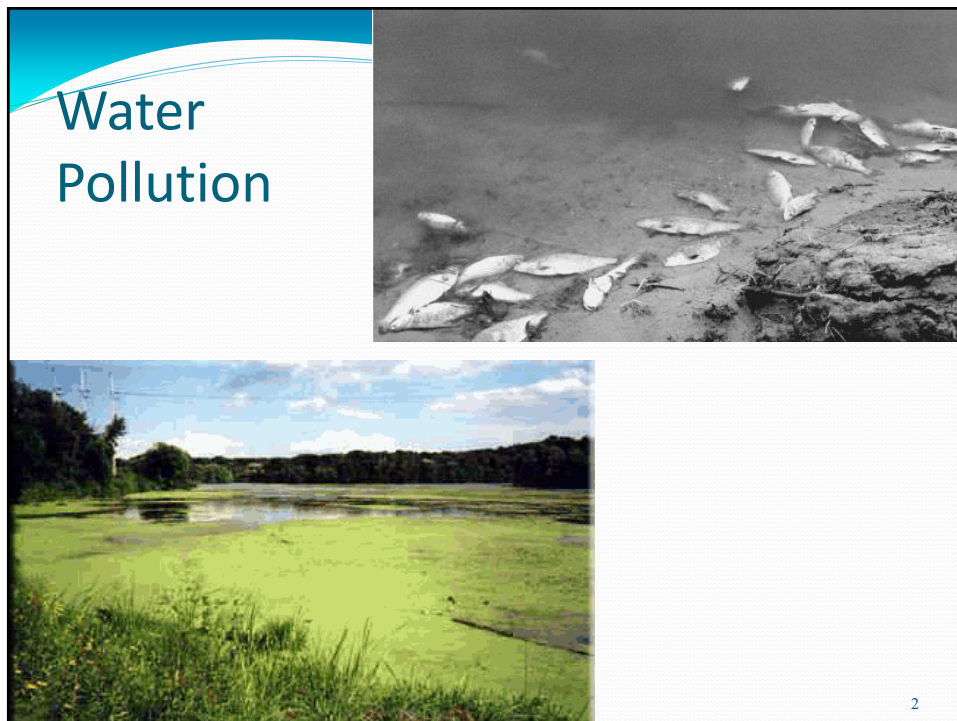


Updated: 7 September 2017 [Print version](#)

CEE 577: Surface Water Quality Modeling

Lecture #1
(laws, regulations and standards)

Water Pollution



2



More Pollution

3

Outline

- Laws and Regulations
 - USEPA
 - History
 - Wastewater
 - Natural Waters
 - Regulatory Methods
 - Environmental Quality Based
 - Effluent Based
- Water Quality Modeling Objectives
- Loading Rates

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Laws and Regulations

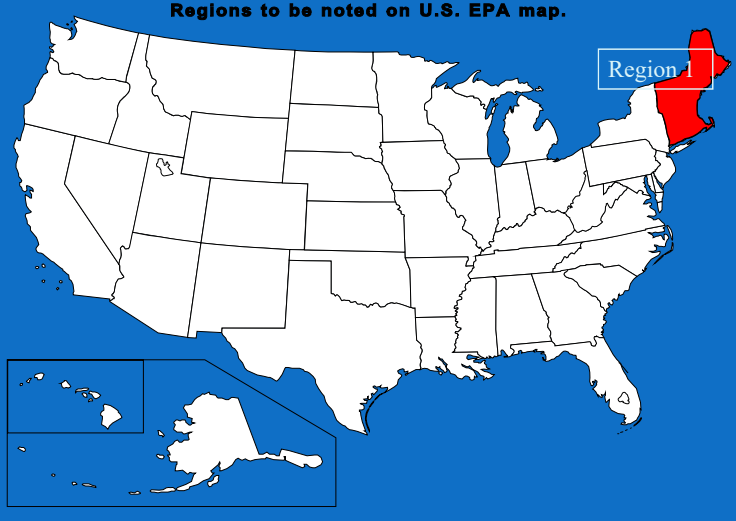
- Laws: passed by a majority of both *legislative* houses and signed by the President
- Regulations: established by *executive* branch (USEPA) in response to laws
 - propose in Federal Register
 - public comment and modification
 - promulgation: into Code of Federal Regulations (CFR Part 40)

USEPA Regional Addresses

U.S. EPA Region 1 JFK Building Boston, MA 02203	U.S. EPA Region 2 26 Federal Plaza New York, NY 10278
U.S. EPA Region 3 841 Chestnut Street Philadelphia, PA 19107	U.S. EPA Region 4 345 Courtland Street, NE Atlanta, GA 30365
U.S. EPA Region 5 77 West Jackson Blvd. Chicago, IL 60604	U.S. EPA Region 6 First Interstate Bank Tower 1445 Ross Avenue, Suite 1200 Dallas, TX 75202
U.S. EPA Region 7 726 Minnesota Avenue Kansas City, KS 66101	U.S. EPA Region 8 999 18th Street, Suite 1500 Denver, CO 80202
U.S. EPA Region 9 75 Hawthorne Street San Francisco, CA 94105	U.S. EPA Region 10 1200 Sixth Avenue Seattle, WA 98101

USEPA Region #1

Regions to be noted on U.S. EPA map.



