

# Commanding Clean Water

Protecting Public Health and the  
Aquatic Environment

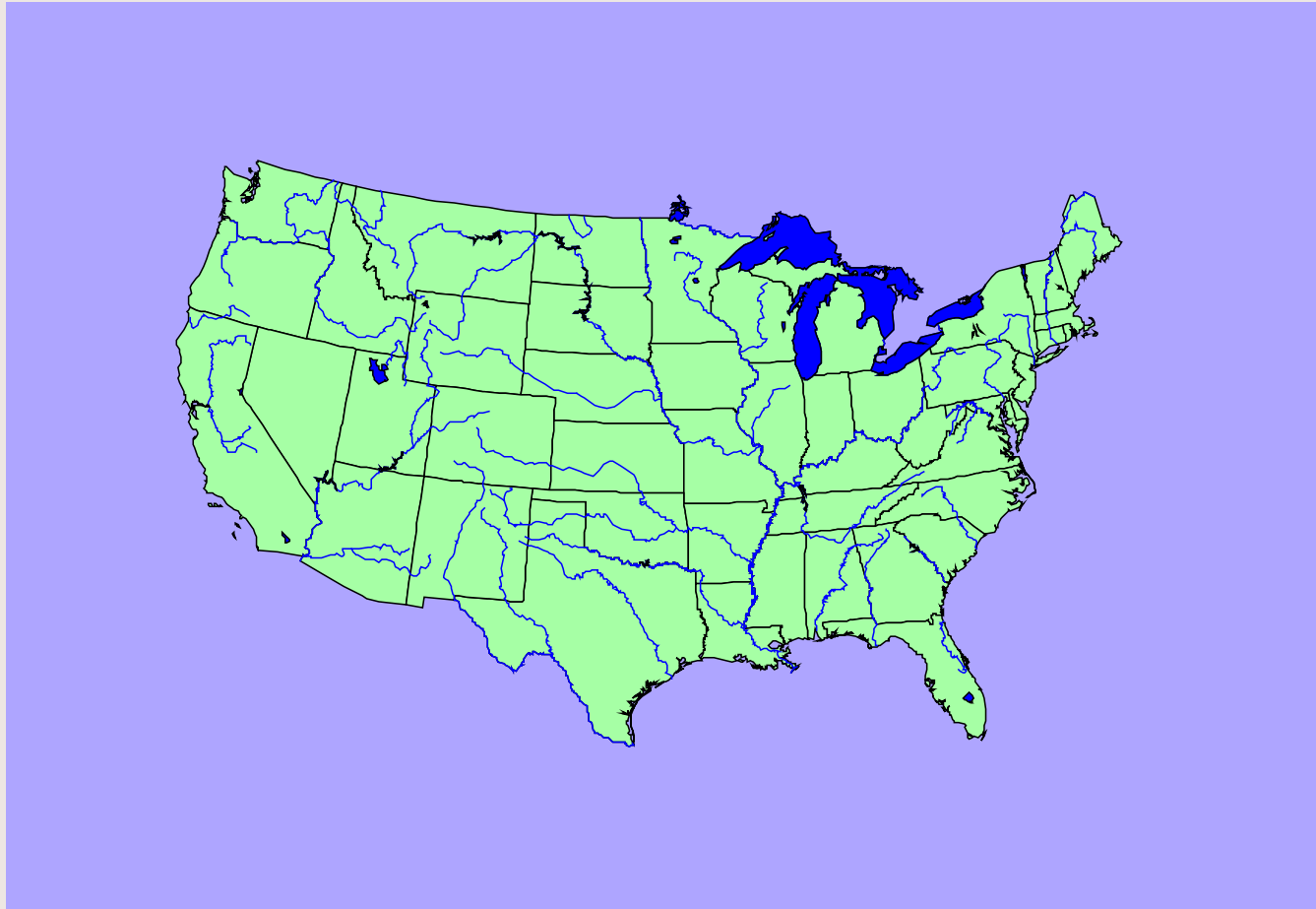
# Issues to Consider:

- When and how did water pollution get on the government agenda and how was this “problem” ultimately framed?
- How did the Clean Water Act of 1972 try to accomplish government environmental policy goals?
- Did the CWA 1972 reduce the problem(s)?

