

A. Definition

Extent of problem

B. Sources of Water Pollution: point vs non-point

C. Major Water Pollutants

1. Acid Wastes

a) Sources

(1) mining coal - acid mine drainage

(2) burning coal - acid precipitation

b) Effects of acid precipitation

(1) terrestrial

(2) aquatic

c) pH scale

d) Consequences of nitrogen deposition

2. Organic Wastes

a) 2 sources

b) BOD (biological oxygen demand)

3. Phosphates (PO_4) from Detergents

a) How phosphates are harmful

b) Ecosystem effect

4. Water Pollutants from Agriculture

a) Inorganic fertilizers

- b) Organic fertilizers (manure)
- c) Sediment
- d) Pesticides and herbicides

5. Thermal Pollution

- a) Sources
- b) Consequences:
 - 1) changes oxygen content of water
 - 2) changes respiration rates
 - 3) changes life cycles of aquatic organisms
 - 4) stress/death if beyond range of tolerance
 - 5) changes species composition

6. Sedimentary pollution

7. Synthetic pollutants

D. Controlling Pollution

- 1. Sewage treatment (primary, secondary, tertiary)
- 2. Deep injection wells

E. Pollution's Effect on Ecosystems

- 1. Eutrophication
- 2. Simplified ecosystems
- 3. Ultimately – ocean contamination