

Water Quality Impacts

Onsite (septic) wastewater treatment systems contribute to water quality problems (pollutant loading). Properly functioning systems contribute less loadings, but still contribute to problems

Measuring Significant Impacts

- Where human sources of pollution are few and far between, generally the natural environment can assimilate the pollution
- When human sources overwhelm the assimilative capacity of the natural system, impairments occur
- Impairments are impacts that reduce the functioning of the natural ecosystem – reducing the amount and variety of services provided by nature. Services include:
 - Potable water
 - Commercial and sports fisheries
 - Storm mitigation
 - Pollutant processing

Federal Clean Water Act

- Requires states/commonwealths to survey water bodies, including
 - Rivers and streams
 - Lakes
 - Estuaries
 - Coastal waters
- Identify water segments that do not meet Federal water quality standards for various pollutants, including
 - Nutrients
 - Pathogens
 - Dissolved oxygen

CWA Requirements (continued)

- Identify categories of sources contributing to impairments, including
 - Industrial
 - Public wastewater treatment
 - Onsite (septic) systems
 - Land modification
 - Stormwater
- In Puerto Rico, many water body segments are impaired by various pollutants from many sources. For most, onsites are identified as one of the significant source categories

Total Maximum Daily Loads (TMDLs)

- Identify maximum amount (concentration) of limiting pollutant(s) causing impairment that can be tolerated by the system and still allow for its designated uses
- Designated uses include
 - Shell fishing
 - Drinking water supply
 - Direct human contact (swimming)
 - Fish passage

After TMDL is Established

- Acceptable pollutant load (including a margin of safety) is allocated to the various source categories
- The load is distributed to all of the individual sources in each category
- Sources must then reduce their loading to the allocated load amount
 - For regulated point sources, reduction goals will be incorporated into discharge permit conditions
 - For nonpoint sources, there is no Federal mandate

- TMDL implementation -- the Clean Water Act does not mandate TMDL implementation. However, many states under their own legislative authority have mandated TMDL implementation *planning*.
- Overview of discharge requirements for regulated sources and market mechanisms to reduce source loading
 - Technology-based standards
 - Water quality based standards
 - Watershed standards
 - Water quality trading (among regulated sources and/or with non-regulated nonpoint sources)