

Nonpoint Pollution Control in the U.S.

- Water Pollution Control Act --- Pre-1987 (NPDES)
- Clean Water Act of 1987
- Stormwater Discharge Permit - Phase I (1990)
- Stormwater Discharge Permit -Phase II(1998)
- Farm Act of 1998 (USDA Programs)
- Other Federal Agency Programs -- USGS,FHWA,COE
- State Nonpoint Pollution Control Programs - Virginia
- Local or Regional Programs -- Chesapeake Bay, Puget Sound
- Grass Root Programs -- Izaak Walton League, Friends of --

Nonpoint Source Pollution Loading Methods of Estimation

- The Simple Method

$$L = P \cdot P_j \cdot \{0.05 + 0.009 (I)\} \cdot C \cdot A$$

where L = pollutant loading (kg/yr)

P = average annual rainfall depth

P_j = correction factor for rainfall that produce no runoff
e.g., 0.9 can be used for Washington, D.C.

I = percent imperviousness

C = flow-weighted mean pollutant concentration, mg/L

A = area of site

Nonpoint Pollution Loading Estimate

- Unit Loading Functions

For each land use pattern, a unit loading function is derived, e.g., $L = 5$ kg/yr/hectare of BOD₅ for a residential area with medium density

- Modeling Analysis

Many stormwater management models are available, e.g. SWMM, HSPF, AGNPS, STORM, VANTU (developed by UVa/NTU). More recently, the USEPA is promoting the use of BASINS

Best Management Practices

- Non-structural BMPs
 - Nutrient Management
 - Pesticide Management
 - Land Use Planning
- Structural BMPs
 - Detention Basins - Dry, Extended, Wet
 - Infiltration Practices
 - Porous Pavement
 - Swales and Filter Strips
 - Constructed Wetlands