

## Potomac Highlands Watershed School

# WV CSOs for Biology relating to the Stream Cleaner Environmental Forum

For more information search "science" & "biology" at:  
<http://wveis.k12.wv.us/Teach21/public/cso/cso.cfm?tsele1=3>

The SCE Forum meets most 21<sup>st</sup> Century CSO. See your grade level at:  
<http://wveis.k12.wv.us/Teach21/public/21C/21C.cfm>

Biology students should pay special attention to the Power Point that explains how nutrient and sediment pollution eventually causes lower dissolved oxygen levels in the Chesapeake Bay and how this degrades habitat and reduces carrying capacity.

### **SC.PD.B.1.**

Students will

- demonstrate an understanding of history and nature of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- demonstrate the ability to use the inquiry process to solve problems.
- relate science-technology-societal issues while using a variety of sources to construct and defend their solutions.

Distinguished....."relate science-technology-societal issues while using a variety of sources to construct solutions and defend their ideas to an authentic audience" This is the core of the eForum. Using the variety of lessons, reading, charts, and graphs to understand the problem of non-point source pollution (for biology, the impacts of nutrient & sediment on low oxygen levels in the Bay is a good focus) and then drafting and defending a Point Of View (POV).

**SC.PD.B.1.3.** "conduct and/or design....." dissolved oxygen level information available by following our Real Time Data (click on the CBIBS yellow buoy in the classroom) or use the charts and graphs in the lessons on the Chesapeake Bay model to design an investigation.

**SC.PD.B.1.5** "draw conclusions..." A good POV paper will meet this CSO.

**SC.PD.B.1.6** "investigate.....personal & societal problems." ditto POV.

**SC.PD.B.1.7** ".....construct and defend potential solutions." ditto POV.

**SC.PD.B.1.8** ".....relate societal, cultural.....to key scientific innovations." student should discuss the Bay Programs monitoring, mapping, and modeling of non-point source pollution, water quality, and the health of the Bay from their own stakeholder position.

**SC.PD.B.1.9** "synthesize concepts across ....disciplines....." Our "Native Guide" white papers represent various disciplines, and student peer-stakeholder groups will present various "disciplines" that the student must incorporate/address to understand the big picture of the Bay's problems.

### **SC.S.B.2.**

Students will

- demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories, and models as delineated in the objectives; demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences.
- apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Distinguished: "investigate the chemistry of cellular processes and biological molecules and relate structure to function in various cells and organisms; ....analyze the flow of energy in cells, organisms, and the environment; [and] "research various biomes, analyze the interrelationships of organisms and explain factors the (sic) affect coevolution."

**SC.S.B.2.1** . ".....properties of chemical and biological molecules to their function..." students should discuss how nutrients cause excess algal blooms cause low oxygen etc.

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**SC.S.B.2.4** “relate structure ...functioning of organism.” How does sediment blocking light reduce photosynthesis reducing O levels and how does sediment aggravate gills further reducing fish’s ability to “breathe”

**SC.S.B.2.7** “....photosynthesis....” ibid sediment above

**SC.S.B.2.20** “.....environmental factors that affect...communities.” Big picture issue of how agriculture & suburban development cause nutrient & sediment pollution and the impact on aquatic life in the Bay estuary

**SC.S.B.2.23** “analyze interrelationships.....” Impact of algal blooms on dissolved oxygen and loss of aquatic grasses on same.

**SC.S.B.2.24** “analyze graphs.....” The SCE Forum provides many graphs & maps and off-site links to additional modeling material related to dissolved oxygen and carrying capacity.