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Legislative History

- 1899: Rivers and Harbors Act
 - Prohibited disposal of solid objects in navigable waters
- 1948: Water Pollution Control Act
 - first national water quality legislation
- 1966: Clean Rivers Restoration Act
- 1970: National Environmental Policy Act (NEPA)
 - required an Environmental Impact Statement (EIS) for all federally-funded projects

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Legislative History (cont.)

- 1970: USEPA formed
- 1972: Federal Water Pollution Control Act
 - PL 92-500 subsequently amended and now called the **Clean Water Act**
 - established water quality goals “fishable & swimmable” and timetable
 - established National Pollution Discharge Elimination System (NPDES)
 - construction grants for WW treatment

PL 92-500 policies (cont.)

- **Comprehensive Pollution Control Planning Programs**
 - 106 - *State Work Plans or Program Summaries*
 - 201 - *POTW Facilities Planning*
 - 205 - *Statewide Planning*
 - 208 - *Areawide Planning*
 - 209 - *Interstate River Basin Planning*
 - 305 - *Inventory of Point Sources & Water Quality*
 - 303c - *Water Quality Implementation Plans*
 - *Basis for current WQ standards program*
 - 303d - *List of waters needing TMDL*
 - *Impaired & threatened waters, Impaired by pollutants*
 - 303e - *develop plans for TMDLs*
 - 319 - *Nonpoint Source Control Planning*

Legislative History (cont.)

- **1977: Clean Water Act Amendments**
 - Best Available Technology (BAT) for 21 Industrial Categories for removal of 65 (later 126) "priority pollutants".
- **1987: Water Quality Act**
 - Forced States to adopt numerical criteria for priority pollutants
 - Addressed non-point sources
 - Great Lakes Program (1990)
- **1988: Federal Clean Water Act Revisions**
 - waterbodies that are listed on the 303d list must be brought into compliance using a "Total Maximum Daily Load or other watershed approach."
- **for more information, see:**
 - [EPA's CWA History page](#)
 - *The Clean Water Act with Amendments, WPCF 1982*
 - *The Clean Water Act 20 Years Later, Adler et al., 1993*

Historical Regulatory Methods

- **Environmental Quality-Based Standards**
 - cannot degrade environment beyond a certain level
 - dependent on immediate environment
 - more flexible
- **Effluent-Based Standards**
 - cannot discharge above a certain level of pollutant
 - independent of immediate environment
 - easier to establish and monitor



Gold King Mine Spill



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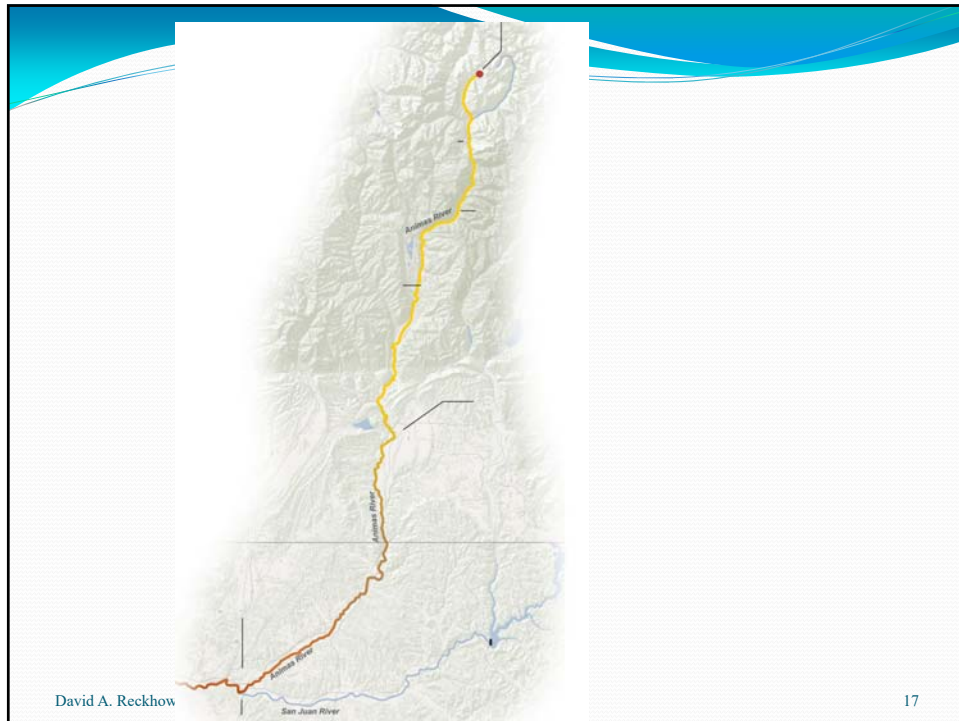


Water samples (■) collected prior to the plume's arrival.

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