Water Quality

Pleasant Bay Symposium 2008

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Shannon Cook

Town of Chatham
Department of Health & Environment

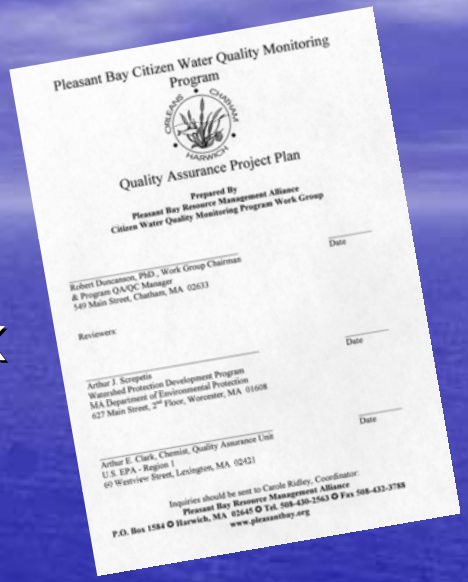
Overview of the Pleasant Bay System

- 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



Pleasant Bay Citizen Water Quality Monitoring Program

Quality Assurance Project Plan

Prepared By
Pleasant Bay Resource Management Alliance
Citizen Water Quality Monitoring Program Work Group

Date

Robert Duncanson, PhD., Work Group Chairman
& Program QA/QC Manager
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Reviewers

Date

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Date

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PLEASANT BAY CITIZEN WATER QUALITY MONITORING PROGRAM
VOLUNTEER HANDBOOK

ORLEANS • CHATHAM • HARWICH

PREPARED BY
PLEASANT BAY RESOURCE MANAGEMENT ALLIANCE
2001
REVISED 00/00/00

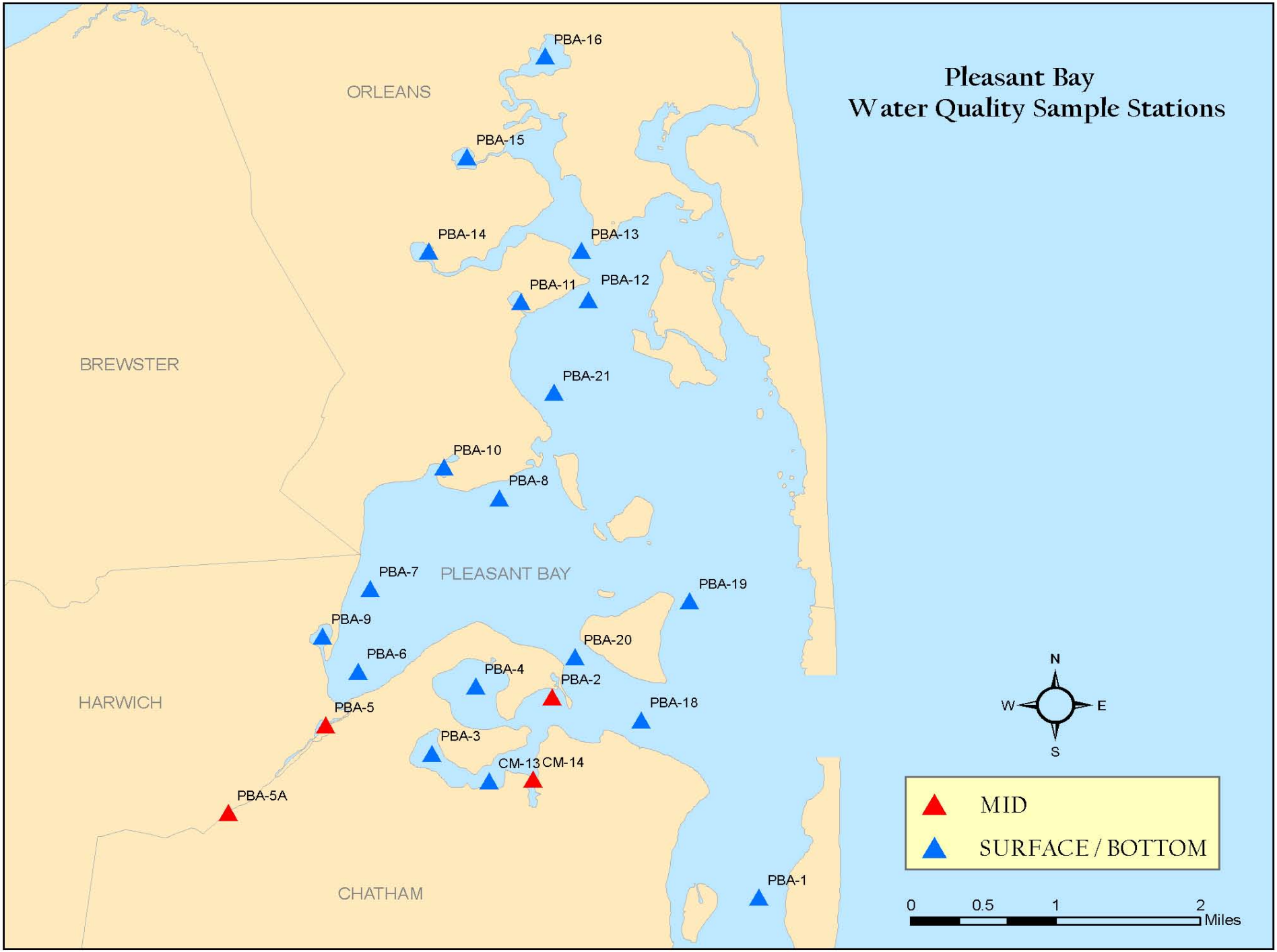
- Cooperative effort: Friends of Chatham Waterways; Orleans Water Quality Task Force; Harwich Natural Resources, UMassD-SMAST, & PBA.
- Multiple funding source: PBA Towns; EOEA.
- Quality Assurance Project Plan: approved by DEP.
- Volunteer training manual developed.
- Over 150 volunteers recruited and 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, PO_4.
- 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
ORLEANS
BREWSTER
HARWICH
CHATHAM
PLEASANT BAY
PBA-16
PBA-15
PBA-14
PBA-13
PBA-11
PBA-12
PBA-21
PBA-10
PBA-8
PBA-7
PBA-19
PBA-9
PBA-20
PBA-6
PBA-4
PBA-2
PBA-18
PBA-5
PBA-3
CM-13
CM-14
PBA-5A
PBA-1
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SURFACE / BOTTOM
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Pleasant Bay Sampling Stations

