

Turning the tide on Red Tide: its causes & impacts



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In early May 2025, Pleasant Bay experienced a significant red tide outbreak, driven primarily by the rapid growth of *Alexandrium catenella*, a microscopic, toxin-producing algae that can cause paralytic shellfish poisoning (PSP). Such outbreaks, while naturally occurring, have become more frequent and intense due to changing environmental conditions.

What causes red tide outbreaks? Several factors contribute to red tide blooms including: 1) warmer water temperatures caused by rising sea temperatures in the spring that can accelerate algal growth; 2) nutrient runoff created by septic system effluent and other nutrient sources from land that can fuel algae growth; and 3) calm water conditions occurring when reduced wave action allows microorganisms to remain concentrated near the surface where they can thrive.

Short-Term Impacts

- **Shellfish Harvesting Closures:** To protect public health, state officials have closed shellfish beds in the affected areas, disrupting the local shellfishing economy.
- **Marine Life Stress:** The dense algal bloom can reduce oxygen levels and create stressful conditions for fish and other marine organisms.
- **Recreational Disruption:** Water discoloration and potential health risks may deter boating, kayaking, and other water-based activities.

Long-Term Concerns

- **Ecosystem Health:** Repeated blooms can alter the delicate balance of the estuary, potentially leading to long-term shifts in species composition.
- **Property and Tourism Impact:** Continued outbreaks could affect local property values and tourism, as water quality becomes a growing concern for residents and visitors alike.
- **Regulatory Changes:** Future efforts to reduce nutrient loading may lead to stricter regulations impacting local homeowners and businesses.

Understanding the complex factors driving these blooms is essential for protecting the health and vitality of Pleasant Bay. Continued monitoring, responsible nutrient management, and community engagement will be critical to preserving this treasured natural resource for future generations. For the most up-to-date information on red tide outbreaks, contact: 1) Massachusetts Division of Marine Fisheries (DMF), which issues regular shellfish status updates and red tide advisories (see [DMF Shellfish Status Reports](#)); or, contact your local shellfish constable for information.

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