Water Quality

Pleasant Bay Symposium
2008

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Overview of the Pleasant Bay System

• 21,000 acre watershed
• 9,000 acre estuarine system (ACEC)
• 6,800 acre saltwater surface area
• 458 acre freshwater surface area / 11 ponds
• 71 miles of shoreline
  – 51 miles of inner shoreline
  – 7 miles of barrier beach
  – 13 miles around islands
PBA Water Quality Monitoring
Program Objectives

- Provide comprehensive background data on Bay water quality;
- Monitor nitrogen-loading trends;
- Provide data for use in policy, regulatory and educational applications;
- Provide data for WQ modeling (MEP);
- Provide measure of efficacy of mitigation measures;
- Document impacts of morphological changes.
Program Design

- Cooperative effort: Friends of Chatham Waterways; Orleans Water Quality Task Force; Harwich Natural Resources, UMassD-SMAST, & PBA.
- Multiple funding source: PBA Towns; EOEIA.
- Quality Assurance Project Plan: approved by DEP.
- Volunteer training manual developed.
- Over 150 volunteers recruited and trained; yearly re-certification.
Program Design cont.

- **Field Measurements:**
  - Weather, total depth, Secchi depth, temperature, salinity, dissolved oxygen.

- **Laboratory Measurements:**
  - Chlorophyll a, Phaeophytin a, salinity, DON, PON, DIN, POC, PO₄.

- **Surface/bottom sampling** (most stations).

- **Sample collection** July through September.
Pleasant Bay Sampling Stations

- PBA-1. Chatham Harbor
- PBA-2. Bassing Harbor
- PBA-3. Inner Ryder’s Cove
- CM-13. Outer Ryder’s Cove
- CM-14. Frost Fish Creek
- PBA-4. Crows Pond
- PBA-5. Muddy Creek
- PBA-5A. Muddy Creek - Upper
- PBA-6. Big Bay-Southwest
- PBA-7. Big Bay-Mid
- PBA-8. Big Bay-Northeast
- PBA-9. Round Cove
- PBA-10. Quanset Pond
- PBA-11. Paw Wah Pond
- PBA-12. Namequoit Point-South
- PBA-13. Namequoit Point-North
- PBA-14. Arey’s Pond
- PBA-15. Kescayogansett Pond
- PBA-16. Meeting House Pond
- PBA-17. Atlantic Ocean
- PBA-18. Allen’s/Minister’s Point
- PBA-19. Nickerson’s Neck
- PBA-20. Strong Island
- PBA-21. Little Pleasant Bay
Pleasant Bay
Water Quality Sample Stations

- **MID**
- **SURFACE/BOTTOM**

Legend:
- Red triangle: MID
- Blue triangle: SURFACE/BOTTOM

Scale:
- 0 - 2 Miles

Geographic Area:
- Orleans
- Brewster
- Harwich
- Chatham

Water Bodies:
- Pleasant Bay
- CM-13 CM-14

Sample Stations:
- PBA-16
- PBA-15
- PBA-14
- PBA-13
- PBA-12
- PBA-11
- PBA-10
- PBA-9
- PBA-8
- PBA-7
- PBA-6
- PBA-5
- PBA-4
- PBA-3
- PBA-5A
- PBA-19
- PBA-20
- PBA-18
- PBA-2
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- **PBA-21.** Little Pleasant Bay
- **WMO-3.** Pochet - Mouth
- **WMO-5.** Pochet - Upper
- **WMO-6.** Namequoit R.
- **WMO-10.** Meeting House P. - Outer
- **PBA-17A.** Chatham Harbor - Flood Tide
Conclusion

• No observable impact on water quality during summer 2007 from breach caused by the 2007 Patriot’s Day Storm.

• Continued monitoring necessary.
Questions?