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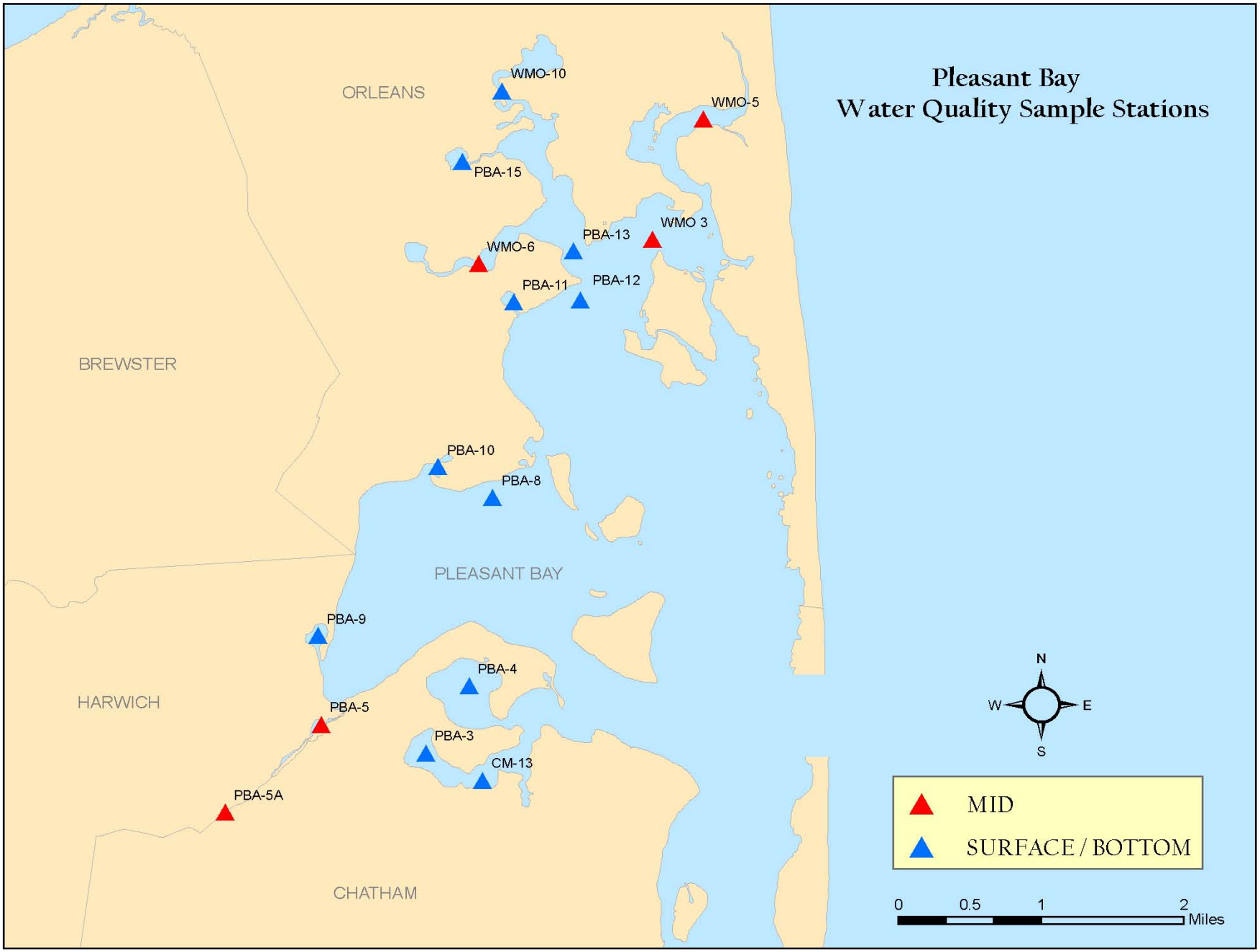
- WMO-3. Pochet – Mouth
- WMO-6. Namequoit R.

- WMO-5. Pochet – Upper
- WMO-10. Meeting House P. – Outer

- PBA-17A. Chatham Harbor – Flood Tide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WMO-10
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PBA-15
WMO 3
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PBA-12
PBA-10
PBA-8
PBA-9
PBA-4
PBA-5
PBA-3
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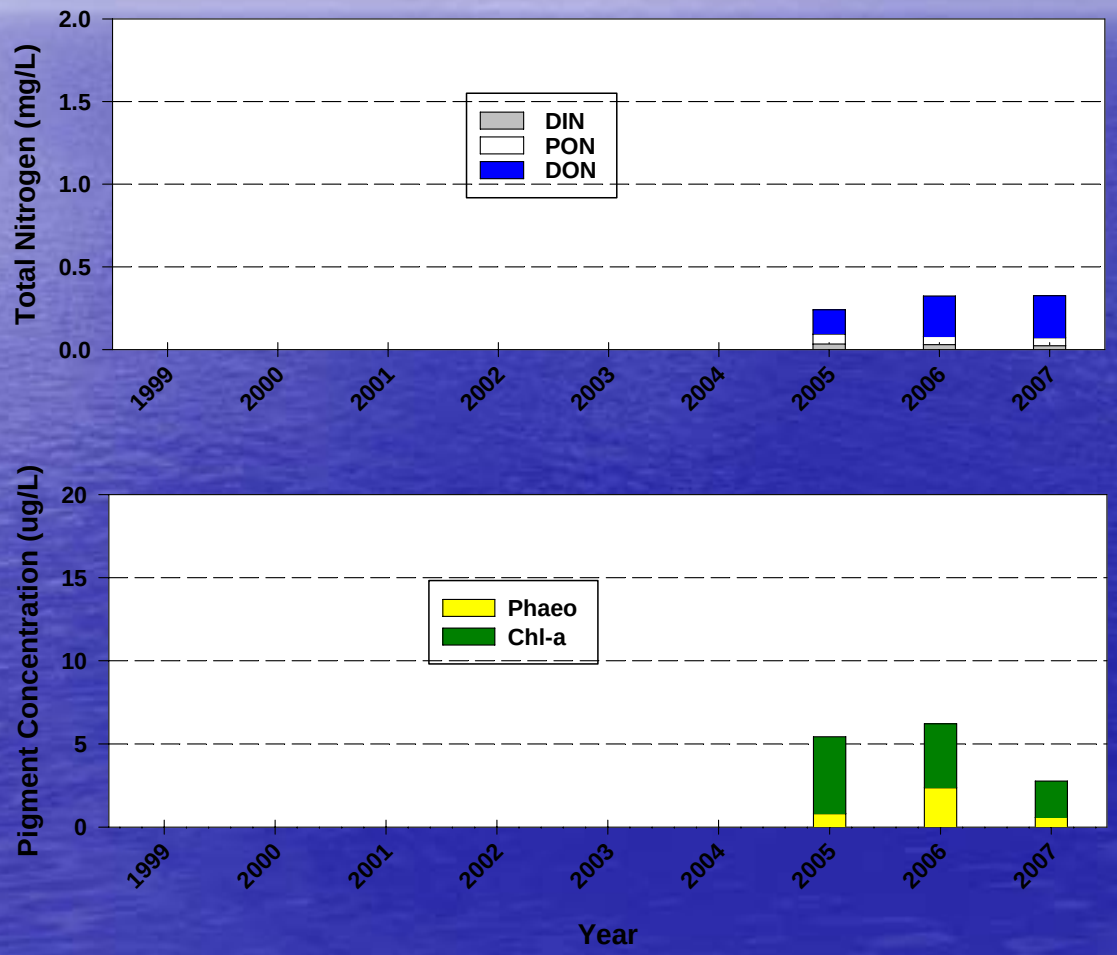
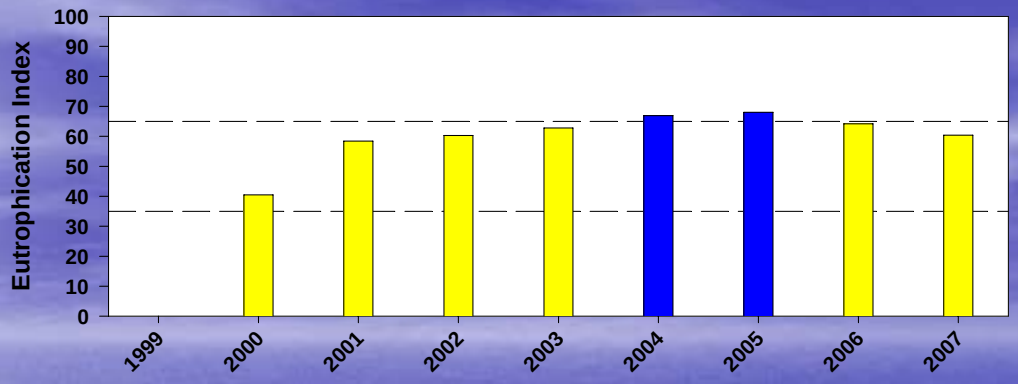
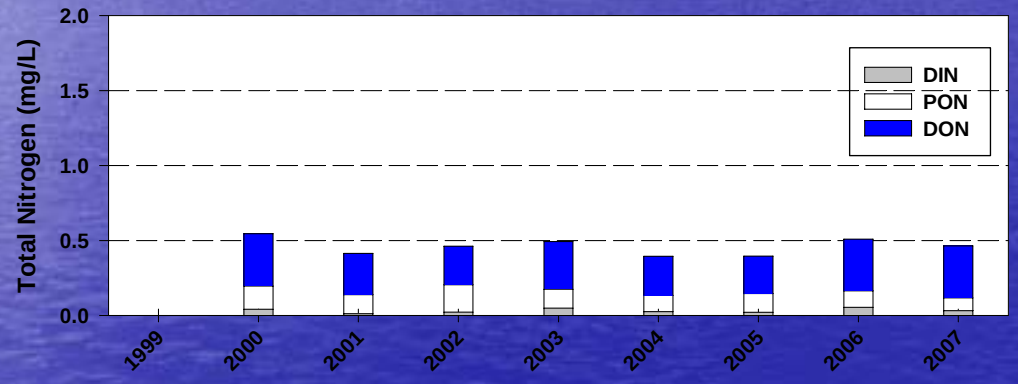
Miles

