



Commonwealth of Massachusetts | Executive Office of Energy and Environmental Affairs

Department of Environmental Protection

Southeast Regional Office

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Maura T. Healey
Governor

Kim Driscoll
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Secretary

Bonnie Heiple
Commissioner

February 10, 2026

Select Board
2198 Main Street
Brewster, MA 02631

Select Board
732 Main Street
Harwich, MA 02645

RE: **PLEASANT BAY**
Watershed Permit #01-M1
24-WP96-0001-AMD
REVISED PERMIT

Select Board
549 Main Street
Chatham, MA 02633

Select Board
19 School Road
Orleans, MA 02653

Dear Board Members:

The Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26 through 53, charges the Massachusetts Department of Environmental Protection (the Department” or “MassDEP”) with the duty and responsibility to protect public health and enhance the quality and value of the water resources of the Commonwealth of Massachusetts. The Massachusetts Watershed Permit Regulations are promulgated pursuant to M.G.L. c. 21, § 27 and St. 2014, c. 259, § 2A.

In response to your application for a Modification to a Watershed Permit, MassDEP hereby issues the attached revised permit, WP 01-M1 (the “Permit”). The Permit will become effective on the date specified in the Permit heading.

The application for modification of the 2018 Watershed Permit (001-0) was reviewed in conjunction with the 2024 Annual Report annual report titled “Pleasant Bay Alliance 2024 Annual Report” dated June 27, 2025. As stated in the Permit, to comply with 314 CMR 21.10(10), a report must now be submitted every five years from the issuance date of the Revised Permit. As part of the review of the 2024 Annual Report, MassDEP makes the following findings.

Watershed Permit Compliance: Town Strategies

Due to the variability of travel time from different areas of the watershed and considering the differing timings of the removal strategies, the sentinel station concentrations are not heavily considered at this time for permit compliance purposes. Permit compliance is determined by considering execution of the strategy in combination with its efficacy, as indicated by comparing monitoring results to the assumed removal rates for the strategy. The Pleasant Bay towns have demonstrated meaningful progress and commitment toward meeting the nitrogen load reductions identified in the 2018 Watershed Permit (001-0). As of 2024, the cumulative load removal of 5,467 kg/yr exceeds the Year 5 target of 4,914 kg/yr by 11% and represents 51% of the ten-year goal of 10,801 kg/yr for the 2018 Watershed Permit. Compared to the original long-term Total Maximum Daily Load (“TMDL”) target of 17,717 kg/yr, this accounts for over 30% of total necessary reductions to date. These reductions are supported by both traditional and non-traditional measures. Removal estimates remain technology-specific, and while no fixed credit is granted in perpetuity and such removal rates may be adjusted in the future, it is reasonable to project continued performance based on historical data. The Towns’ efforts are further strengthened by strategic capital investments and adaptive planning. The four watershed towns have benefited from funding from U.S. EPA Southeast New England Coastal Watershed Restoration Program (SNEP) Watershed Grants. SNEP funding has facilitated a robust update to the Massachusetts Estuaries Project (MEP) watershed model, improving accuracy in load estimation, attenuation assumptions, and hydrodynamic modeling. The Towns’ progress toward nitrogen load removal is documented in Table 3 of the 2024 Annual Report, based on attenuation estimates consistent with the 2018 Targeted Watershed Management Plan (“TWMP”).

Brewster, as detailed in Table 3 of the Pleasant Bay Alliance 2024 Annual Report, has achieved approximately 2,065 kg/yr of nitrogen removal through non-traditional strategies, including fertigation at Captains Golf Course, fertilizer use reductions, enhancements to golf course management practices and development of a residential fertilizer control regulation. MassDEP acknowledges that the Town of Brewster has conducted monitoring in partial accordance with the monitoring plan and schedule, and that the estimates are based on this monitoring and use of an evolving accounting methodology for nitrogen removal. The Town of Brewster should continue to track nitrogen removal accordingly, and any request to amend the monitoring plan or accounting methodology must be submitted in writing to MassDEP.

Chatham, as detailed in Table 3 of the Pleasant Bay Alliance 2024 Annual Report, removed approximately 767 kg/yr of nitrogen primarily through traditional sewerage projects in the Muddy Creek and Frost Fish Creek sub-watersheds, development of a residential fertilizer control regulation, and supported regional nitrogen removal via the Chatham-Harwich sewer connection. MassDEP acknowledges that the Town of Chatham has conducted monitoring in accordance with the monitoring plan and schedule, and that the estimates are based on this monitoring and use of an accounting methodology for nitrogen removal. The Town of Chatham should continue to track nitrogen removal accordingly, and any request to amend the monitoring plan or accounting methodology must be submitted in writing to MassDEP.

