54 http://www.oceanscience.net/estuaries/report/WestFalmouth/WestFalmouth_MEP_Final.pdf.

[21] *See, e.g.*, Nat'l Assessment Synthesis Team, *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change* (2001) http://library.globalchange.gov/downloads/download.php?id=124.

[22] *The Potential Effects of Global Climate Change on the United States*, Report to Congress, United States Environmental Protection Agency Office of Policy, Planning and Evaluation, December 1989 at 242.

[23] *Id at* 140.

[24] *Id*. at 283

[25] *Id*. at 207

Assessment reflected the understanding that accelerated climate change was occurring and would be an important part of the water quality problems already being experienced in places like Cape Cod.[26]

105. The National Assessment reported that: "The scientific evidence that humans are changing the climate is increasingly compelling. Complex impacts affecting every sector of society, including, and especially, the nation's water resources, now seem unavoidable."[27]

106. The National Assessment further summarized "expected" climate changes "with the greatest implications for the hydrologic cycle and U.S. water resources," including:

> Water quality-problems will worsen where rising temperatures are the predominant climate change (high confidence). Where there are changes in flow, complex positive and negative changes in water quality will occur.
>
> Increases in annual average runoff in the high latitudes caused by higher precipitation are likely to occur (high confidence) …
>
> Relative sea-level rise adversely affects groundwater aquifers and freshwater coastal ecosystems (high confidence) …
>
> Climate changes have the potential to alter water quality significantly by changing temperatures, flows, runoff rates and timing, and the ability of watersheds to assimilate wastes and pollutants. Global and regional increases in air temperature, and the associated increases in water temperature, are likely to lead to adverse changes in water quality, even in the absence of changes in precipitation.
>
> Impacts of climate change on water resources will have a wide range of consequences for coastal ecosystems. Ecosystem health will be affected by changes in the quality and quantity of freshwater runoff into coastal wetlands, higher water temperatures, extreme runoff rates or altered timing, and the ability of watersheds to assimilate wastes and pollutants.[28]

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[26] *Water: The Potential Consequences of Climate Variability and Change for the Water Resources of the United States*, Report of the Water Sector Assessment Team of the National Assessment of the Potential Consequences of Climate Variability and Change, September 2000 at 1.
[27] *Id*.
[28] *Id.* at 4, 6, 10.

107. The National Assessment also stated as follows:

> Changes in terrestrial ecosystems will also lead to changes in water quality by altering nutrient cycling rates and the delivery of nutrients to surface waters. Nitrification rates in soils are temperature dependent and in some regions, mean annual nitrate concentrations in streams are highly correlated with average annual air temperature (Murdoch et al. 1998).[29]

108. The National Assessment also stated that, "It is vital that uncertainties not be used to delay or avoid taking certain kinds of action now. Prudent planning requires that…the risks and benefits of climate change be incorporated into all long-term water planning." (emphasis in original).[30] It recommended "[g]overnments at all levels should re-evaluate legal, technical and economic approaches for managing water sources in light of possible climate change because "not everything is uncertain" given that "[t]he research done to date tells us many things, both positive and negative, about how hydrology and U.S. water resources could be affected by climate variability and changes."[31]

109. EPA scientist James Titus co-authored a 2002 paper titled Climate Change Impacts on U.S. Coastal and Marine Ecosystems, which found: "[e]stuarine impacts from climate change will be manifested through exacerbation of current stresses, including those imposed by a significantly altered nitrogen cycle … Climate change will likely influence the vulnerability of estuaries to eutrophication in several ways, including changes in mixing characteristics caused by alterations in freshwater runoff, and changes in temperature, sea level, and exchange with the coastal ocean."[32]

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[29] *Id.* at 54.
[30] *Id.* at 1-2
[31] *Id*.
[32] *Climate Change Impacts on U.S. Coastal and Marine Ecosystems*, Donald Scavia, et al., Vol. 25, No. 2, ESTUARIES 149-64, April 2002 at 155.