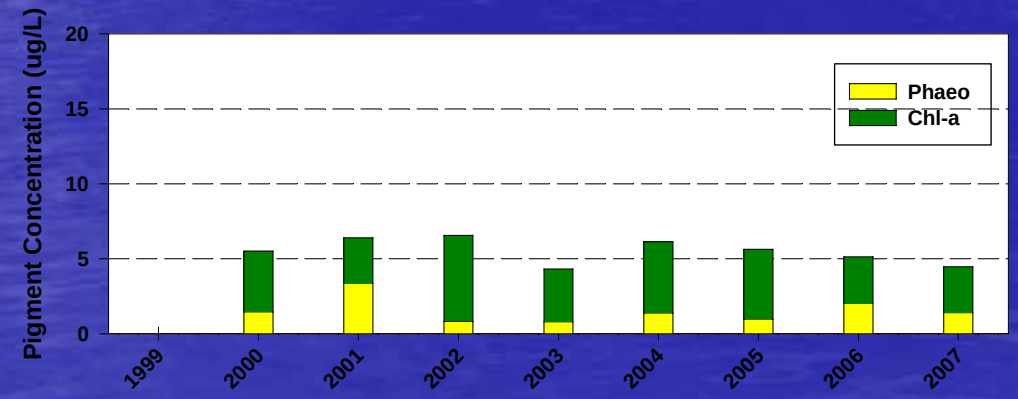
Chatham Harbor Flood Tide (PBA-17A)



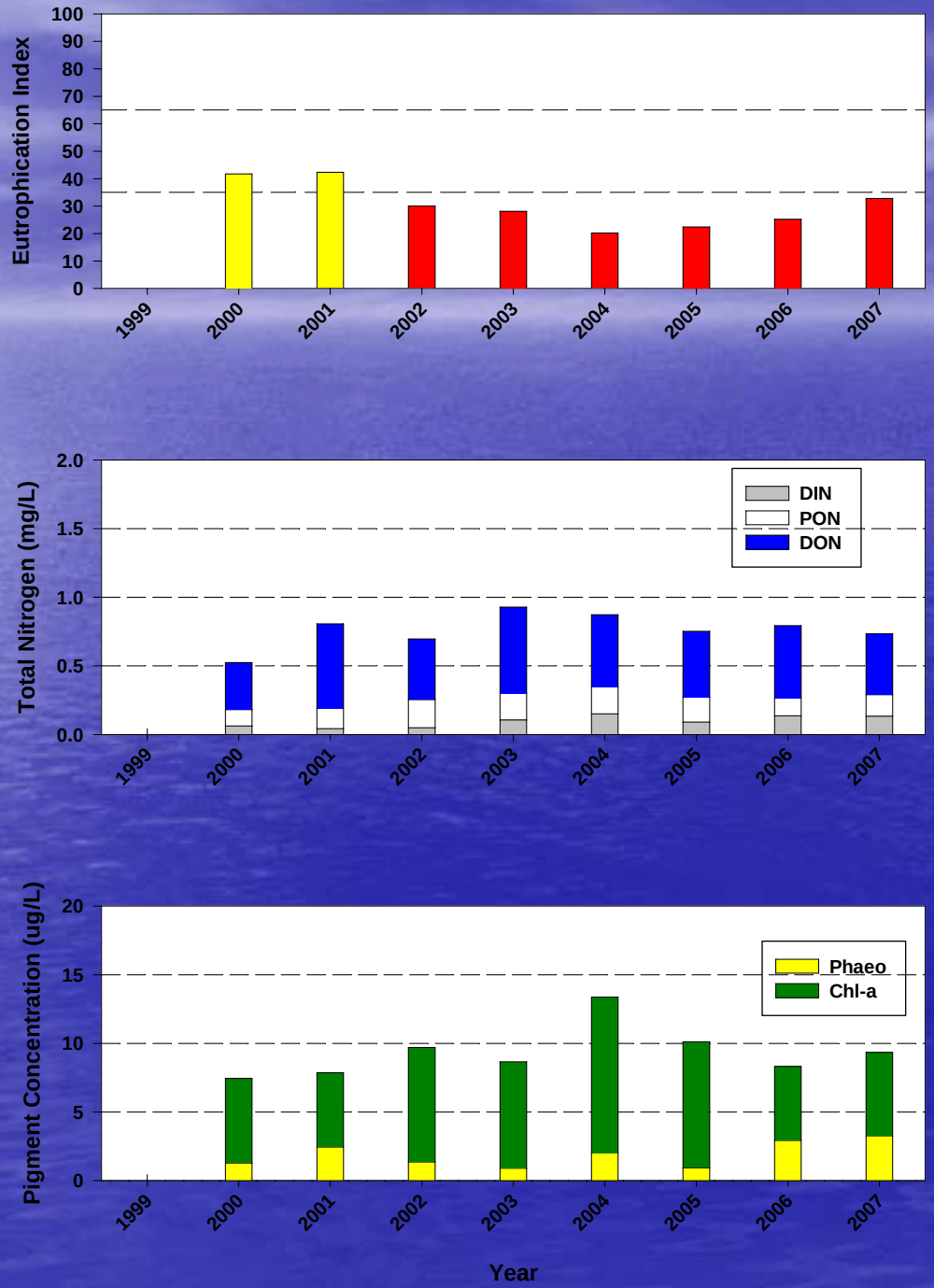
Big Bay - NE (PBA-8)