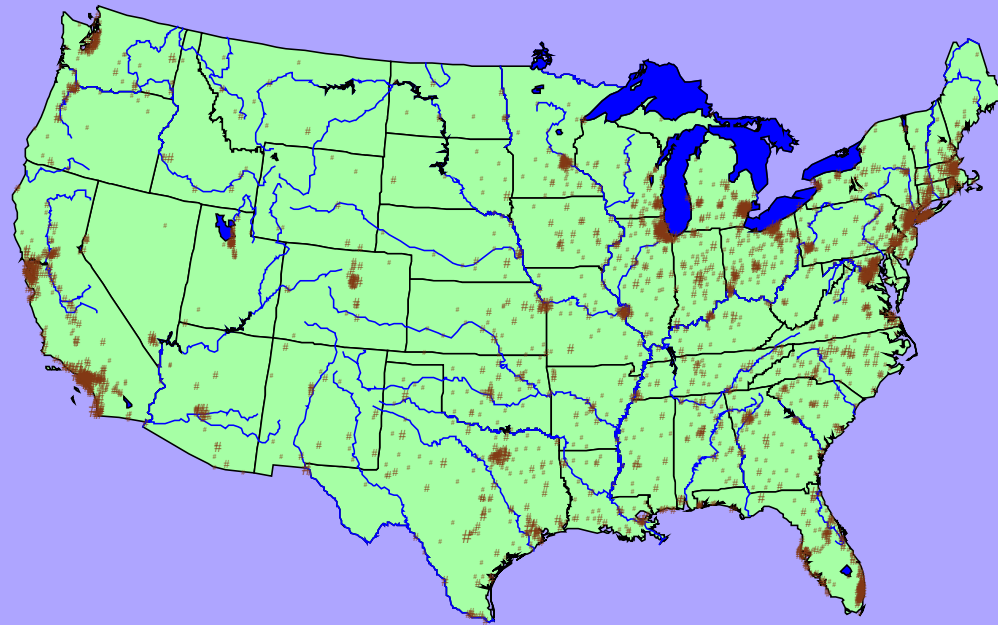
# The Problem

- Urbanization & Population Growth
- Industrialization & Agricultural Technology
- Waterways as Open Access Resource
  - Harbors, bays, rivers, lakes, ponds
  - Marginal cost of use is “0”
  - Cost of Exclusion is Very High

# U.S. Waterways



# US Urban Distribution



# Estimates of Discharges

pre-1972 (millions of pounds/year)

	<b>5-day BOD</b>	<b>TSS</b>	<b>TDS</b>	<b>TP</b>	<b>TN</b>
<b>Point Source</b>					
Industrial	8,252	50,355	290,184	353	559
Municipal	5,800	6,000	31,847	101	1,111
Total PS:	14,042	56,355	322,031	454	1,670
<b>Non-Point Source</b>	18,901	3,433,321	1,536,458	2,986	12,480
<b>Total</b>	32,953	3,478,676	1,858,489	3,440	14,150
<b>% NSP</b>	57%	98%	83%	87%	88%

Paul Portney (1990) *Public Policies for Environmental Protection*, p. 109.

# Refuse Act of 1899

- To protect *navigation*
- Ban dumping of refuse matter into waterways
- Federal permitting

# Water Pollution Control Act 1948

- To encourage water pollution control (interstate municipal sewage)
- Federal research & investigation
- State and local governments set standards
- Federal loans for municipal sewage treatment
  - no funds ever appropriated



# Water Pollution Control Act Amendments 1956

- Encourages States to set water quality criteria (interstate municipal sewage)
- Federal (discretionary) enforcement assistance to mediate state-polluter disputes; based on volunteerism & consensus building
  - Public Health Service, HEW
- Federal grants for municipal sewage treatment
  - up to 55% of cost

# Water Quality Act 1965

- First federal law to mandate state water quality standards
- To attain ambient water quality standards set by states for interstate water bodies
- States *must* set water quality standards, implementation plans (discharge limits to meet standards), & enforcement plans to limit pollution by individual sources
- Federal government would approve the plans
- Federal financing of municipal sewage treatment plants as per WPCA 1956

# Pollution Control Pathology

- No realistic way to determine discharge limits based on water quality criteria
- No way to establish which dischargers were to blame for violations of water quality criteria
- State enforcement weak
  - Lack of capacity
  - Lack of will

# Clean Water Act 1972

- 1970 Nixon proposes modest bill
  - Congress does not act
- 1971 Nixon issues executive order
  - EPA to require discharge data from industry
  - EPA to issue permits for discharges
- 1972 CWA
  - Far more stringent than Nixon proposal (120 pages)
  - Many times more costly in \$\$\$ grants to states

# Statutory Goal

- “...restore the chemical, physical, and biological integrity of the nation’s waters...”
  - Eliminate all (*point source*) pollutant discharges into the nation’s  navigable  waterways by 1985
  - “...provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water...” by 1983
  - The term “point source” means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.