110. The authors of that 2002 study specifically noted the failure of then-extent estuary restoration programs to "take into account longer-term, climate-influenced changes in precipitation, runoff regimes, nutrient loads, and salinity."[33]

111. In 2007, The United Nations' Intergovernmental Panel on Climate Change published Climate Change 2007: Impacts, Adaptation, and Vulnerability (IPCC 2007). The IPCC 2007 chapter on Water Quality noted that "[e]utrophication is a major water-quality problem … Toxic algal blooms are likely to become more frequent and to last longer due to climate change."[34]

112. With reference to additional relevant scientific studies, the IPCC specifically discussed "Estuaries and Lagoons," noting that: "Increased water temperature could also affect algal production and the availability of light, oxygen and carbon for other estuarine species … The propensity for H[armful]A[lgae]B[loom]s is further enhanced by the fertilisation effect of increasing dissolved $CO_2$ levels. Increased water temperature also affects important microbial processes such as nitrogen fixation and denitrification in estuaries …"[35]

113. In 2008, the U.S. National Science and Technology Council ("NSTC") issued an updated Scientific Assessment of the Effects of Global Change on the United States. The updated assessment reported that "[s]imulations of future North American surface and bottom water temperatures of lakes, reservoirs, rivers, and estuaries consistently show increases of 2 °C to 7 °C…."[36]

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[33] *Id*. at 160.
[34] *Climate Chage 2007: Impacts, Adaptation and Vulnerability*, Intergovernmental Panel on Climate Change, *available at* http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg2_report_impacts_adaptation_and_vulnerability.htm (last accessed Sept. 21, 2012) at 2.
[35] *Id*. at 3.
[36] *Scientific Assessment of the Effects of Global Change on the United States*, National Science and Technology Council, (May 2008) at 159.

114. Consistent with earlier findings, NSTC highlighted the relationship between higher water temperatures, increased precipitation, harmful algae blooms and nutrient pollution:

> Higher water temperatures, increased precipitation intensity, and longer periods of low flows exacerbate many forms of water pollution and can affect ecosystems, human health, and water system reliability and operating costs. Pollutants of concern in this case include sediment, nutrients, organic matter, pathogens, pesticides, salt, and thermal pollution (Kundzewicz et al., 2007). Elevated surface water temperatures will promote algal blooms and increases in bacteria and fungi levels. The frequency of heavy precipitation events in the United States have increased through the 1990s (Field et al., 2007).[37]

115. Shortly after the release of the NSTC report, in 2008, EPA's Office of Water issued its National Water Program Strategy Response to Climate Change ("Strategy Response"). This document identified "increases in water pollution problems" as the number one water impact of climate change, since "[w]armer waters will: hold less dissolved oxygen making instances of low oxygen levels and 'hypoxia' (i.e., when dissolved oxygen declines to the point where aquatic species can no longer survive) more likely; and foster harmful algal blooms and change the toxicity of some pollutants."[38]

116. Based on this conclusion, the Strategy Response identified "Water Restoration / TMDLs" as one of the programs "most affected by changing air and water temperatures."[39] Based on specific findings about climate-change driven changes to precipitation levels, distribution, and intensity, the EPA's Strategy Response reiterated that "Water Restoration/TMDLs" are among the programs "most affected" by these trends.[40]

117. None of the Cape Cod TMDLs analyze the implications of climate change on attainment of water quality standards in the Cape Cod embayments.

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[37] *Id.*
[38] *National Water Program Strategy: Response to Climate Change*, United States Environmental Protection Agency, (September 2008) at ii.
[39] *Id.* at 9
[40] *Id*. at 12-15

118. Readily available climate and weather data obtained from monitoring stations near the Cape Cod embayments demonstrate a trend of increasing ambient temperatures consistent with and/or more accelerated than predictions in climate science literature that was created by or available to EPA at the time of its review and approval of the Cape Cod TMDLs.

119. Temperature and flow are"critical conditions" that EPA is supposed to consider when evaluating a TMDL's overall "loading capacity."

120. Approval of an erroneous loading capacity can result in the authorization of nitrogen discharges in amounts that will result in continuing violation of water quality standards.