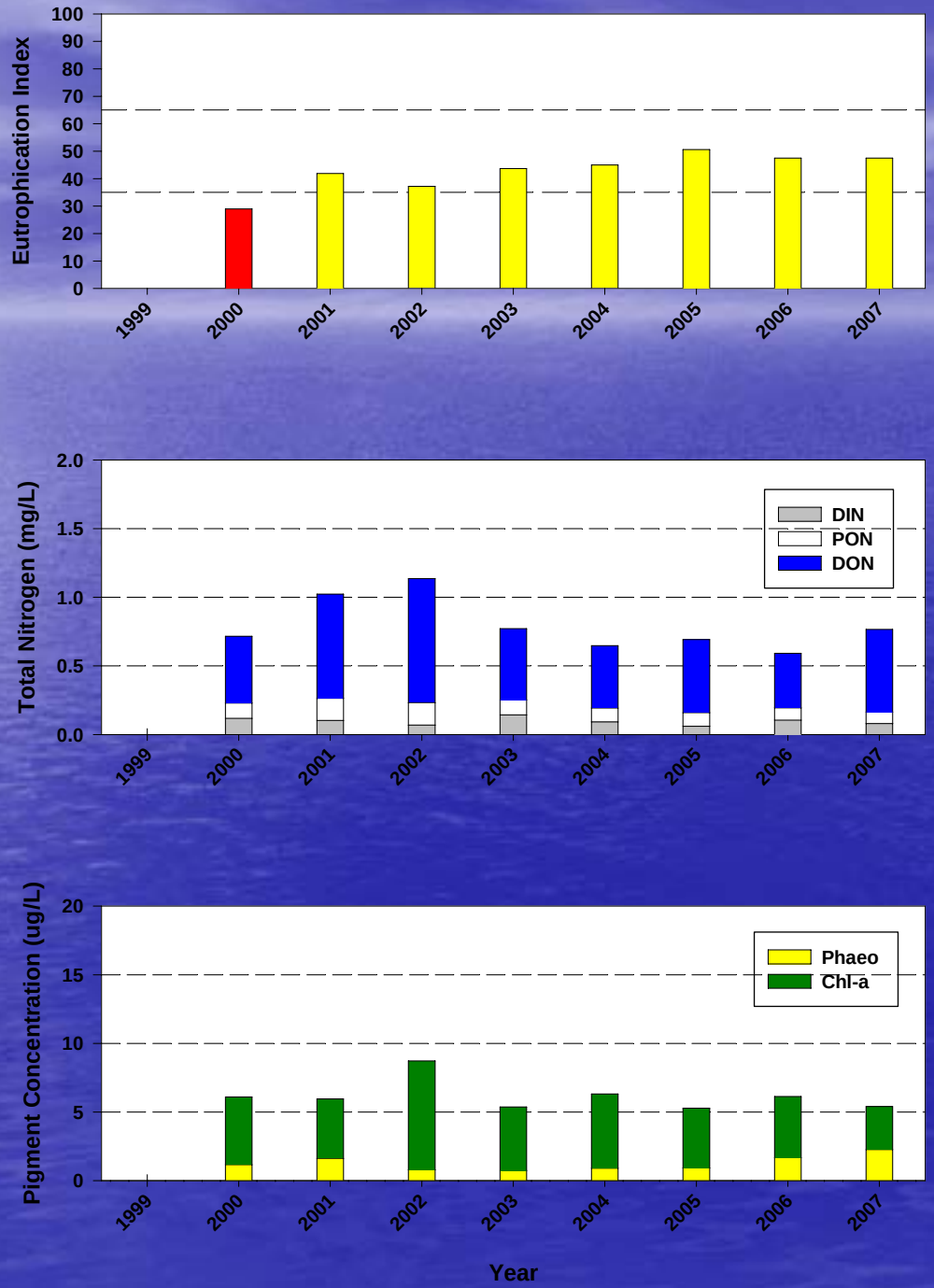




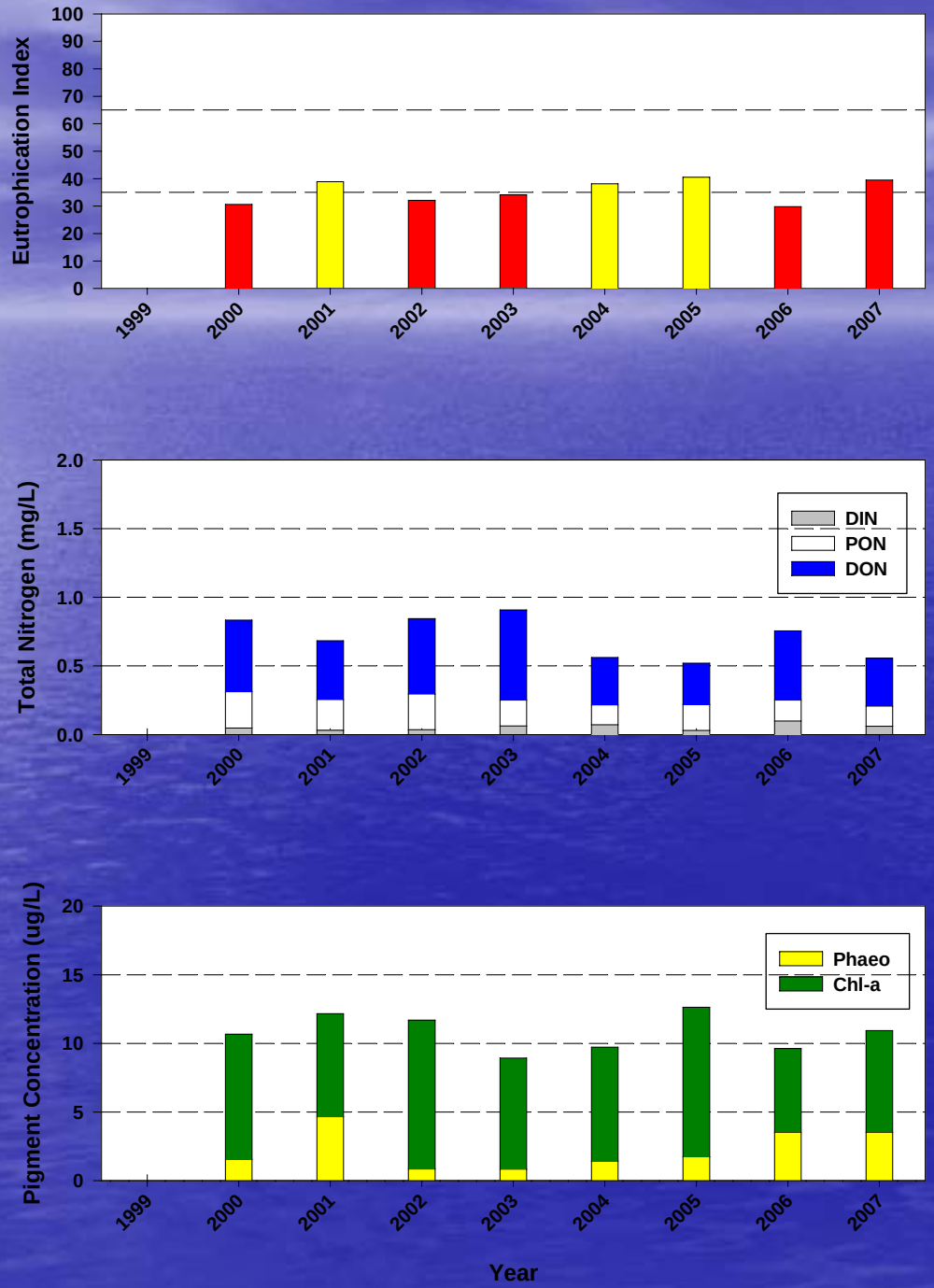
Inner Ryder's Cove (PBA-3)