Harwich, as detailed in Table 3 of the Pleasant Bay Alliance 2024 Annual Report, removed approximately 2,331 kg/yr of nitrogen through participation in the regional sewerage project and the development of a residential fertilizer control regulation. MassDEP acknowledges that the Town Harwich has conducted monitoring in accordance with the monitoring plan and schedule, and that the estimates are based on this monitoring and use of an accounting methodology for nitrogen removal. The Town of Harwich should continue to track nitrogen removal accordingly, and any request to amend the monitoring plan or accounting methodology must be submitted in writing to MassDEP.

Orleans, as detailed in Table 3 of the Pleasant Bay Alliance 2024 Annual Report, has removed 304 kg/yr of nitrogen via a combination of traditional sewerage (notably in the Meetinghouse Pond sub-watershed), shellfish aquaculture at Lonnie's Pond, and residential fertilizer control measures, and does not include sewerage of the Meetinghouse Pond sub-watershed. MassDEP acknowledges that the Town of Orleans has conducted monitoring in accordance with the monitoring plan and schedule, and that the estimates are based on this monitoring and use of an accounting methodology for nitrogen removal. The Town Orleans should continue to track nitrogen removal accordingly, and any request to amend the monitoring plan or accounting methodology must be submitted in writing to MassDEP.

It is in the interest of each of the towns to continue to monitor according to the Permit and evaluate the accuracy of monitoring results and methods in accounting for nitrogen removal. The current understanding of MassDEP is that the accepted Quality Assurance Project Plans (QAPP) and accounting methods (i.e. Lonnie's Pond Aquaculture and Nitrogen Management Plan 2025-2030, and Appendices F through K of the 2018

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Targeted Watershed Management Plan) will be used unless a different QAPP and/or accounting method is submitted to MassDEP in writing and accepted. Any change to a strategy's monitoring plan must be approved through an application for minor modification/amendment of a watershed permit (WP97).

Watershed Permit Compliance: Necessary Nitrogen Load Reductions and Growth

As part of the 2024 Annual Report to meet the requirements of 314 CMR 21.03(2)(b)4.b., each town provided growth projections in Appendix B of that report. Each town is fully responsible for the realized increases in watershed loads in their town. The growth projections position each town to be able to consider growth during ongoing planning. As such, MassDEP requires that each town provide an update of realized growth in each 5th year report. Although it is preferred that the same or similar methodology for estimating growth is used across all four towns, MassDEP understands that each town may have variations due to different characteristics of each town.

The 2024 Annual Report documents the towns' efforts to update the TWMP estimates of necessary load reductions. Those efforts include the dis-aggregation of the previously named "Pleasant Bay" sub-watershed, the incorporation of revised estimates of natural attenuation, revised estimates of growth in watershed nitrogen loads and allowances for growth in watershed loads. The necessary nitrogen load reductions were originally reported in Table 2 of the TWMP. The revised figures are included in Table 2 (Rev) of the Year 6 Report, which is attached to this cover letter. The proposed necessary nitrogen load reductions should be used as a metric to guide each town's plans toward meeting the TMDL sentinel station concentrations for the embayment.

Based on the MEP equivalent scientific evaluations to date, MassDEP believes the proposed necessary nitrogen load reductions are the best current estimates that can be used to guide the towns towards embayment restoration.

Adaptive Management

The Pleasant Bay Alliance (the "Alliance") has continued to refine the procedures for documenting nitrogen removal needs and achievements in Pleasant Bay. The watershed loading data provided in the 2006 MEP Report was enhanced through the disaggregation of the previously termed "Pleasant Bay" sub-watershed. While the cumulative target loads remain defined at the embayment level, this refined approach may support enhanced tracking of progress, localized planning, and future model calibration.

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The Permittees' most recent annual report titled Pleasant Bay Alliance 2024 Annual Report, revised June 27, 2025 ("2024 Annual Report"), addresses Permittees' revised plan and progress. The TWMP and the 2024 Annual Report comprise the Permittees' Watershed Management Plan (WMP). As part of this update, the towns will establish and document clear metrics for evaluating changes in hydrodynamic conditions. The towns will develop and implement a standardized protocol for calculating nitrogen removals from public sewerage that is consistent with MEP modeling and TMDL methodologies. Brewster will provide further documentation on reduced fertilizer leaching rates at the Captains Golf Course and will evaluate the inclusion of fertilizer reductions at the privately owned National Golf Course as part of its nitrogen removal plan. Orleans will conduct studies to quantify natural attenuation in unassessed portions of the Pochet marshes. The Alliance will conduct a review of MEP nitrogen loading thresholds, particularly in sub-watersheds with projected sewerage shortfalls. Brewster and Orleans will amend their nitrogen removal plans based on these findings, completing refinements prior to future model runs. Collectively, these milestones support a technically sound and adaptive approach that provides a strong basis for the minor modifications to the 2018 Permit contained in the Revised Watershed Permit and continued implementation under the Watershed Permit framework.