121. The failure of EPA to consider global warming's ongoing and predicted increases in air and water temperatures on Cape Cod when evaluating the TMDLs' critical conditions and loading capacities is arbitrary and capricious.

122. Though much is known about ongoing climate change impacts to water resources like the embayments, because climate change science also demonstrates that climate change creates uncertainty with regard to the range of possible future impacts of such change on coastal ecosystems, the Cape Cod TMDLs require a wider margin of safety that accounts for any gaps in knowledge on this important aspect of the water pollution problem facing the embayments.

123. EPA did not provide an adequate margin of safety when approving the TMDLs. Scientific information readily available to EPA at the time of its approval of the Cape Cod TMDLs required EPA to apply more conservative assumptions for nitrogen allocations when establishing the TMDL margin of safety.

***EPA's Approval of the Cape Cod TMDLs was Unlawful***

124. EPA approved all of the TMDLs at issue in this matter despite the erroneous characterization of point sources of pollution (including WWTFs, septic systems, and stormwater systems) as nonpoint sources in violation of the CWA and applicable regulations.

125. EPA's approval of the Cape Cod TMDLs constitutes final agency action subject to judicial review under 5 U.S.C. § 704.

126. Defendants' approval of Cape Cod TMDLs violates 5 U.S.C. § 706(2) because it is arbitrary, capricious, and an abuse of discretion and otherwise not in accordance with the CWA and its implementing regulations.

***State-Based Regulation Has Failed to Address the Nitrogen Pollution Problems on the Cape***

127. The only current state program in Massachusetts that regulates septic systems is the Title 5 program, 310 C.M.R. 15.000.

128. The Title 5 program does not have any retrofit requirements to address nitrogen pollution from septic systems.

**STANDING**

129. Paragraphs 1–128 are incorporated herein by reference.

130. CLF works to combat threats to natural resources in Massachusetts and throughout New England. CLF is a member-supported organization that advocates for the prevention of water pollution and the protection of coastal waters and ecosystems and, by extension, public health and the vitality of local communities. CLF has been involved extensively in local, state, and federal efforts to restore water quality in Massachusetts, including the Cape Cod and Buzzards Bay region.

131. CLF members live near embayments on Cape Cod that are degraded by nitrogen pollution and use these waters for recreational and aesthetic enjoyment. CLF members conduct

activities in and near the Cape Cod waters, including the embayments that are the subject of this action, which activities include swimming, commercial and recreational fishing, boating, and enjoying the views. Water quality is critical to CLF members' use and enjoyment of the waters. Nitrogen pollution has caused and is causing harm to commercial, active and passive recreational, and other important uses of these waters by such members and if the pollution continues unabated, these uses will be further harmed and could cease altogether.

132. Cape Cod's economic stability hinges on the ecological health of the embayment systems that surround its shores. CLF members own homes and businesses in close proximity to the waters subject to the Cape Cod TMDLs at issue in this matter. The value of those homes and businesses is dependent on the cleanliness of these waters. Indeed, the Executive Summaries of each of the Cape Cod TMDLs recognize that Cape Cod communities "rely on clean, productive, and aesthetically pleasing marine and estuarine waters for tourism, recreational swimming, fishing, and boating, as well as commercial fin fishing and shellfishing."

133. Cape Cod's large tourism industry, which comprises approximately forty percent of the Cape Cod economy, depends on clean waters and healthy ecosystems that support fish and shellfish for the recreational enjoyment of residents and visitors. Continued degradation of the waters of Cape Cod will significantly reduce the commercial and recreational value of these waters.

134. CLF and its members have been and will continue to be adversely affected by nitrogen pollution on Cape Cod and the failure of responsible state and federal officials to abate that pollution consistent with the Clean Water Act.

135. CLF and its members' interests have been and continue to be injured by Defendants' approval of the Cape Cod TMDLs because the approval violates the TMDL

provisions of the CWA and further endangers these already degraded waters. As a result of Defendants' acts and omissions, including its omission of any climate change analysis in the context of review and approval of overall loading capacity for each of the TMDLs, CLF members have suffered and will continue to suffer injuries to their aesthetic, environmental, recreational, and economic interests in enjoying and utilizing the affected Cape Cod waters.