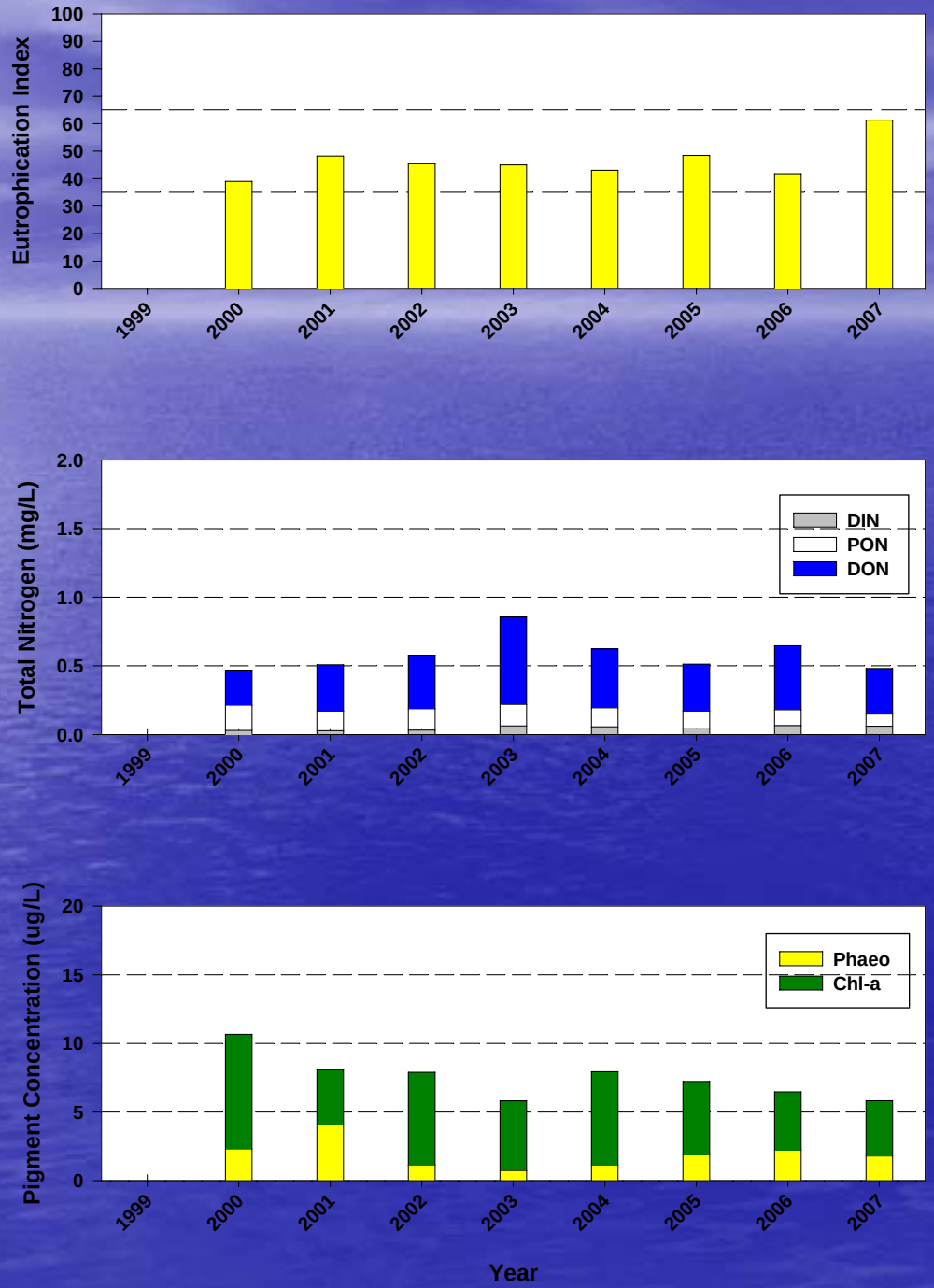
Crows Pond (PBA-4)



