

The Pleasant Bay watershed: a primer on environmental impacts and remedies

The Pleasant Bay watershed has been a focus of water quality concerns for years. The 21,000-acre watershed is a source of nutrient pollution to the bay, particularly nitrogen from septic systems, stormwater runoff, and fertilizers. State, regional, and local efforts to study, address and correct deleterious impacts are robust and ongoing. Following is a summary of the state of Pleasant Bay's health based on relevant data and reports from the Pleasant Bay Alliance, as well as state and regional environmental agencies.

Water Quality Status: Excess nitrogen (or nitrogen pollution) continues to be the primary issue impacting the watershed's water quality. It promotes eutrophication, which leads to algal blooms, low oxygen levels, and habitat degradation for fish and shellfish. Sections of Pleasant Bay and sub-embayments such as Muddy Creek, Little Pleasant Bay, and Round Cove have been listed as impaired under the Clean Water Act. Significant initiatives such as the Muddy Creek Restoration project—which involved replacing a culvert with a larger bridge to improve tidal flushing—are having positive effects on water circulation and quality.

Ecological Health: Pleasant Bay has historically supported commercial and recreational shell fishing, but bacterial contamination has led to periodic closures of shellfish beds. Eelgrass beds, too, which are crucial for marine life, have declined in some areas due to poor water clarity and excess nutrients.

Watershed Management & Comprehensive Wastewater Management Plans (CWMPs): The Massachusetts Department of Environmental Protection (MassDEP) and the EPA have established nineteen Total Maximum Daily Loads (TMDLs) for nitrogen in Pleasant Bay, setting a limit on the amount the water body can receive and still meet water quality standards. The Pleasant Bay towns of Orleans, Chatham, Harwich, and Brewster are actively implementing nitrogen-reducing measures under the Pleasant Bay Watershed Permit, the first-of-its-kind state watershed permit from MassDEP in 2018 after creating an intermunicipal agreement to address nitrogen pollution in the watershed. The permit spells out the amount of nitrogen pollution each town is responsible for removing. Towns are achieving nitrogen reductions through sewer expansions, fertilizer controls, and shellfish aquaculture, among other measures. The permit is issued to the towns and is coordinated through the Pleasant Bay Alliance.

Monitoring & Reporting: The Pleasant Bay Alliance has been critical to maintaining and enhancing the health of the Pleasant Bay watershed. It provides monitoring, research, and public outreach across the towns in the watershed, publishing water quality reports and other updates regularly. Coordinated by the Pleasant Bay Alliance, a robust Citizen Scientist program has deployed hundreds of volunteers to conduct water sampling and monitoring that contributes to data collection, helps track progress and detects problems.