136. EPA's approval of the TMDLs violates the CWA because the TMDLs incorrectly identified sources of nitrogen on the Cape as non-point sources and failed to include these sources of nitrogen in the WLA of the TMDLs.

137. Consequently, because these nitrogen sources are incorrectly classified as non-point sources, they are not subject to the strict liability prohibition on unpermitted discharges of pollutants set forth by Congress in Section 301(a) of the CWA.

138. Additionally, because these sources are incorrectly classified, EPA has not issued NPDES permits for the sources.

139. Without Federal regulation, the embayments on the Cape will continue to degrade and CLF's members will continue to be injured by the worsening nitrogen pollution in Cape Cod.

140. Massachusetts regulatory programs have been in effect during the time that nitrogen pollutant loads have reached their current overwhelming proportions and that the present water quality degradation in the bays has occurred. Simply put, State-based regulation of point sources cannot address the nitrogen problem here.

141. For example, there is no State law program requiring nitrogen pollution controls for existing individual septic systems. In fact, Massachusetts law makes clear that existing septic systems are exempt from nitrogen reduction requirements.

142. Federal regulation, on the other hand, will address the nitrogen problem. Utilizing its specialized experience in identifying point sources in its capacity as the NPDES permitting agency for Massachusetts, EPA has developed a methodology for assessing the direct hydrologic connection between impervious surfaces and water bodies with specific reference to the groundwater to surface water connections on Cape Cod.[41] This EPA methodology for identifying jurisdictional stormwater point sources based on groundwater connections serves as an additional basis for an order from the court requiring EPA to address discharges from septic systems, wastewater treatment facilities, and municipal separate storm water systems under the CWA NPDES permitting program.

143. Moreover, the EPA has experience in other jurisdictions approving NPDES permitting programs that cover private residential septic systems.[42] The Court can rely on this EPA experience to craft a remedy that will ensure that the NPDES regulatory program will be implemented to achieve the TMDLs and satisfy the requirements of the Clean Water Act.

144. EPA has acknowledged that re-categorizing pollution sources—moving them from a TMDL LA to the WLA—is an effective measure to deal with situations where pollution

[41] See EPA's Methodology to Calculate Baseline Estimates of Impervious Area (IA) and Directly Connected Impervious Area (DCIA) for Massachusetts Communities, http://www.epa.gov/region1/npdes/stormwater/ma/IA-DCIA-Calculation-Methodology.pdf.

[42] *See*, *e.g.*, Arkansas NPDES Individual Treatment General Permit No. ARG550000, http://www.adeq.state.ar.us/water/branch_permits/general_permits/; Iowa NPDES General Permit No. 4 for Discharge from Private Sewage Disposal Systems, http://www.iowadnr.gov/InsideDNR/RegulatoryWater/PrivateSepticSystems/GeneralPermit4.aspx; Kentucky KPDES General Permit for On-Site Wastewater Treatment Systems Serving Single Family Residences Fact Sheet, http://water.ky.gov/permitting/Pages/GeneralPermits.aspx; Ohio NPDES General Permit Authorization to Discharge Wastewater from Selected New, Replacement, and/or Updated Household Sewage Treatment Systems, http://epa.ohio.gov/dsw/permits/GP_HouseholdSewageTreatmentPlants.aspx; Virginia VPDES General Permit for Domestic Sewage Discharges of ≤ 1,000 Gallons per Day, http://www.deq.virginia.gov/Programs/Water/PermittingCompliance/PollutionDischargeElimination/PermitsFees.aspx; West Virginia NPDES General Permit for Sewage Treatment and Disposal Systems of Domestic Sewage Only (Design capability of 600 GPD or less, serving individual residences and certain commercial establishments), http://www.dep.wv.gov/WWE/permit/general/Pages/default.aspx#sewage50.

reduction from those sources is not occurring at all or not occurring at an acceptable rate to restore water quality.

