Freshwater Pollution

Source Types
Surface Types
Conservation

Pollution . . .

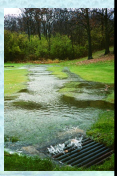
- . . . is anything that lowers water quality
  - Chemicals (lead, mercury, arsenic, fertilizers, oil, industrial waste, etc.)
  - Sediment (biggest pollutant in NC streams)
  - Objects
- 2 types of sources
  - Point
  - Nonpoint

Point Source Pollution

- A specific location that is the clear source of a pollutant
- Examples:
  - Hazardous material wells
  - Factory outputs
  - Leaking containers

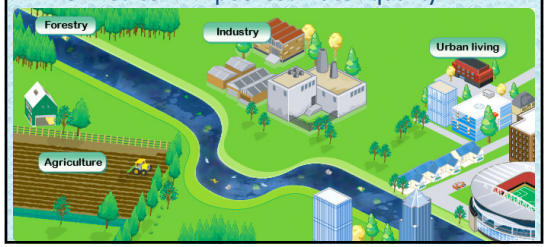
Nonpoint Source Pollution

- Generalized source of pollution, usually in runoff
- Examples:
  - Agricultural runoff (fertilizer, animal waste, sediment)—main source!
  - Sedimentation (from deforestation, farming, & housing developments)
  - Storm water runoff (roads)



Pollution

- Pollution moves downstream with water
- More pollution = lower water quality
- Downstream = poorest water quality



Reducing Nonpoint Pollution

- Decrease runoff/erosion
  - Increase vegetation
  - Decrease slope angles
  - Use terracing, no-till farming, and contour farming
- Capture runoff in retention ponds

Surface Types

- Type of ground covering in river systems
- Major factor in how much and what type of pollution reach water bodies
  - Permeable surfaces
  - Estuaries (aka marshland)
  - Impermeable surfaces

Surface Type: Permeable Surfaces

- Permeable surfaces allow water to permeate (soak into) soil.
  - Decreases the amount of runoff
  - Infiltration = some pollutants are removed from the water (trapped by the soil)
  - Examples: fields, forests, pavement

Surface Type: Estuaries

- Estuaries are permeable surfaces that have very slow infiltration rates.
  - Greatly reduce runoff into the water
  - Slow infiltration = very effective removal of pollutants
  - Act as natural flood control area

Surface Types: Impermeable Surfaces

- Impermeable surfaces are completely solid and thus do NOT permit water to infiltrate the soil.
  - Increase the runoff
  - Allows NO infiltration
  - NO infiltration = NO removal of pollutants
  - Examples: concrete, asphalt, bricks, roofs

Water Conservation

- Most water conservation efforts focus on conserving potable water.
  - Potable water = water safe for human consumption
- As populations increase, there is a greater demand for water.
  - Supply drops
  - Cost increases

Potable Water Conservation

- Reduce water use
  - Turn off faucets when brushing teeth or hand-washing dishes
  - Shorter showers/less full baths
  - Run only full dishwasher and washing machine loads

Potable Water Conservation

- Recycle/reuse water
  - Use "undesirable" water for plants (left in water bottles/cups, from pet's dishes, etc.)
  - Wash vegetables in sink then use same water to soak dishes