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 are far between, generally the natural environment can assimilate many types of pollutants
- When human sources overwhelm the assimilative capacity of the natural system, impairments occur
- Impairments are impacts that reduce the functioning of ecosystems and the amount and variety of services provided by nature. Ecosystem services include:
  - Potable water
  - Commercial and sports fisheries
  - Storm mitigation
  - Pollutant processing

Federal Clean Water Act

- Requires states/territories to survey water bodies, including
  - Estuaries and embayments
  - Coastal waters
  - Rivers and streams (guts?)
- Identify water segments that do not meet Federal water quality standards for various pollutants. Impairments can include:
  - Pathogens
  - Dissolved oxygen
  - Nutrients (studies underway in USVI)

CWA Requirements (continued)

- Identify categories of sources contributing to impairments, including
  - Industrial
  - Public wastewater treatment
  - Onsite (septic) systems
  - Land modification
  - Stormwater
- In the US Virgin Islands, numerous water body segments are impaired by various pollutants from a variety of sources. For many, onsites are identified or are likely to be a significant source of pollutant loading.

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 within each source 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 (VI TPDES)
  - For nonpoint sources, there is no Federal mandate for load reductions

- 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