# Provisions -- General

- States to set water quality standards according to use designation set by state
  - Recreation, fishing, waste disposal, irrigation, etc.
  - (EPA guidelines)
- EPA to set discharge limits based on technology
  - Best available *current* technology as of 1979
  - Best available *economically achievable* technology by 1983
- All facilities discharging pollutants into U.S. waterways required to have NPDES permit

# Provisions – Municipal Sewage Plants

- All municipal treatment plants existing in 1977 to have secondary treatment
- All municipal treatment plants to have “...best practicable treatment technology” by 1983...”

# Provisions – Non-Municipal Sewage Plants

- All new discharge sources (except municipal treatment plants) to have “...best available demonstrated control technology, operating methods, or other alternatives”



# Provisions – Toxic Pollutants

- EPA to set standards for “toxic” discharges
- EPA to set standards for pre-treatment standards for water entering municipal treatment plants
  - To control “toxic” pollutants dumped by industry into municipal systems
  - 20,000 dischargers in 2,500 municipal systems

# Provisions – Enforcement

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- EPA can delegate enforcement to states
- \$18 billion for municipal sewage treatment (75% of cost by federal government)

# Clean Water Act Mechanisms

- Command & Control
  - Regulation by Standard Setting & Enforcement
  - Extensive State Participation/Authority
- ~~Specificity~~
- Strict Deadlines
- Hammer Clauses
- Technology Forcing Provisions
- Citizen Engagement
  - Legal standing & cost recovery
  - Public hearings

