

Teaching Units for High School Science Developed by

Duke University Graduate Students in Pharmacology 693/694

 Master of Arts in Teaching (MAT)

<http://sites.duke.edu/rise/duke-courses/pharm-693694/>

**Warm-Up: Clean Water Act (1972)**

***The following excerpt from the Clean Water Act covers water quality standards and implementation. Please read through the legislation and on the back of this paper, please summarize what this section entails. Next, please get into groups and write down on this paper your ideas in regards to the positive and negative repercussions of such legislature and their difficulty of enforcement.***

**Title 33, Chapter 26, Subchapter III**

**Identification of areas with insufficient controls; maximum daily load; certain effluent limitations revision**

**(1)**

**(A)** Each State shall identify those waters within its boundaries for which the effluent limitations required by section [1311](http://www.law.cornell.edu/uscode/text/33/1311) [(b)(1)(A)](http://www.law.cornell.edu/uscode/text/33/usc_sec_33_00001311----000-#b_1_A) and section [1311](http://www.law.cornell.edu/uscode/text/33/1311) [(b)(1)(B)](http://www.law.cornell.edu/uscode/text/33/usc_sec_33_00001311----000-#b_1_B) of this title are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters.

**(B)** Each State shall identify those waters or parts thereof within its boundaries for which controls on thermal discharges under section [1311](http://www.law.cornell.edu/uscode/text/33/1311) of this title are not stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife.

**(C)** Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section [1314](http://www.law.cornell.edu/uscode/text/33/1314) [(a)(2)](http://www.law.cornell.edu/uscode/text/33/usc_sec_33_00001314----000-#a_2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

**(D)** Each State shall estimate for the waters identified in paragraph (1)(B) of this subsection the total maximum daily thermal load required to assure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife. Such estimates shall take into account the normal water temperatures, flow rates, seasonal variations, existing sources of heat input, and the dissipative capacity of the identified waters or parts thereof. Such estimates shall include a calculation of the maximum heat input that can be made into each such part and shall include a margin of safety which takes into account any lack of knowledge concerning the development of thermal water quality criteria for such protection and propagation in the identified waters or parts thereof.