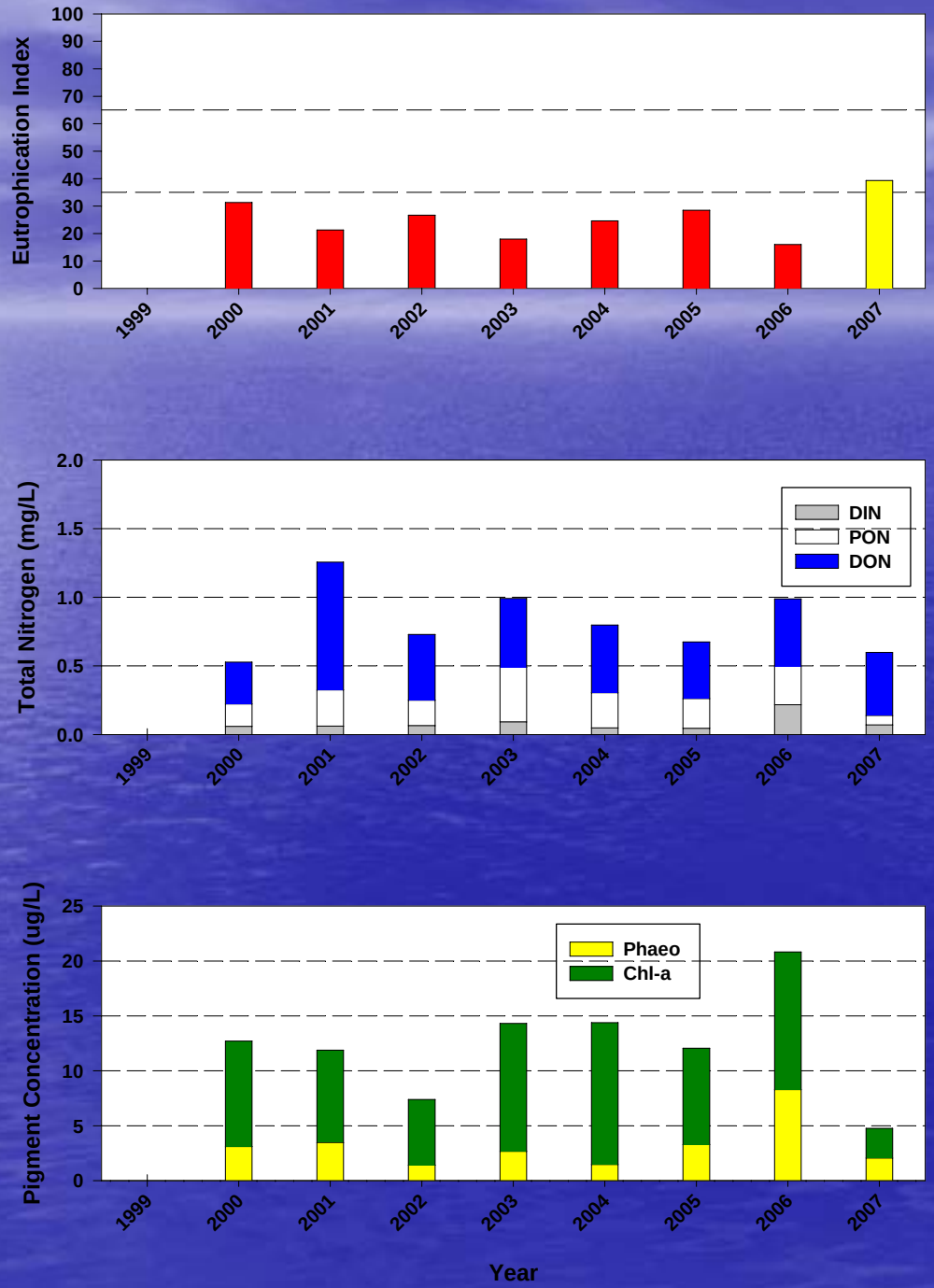
Round Cove (PBA-9)



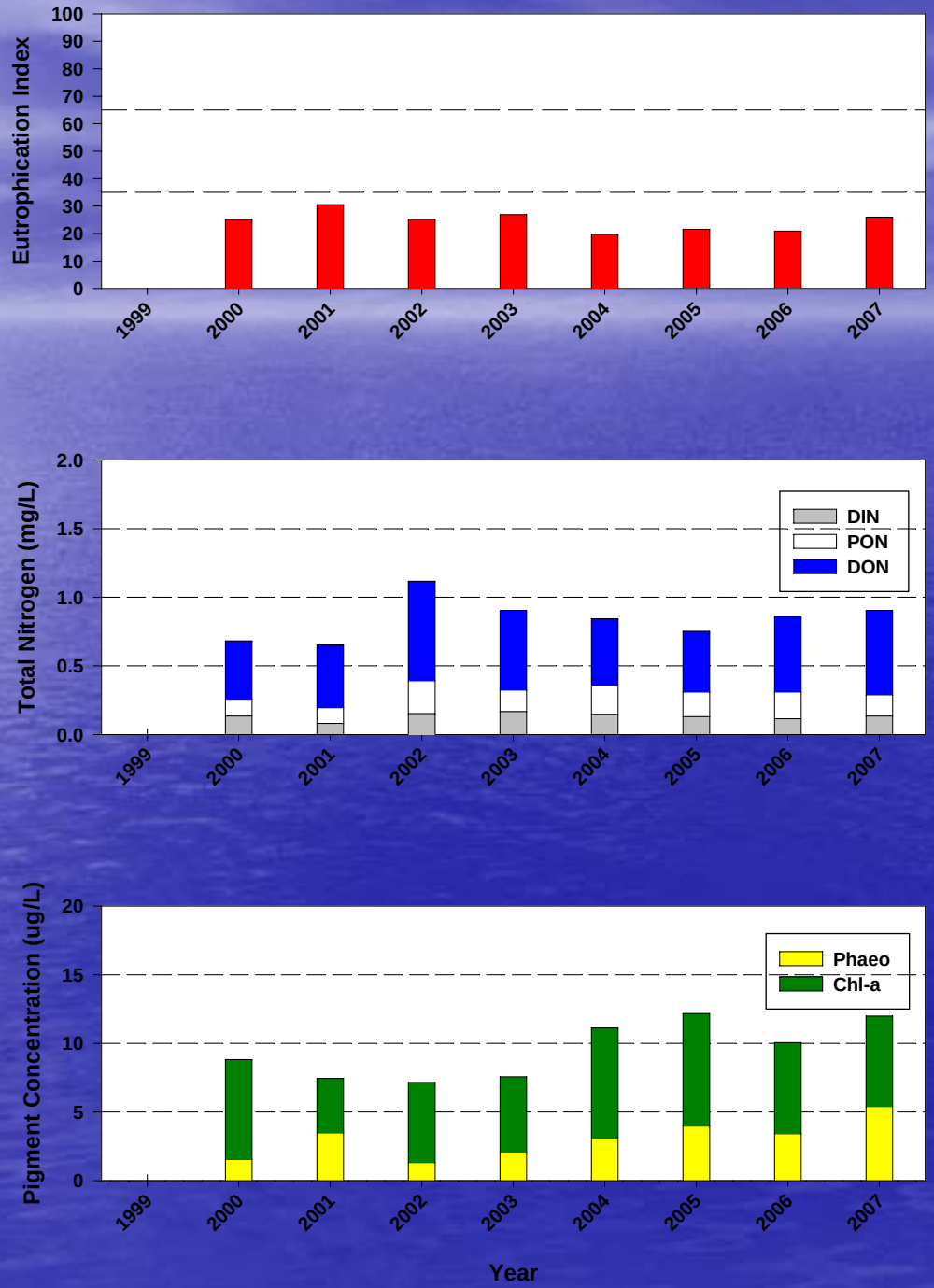
Quanset Pond (PBA-10)