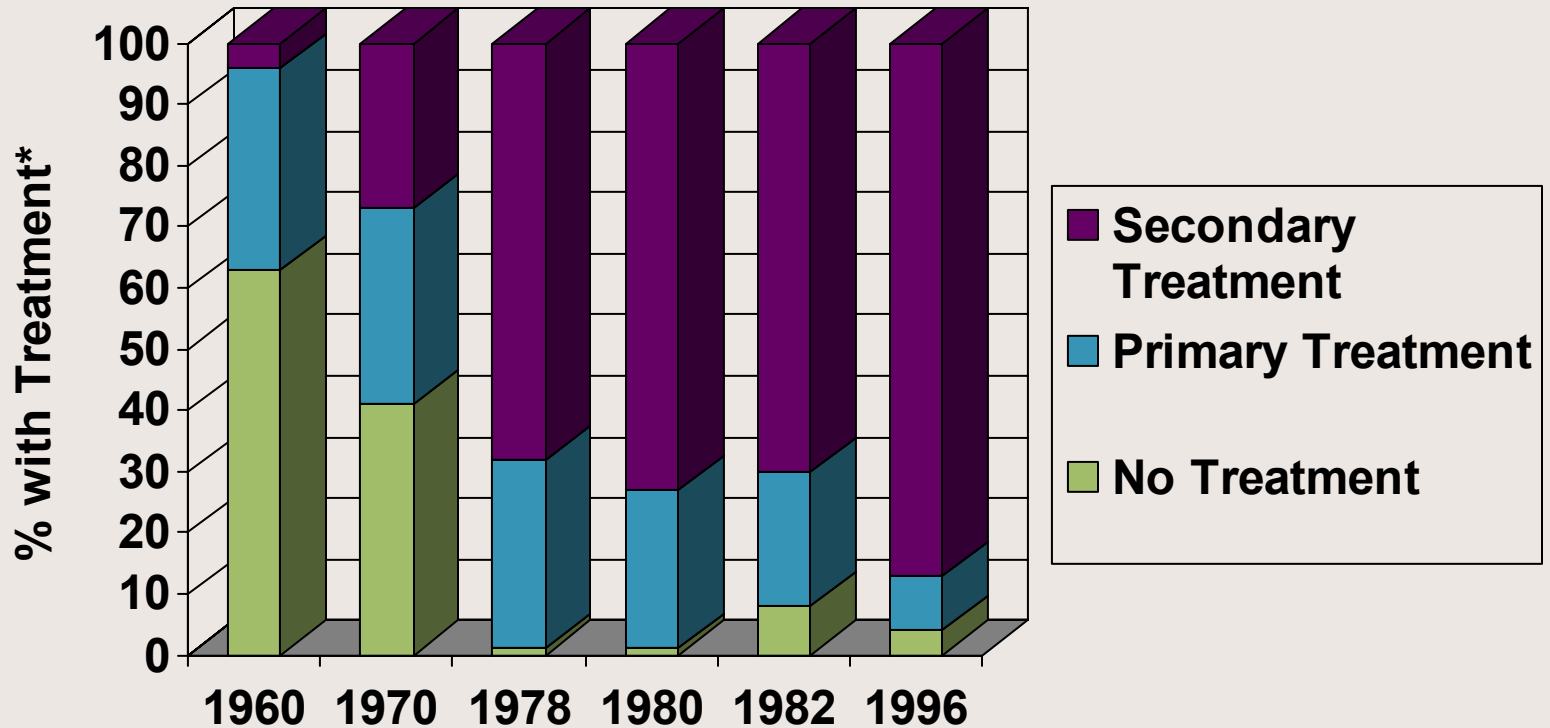
# Analysis

- CWA 1972 offers many concessions to states
  - 43 states have assumed responsibility for implementing and enforcing the CWA
- Focus on point source pollution only
  - What about non-point source pollution?
- Federal money used as carrot
- Not actually implemented until 1976!
  - Result of a law suit

# 1977 CWA Amendments

- Extended deadlines for meeting discharge limits to 1984
  - Non-toxic pollutants (sewage): “best conventional pollution control technology”
  - Toxic Pollutants: “best available technology”
- Relaxes secondary treatment requirement
  - MWWTP discharging into deep ocean where “fishable & swimmable” & drinkable criteria are met
- \$25 billion additional in federal grants for MWWTPs

