Chesapeake Bay Program
A Watershed Partnership

www.chesapeakebay.net

Backgrounder

410 Severn Avenue, Suite 109 • Annapolis, Maryland 21403 • 410-267-5700 • toll free 800-YOUR-BAY

Over the next several years, Maryland, Virginia, Pennsylvania, New York, Delaware, West Virginia, and the District of Columbia will continue their joint effort to improve water quality for the plants and animals living in the Chesapeake Bay and its tributaries.

Working with the U.S. Environmental Protection Agency, this seven-jurisdiction cooperative partnership will continue to work together to improve water quality through an innovative process that uses three simple, yet encompassing, criteria to monitor the health of the Bay's complex ecosystem and living resources — dissolved oxygen, chlorophyll *a* and water clarity.

New Chesapeake Bay Water Quality Criteria: Chlorophyll *a* and Water Clarity

Chlorophyll *a*

Chlorophyll is the pigment that allows plants (including algae) to convert sunlight into organic compounds (photosynthesis). Of the several kinds of chlorophyll, chlorophyll a is the predominant type of algae.

Measuring chlorophyll *a* concentrations in water is a surrogate for an actual measurement of algae biomass, which is far more expensive and time consuming. Excessive amounts of chlorophyll a indicate the presence of blooms. Blooms usually consist of a single species of algae, typically one that is not desirable for consumption by fish and other predators. Unconsumed algae sink to the bottom and decay, a process that depletes deeper water of oxygen.

On the other hand, too little chlorophyll *a* would mean that not enough “fish food” is available to fuel the food web.

The narrative criteria describes the various possible impacts on tidal Bay habitats due to too much algae and the wrong types of algae. Supporting target concentrations will be used by the state to establish numerical chlorophyll *a* criteria to address localized algal-related problems.

Water Clarity

Underwater bay grasses, commonly referred to as submerged aquatic vegetation (SAV), needs sunlight to survive, albeit less than its terrestrial counterparts. The criteria would apply to depths up to two meters. Areas where SAV never occurred or where natural factors, such as currents and wave action, prevent its growth would be excluded.

In low salinity water, 13% of the light that hits the water surface must reach the underwater plants on the bottom. In high salinity water, 22% of the light that hits the water surface must reach the underwater plants on the bottom.

The Chesapeake Bay Program is restoring the Bay through a partnership among the U.S. Environmental Protection Agency representing the federal government, the State of Maryland, the Commonwealth of Pennsylvania, the Commonwealth of Virginia, the District of Columbia, the Chesapeake Bay Commission, and participating citizen advisory groups.

4/2003