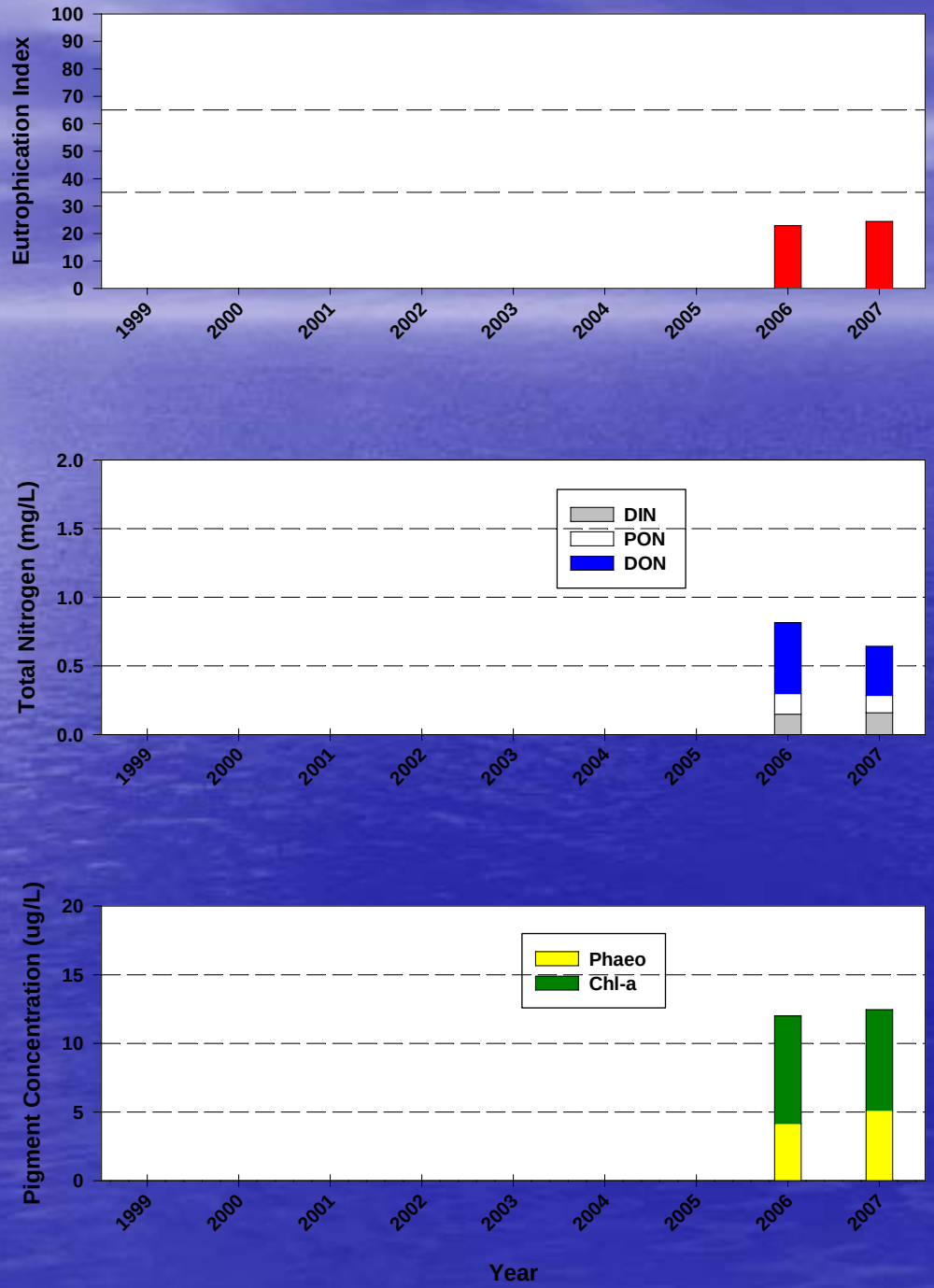
Paw Wah Pond (PBA-11)



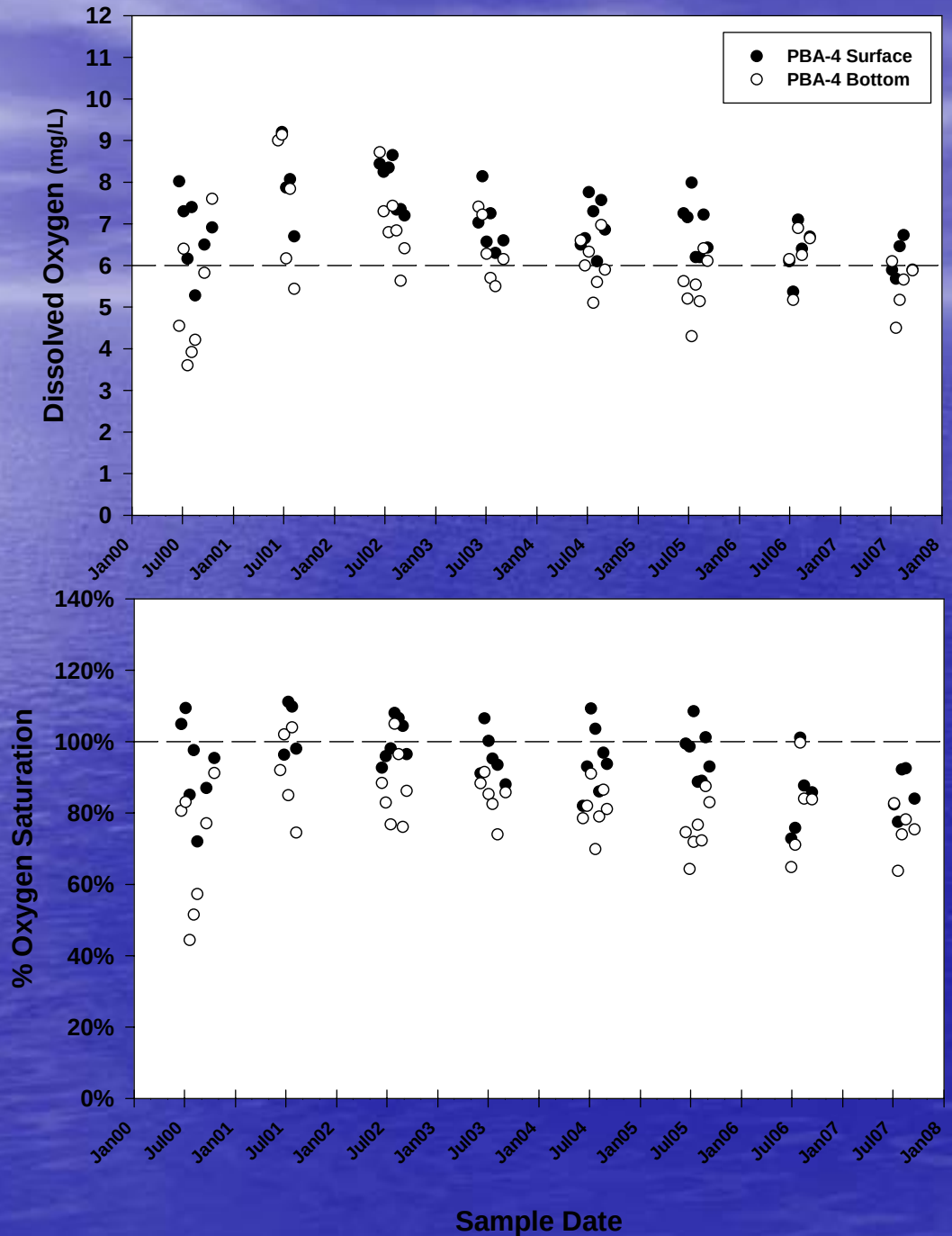
Kescayo gansett Pond (PBA-15)



Meetinghouse Pond @ Rattles Dock (WMO-10)



Crows Pond (PBA-4)