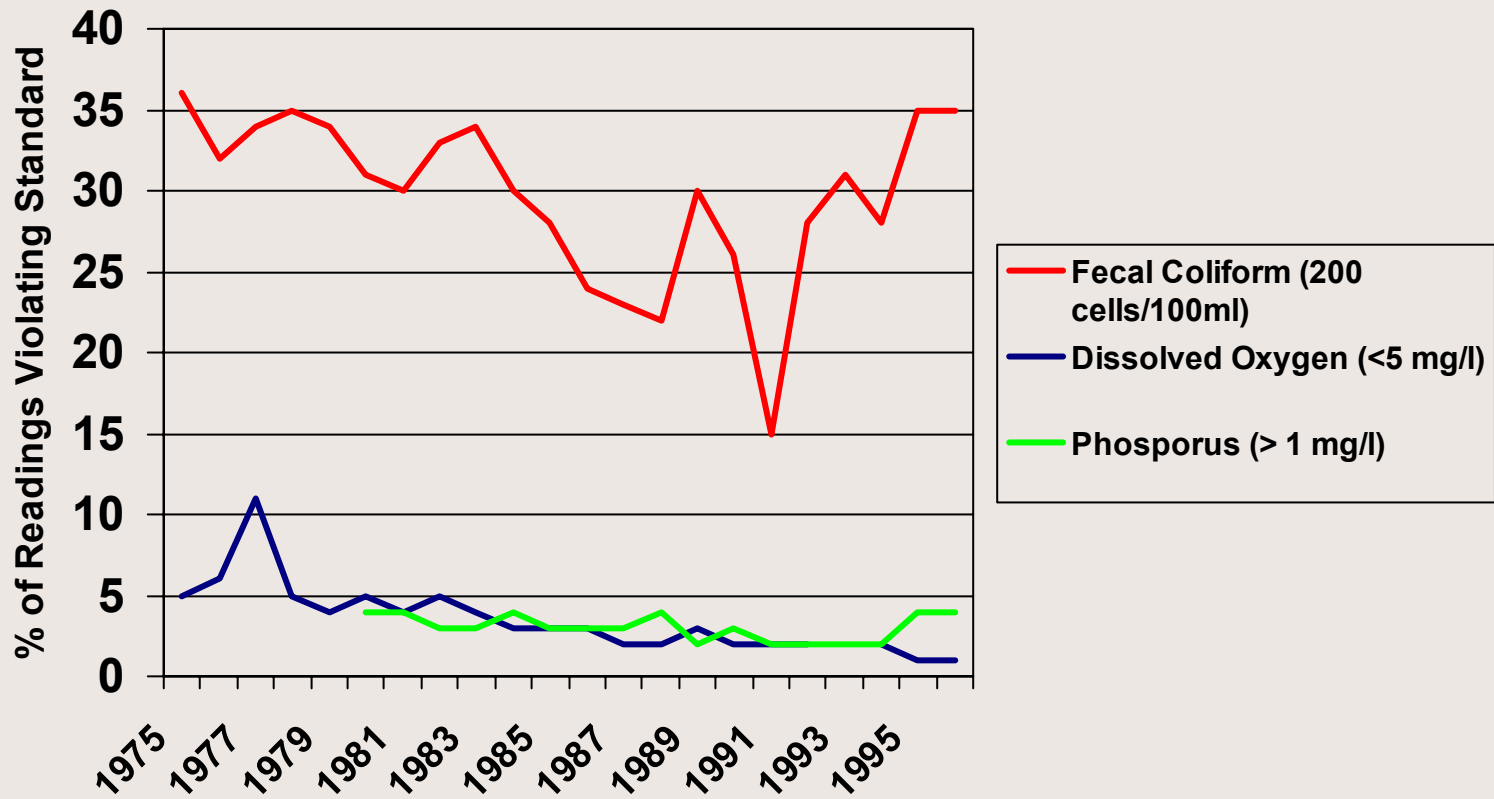
# Levels of MWWP with Treatment



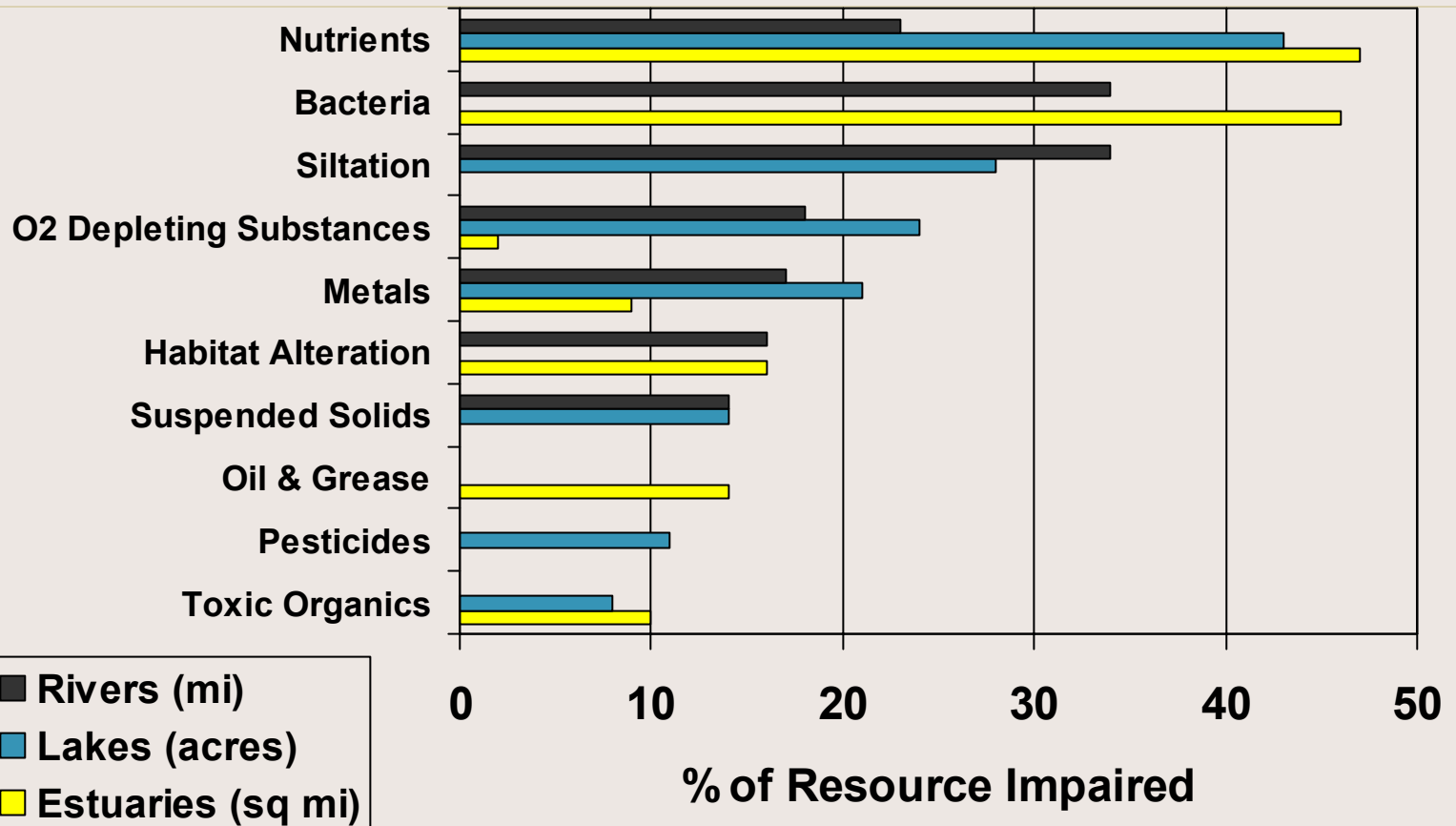
\* Of those served by municipal waste water systems

Paul Portney (1990) *Public Policies for Environmental Protection*, p. 136.

# Water Pollution Trends



# Scope of the Problem Today





# Sources of Impairment

