

**Ambient Water Quality Criteria for Dissolved
Oxygen, Water Clarity and Chlorophyll a for the
Chesapeake Bay and Its Tidal Tributaries: 2010
Technical Support for Criteria Assessment
Protocols Addendum**

April 2010

U.S. Environmental Protection Agency
Region III
Chesapeake Bay Program Office
Annapolis, Maryland

and

Region III
Water Protection Division
Philadelphia, Pennsylvania

in coordination with

Office of Water
Office of Science and Technology
Washington, D.C.

and

The states of
Delaware, Maryland, New York
Pennsylvania, Virginia and
West Virginia and the District of Columbia

Contents

Acknowledgements

I. Introduction

- a. Literature cited

II. Bioreference curve: Refinement to the Methodology.

- a. Background
- b. Time period of data set
 - i. Previously 1985-2006
 - ii. Presently 1996-2006, the randomized sampling period.
- c. Sample sizes/Standard deviations
 - i. 3-yr rolling average: consistent with D.O. assessment method
 - ii. N=10: supports spatial coverage
 - iii. Avg BIBI, SD < 1: consistent with benthic science assessment
- d. Designated uses and their reference curves
 - i. Open Water
 - ii. Deep Water
 - iii. Deep Channel
- e. Literature Cited

III. Chlorophyll a Criteria Assessment: Procedure refinement.

- a. Background
- b. Chlorophyll a: log transformation of data
 - i. Geometric mean
- c. Literature Cited

IV. Review: Episodic Pycnocline Application Defining Designated Uses

- a. Background
- b. Issue of computer code using long term average pycnocline for instances when no pycnocline was identified instead of the criteria-stated episodic pycnocline approach.
- c. Correction on Application of Episodic Pycnocline: Application across all segments with existing definitions of deep water and deep channel designated uses
 - i. List of segments with existing designated uses
- d. Deep water use recognized for South River Mesohaline and Magothy River Mesohaline
 - i. Revised list of segments with their designated uses.
- e. Literature Cited

Acronyms

Appendices