145. CLF's members are also harmed by EPA's failure to adequately consider impacts of climate change because its failure to consider climate change when approving the overall loading capacities in each TMDL and in setting margins of safety to account for any uncertainty stemming from climate change jeopardizes the overall efficacy of the Cape Cod TMDLs in attaining water quality standards.

**COUNT I**

146. Paragraphs 1–145 are incorporated herein by reference.

147. Defendants' approval of the Cape Cod TMDLs was arbitrary and capricious, an abuse of discretion and otherwise not in accordance with the CWA and the APA because the TMDLs erroneously include point sources such as stormwater discharges, WWTFs, and septic systems in the LA portion of the TMDL rather than in the WLA. CWA § 502(14), 33 U.S.C. § 1362(14); 40 C.F.R. § 122.2; APA§ 706(2), 5 U.S.C. § 706(2).

**COUNT II**

148. Paragraphs 1–147 are incorporated herein by reference.

149. Defendants' approval of the Cape Cod TMDLs was arbitrary and capricious, an abuse of discretion and otherwise not in accordance with the CWA and the APA because the TMDLs fail to include an adequate margin of safety that takes into account lack of knowledge concerning the relationship between effluent limitations and water quality. CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C); APA§ 706(2), 5 U.S.C. § 706(2).

**COUNT III**

150. Paragraphs 1–149 are incorporated herein by reference.

151. Defendant's approval of the TMDLs, including critical conditions and the overall loading capacity, underlying LA and WLAs, seasonal variation assessment, and the margin of safety, was arbitrary and capricious, an abuse of discretion and otherwise not in accordance with the CWA and the APA because Defendants failed to analyze water resources impacts associated with documented and predicted climate change. CWA § 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C); APA§ 706(2), 5 U.S.C. § 706(2).

## RELIEF REQUESTED

Wherefore, Plaintiffs Conservation Law Foundation, Inc.. respectfully request that the Court grant the following relief:

1. A declaratory judgment that Defendants' approvals of the Cape Cod TMDLs constitutes final agency action that is arbitrary and capricious, an abuse of discretion, and otherwise not in accordance with the provisions of the CWA and its implementing regulations.
2. A declaratory judgment that Defendants' approvals of the Cape Cod TMDLs violated the CWA and its implementing regulations because the Cape Cod TMDLs inaccurately and impermissibly treat septic systems, stormwater systems, and wastewater treatment facilities as nonpoint sources and thus assign waste from such sources to the LA portion of the TMDLs.
3. A declaratory judgment that Defendants' approvals of the Cape Cod TMDLs violated the CWA and its implementing regulations because the Cape Cod TMDLs fail to include a sufficient margin of safety and fail to satisfy applicable WQS.
4. A declaratory judgment that Defendants' approvals of the Cape Cod TMDLs were arbitrary and capricious, and an abuse of discretion and otherwise not in accordance with

the CWA and its implementing regulations, because Defendants approved the TMDLs without analyzing relevant environmental effects of documented and predicted climate change.

5. An order setting aside Defendants' approvals of the Cape Cod TMDLs, and compelling Defendants to comply with the CWA and its implementing regulations by establishing lawful TMDLs that properly allocate septic systems, stormwater systems, and WWTFs to the WLA while including an adequate margin of safety.
6. An injunction barring EPA from approving or adopting any TMDL for the embayments that treats septic systems, stormwater systems, and WWTFs as nonpoint sources, and assigning them to the LA, or both.
7. An injunction barring EPA from approving any TMDL for the embayments that fails to analyze water resources impacts associated with documented and predicted climate change when establishing the WLA, LA and overall TMDL.
8. Such additional judicial determinations and orders as may be necessary to effectuate the foregoing request for relief.
9. An award and judgment to Plaintiff of their costs and disbursements, including reasonable attorney's and expert witness fees, as authorized by the Equal Access to Justice Act, 28 U.S.C. § 2412.
10. Such other relief as this Court deems appropriate.

Dated: Boston, Massachusetts
October 24, 2013

CONSERVATION LAW FOUNDATION, INC.

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