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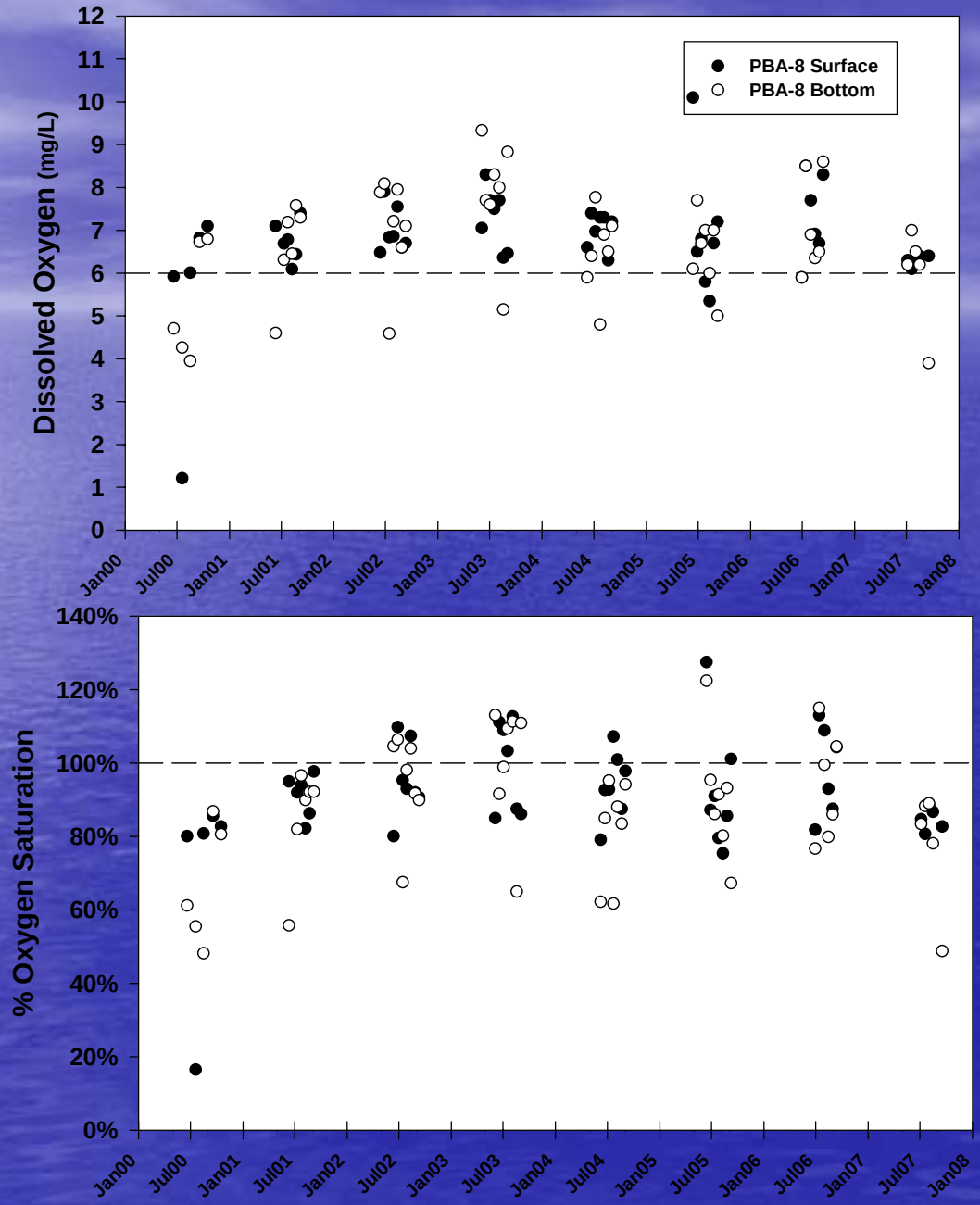

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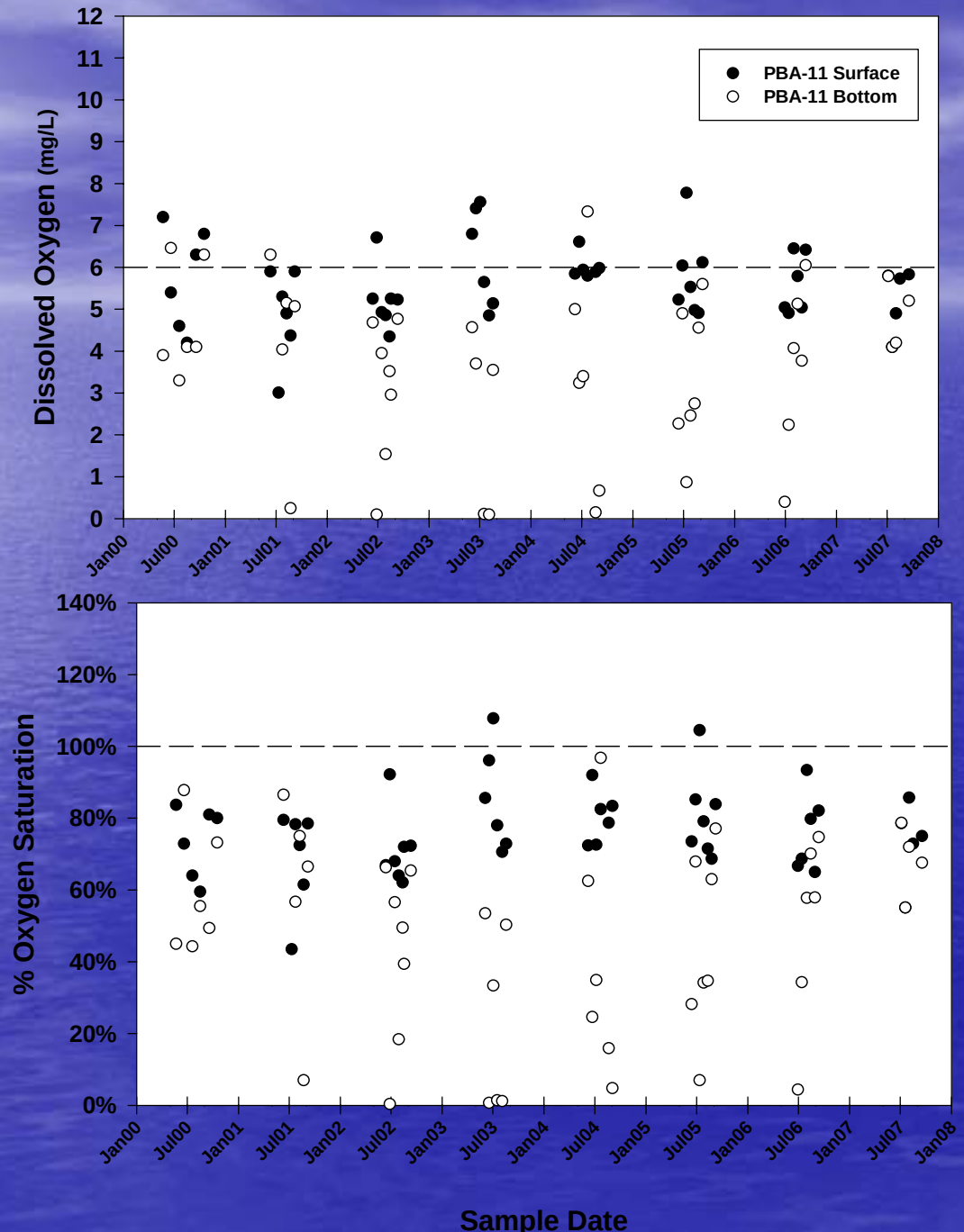

Conclusion

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

Questions?