As set forth in the Revised Permit, the Department has determined that none of the permit modifications set forth in this Permit are Significant Modifications as set forth at 314 CMR 21.06(4). Specifically, although there are revisions to the plans consistent with the iterative process laid out in the Watershed Permit Regulations at 314 CMR 21.00, there is no material change to the method or technology to achieve NNLRs or the timeframe for achieving them. Collectively, the towns anticipate exceeding the required 75% of their nitrogen reduction goal within 20 years of the 2018 permit issuance date, and additional reductions in subsequent years to meet or exceed the 100% reduction goal in the Revised Watershed Permit. Updates include revisions to reflect reductions through 2024, refined growth projections and associated nitrogen and revisions consistent with the Watershed Permit Regulations at 314 CMR 21.00 which were adopted after the issuance of the 2018 permit.

The 2024 Annual Report presents the progress of nitrogen removed and plans for continued nitrogen removal by the Pleasant Bay Watershed Alliance since issuance of the 2018 Permit. MassDEP commends the towns' effort to address excessive nitrogen challenges in a phased approach. The Pleasant Bay Alliance continues to be a leader in the Watershed Permit program as practices within the program continue to take shape. MassDEP supports

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the Alliance's planning framework and understands that the four towns are pursuing refinements on how to monitor and account for nitrogen removals to present the best estimate of the effectiveness of removal strategies. MassDEP views the Pleasant Bay Alliance as a partner in environmental stewardship towards restoration of the Pleasant Bay estuary. MassDEP values this partnership and will continue to be collaborative and open to ideas and proposals for improving watershed permitting. MassDEP will continue to provide regulatory assistance in Pleasant Bay Alliance meetings and individual meetings with the respective towns as they address other watersheds within their town boundaries.

If you should have any questions on any information provided with this letter, please contact me at Brian.D.Harrington@mass.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Harrington", with a long horizontal stroke extending to the right.

Brian D. Harrington
Deputy Regional Director
Bureau of Water Resources - SERO

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Attachment 1

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TWMP Table 2 (Revised): Nitrogen Removal Requirements

Sub-Watershed	Basis	Nitrogen Load Removal Requirements, kg/yr					Increase
		Brewster	Chatham	Harwich	Orleans	Total	
MtgHouse Pond MHP	TWMP Revised				1,876 2,265	1,876 2,265	21%
Lonnie's Pond LP	TWMP Revised	14 44			284 251	298 295	-1%
Arey's Pond AP	TWMP Revised	29 39			113 236	142 275	94%
The River--Upper RU	TWMP Revised	3 11			375 305	378 316	-16%
The River--Lower RL	TWMP Revised	6 20			518 495	524 515	-2%
Namequoit River NR	TWMP Revised	19 42			348 353	367 395	8%
Pah Wah Pond PWP	TWMP Revised	- -			413 435	413 435	5%
Quanset Pond QP	TWMP Revised	29 51			227 98	256 149	-42%
Round Cove RC	TWMP Revised	1 2		1,209 1,349		1,210 1,351	12%
Muddy Ck--Upper MCU	TWMP Revised		193 1,050	584 2,835		777 3,885	400%
Muddy Ck--Lower MCL	TWMP Revised		584 924	986 1,536		1,570 2,460	57%
Ryder's Cove RC	TWMP Revised		1,954 2,939			1,954 2,939	50%
Crows Pond CP	TWMP Revised		- 354			- 354	
Bassing Harbor BH	TWMP Revised		- 178			- 178	
Frost Fish Ck FFC	TWMP Revised		803 1,099			803 1,099	37%
Pochet Neck PN	TWMP Revised				1,569 1,170	1,569 1,170	-25%
PB-aggregated	TWMP Revised	2,161	542	1,620	1,257	5,580 -	
The Horseshoe TH	TWMP Revised				-	-	
Pleasant Bay Main PBM	TWMP Revised	1,348	704	1,627	761	4,440	
Little Pleasant Bay LPB	TWMP Revised	482	249	287	946	1,964	
Tar Kiln Stream TKS	TWMP Revised	-			-	-	
Chatham Harbor CH	TWMP Revised		- 1,448			- 1,448	
Total	TWMP Revised	2,262 2,039	4,076 8,945	4,399 7,634	6,980 7,315	17,717 25,933	

ECC:

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Pleasant Bay Alliance

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GHD

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DEP-Boston

Attn: Gary Moran, Deputy Commissioner, Operations and Environmental Compliance

DEP- SERO

Attn: Gerard Martin, Southeast Regional Director
Andre Osei, Wastewater Section Chief