Nonpoint Source Management Program :: Urbanization

When development replaces forests, fields, and meadows with impervious surfaces such as roofs, parking lots and roads, the amount of rainfall that runs over the surface of the land instead of soaking in the ground greatly increases. The impacts on our surface waters from this increase in stormwater runoff is generally two-fold.

First, there's an increase in the rate and flow of stormwater that physically impacts receiving streams by causing erosion and sedimentation in the streambed. This in turn diminishes or destroys the aquatic habitat and can undermine nearby structures and increase downstream flooding. Second, as water runs over impervious surfaces, it picks up and delivers to streams, lakes, and estuaries various pollutants, including oil and grease from the cars; fertilizers, herbicides and pesticides from the lawns; fecal matter from pet waste and malfunctioning septic tanks; and heavy metals from tires, shingles, paints, and metal surfaces.

These pollutants degrade water quality and limit the beneficial uses that we would otherwise make of the surface waters. Beneficial uses that we may lose include drinking water supply, swimming, fishing, other recreation, and aquatic life support. Best management practices for stormwater need to be addressed through local ordinances, state regulatory programs and education efforts aimed at property owners.

It's also important to note that the impacts of stormwater are cumulative. The gradual increase in impervious surfaces in a developing area slowly change the hydrology of a watershed and it's receiving waters over time. Each incremental change adds to the ones before it. So prevention (for new development) or restoration need to be done on a watershed level.

There are several existing state regulatory programs that address various forms of urban runoff. The Division of Water Quality houses several of these programs including the NPDES Stormwater Program, the Water Supply Watershed Protection Program, and the Neuse and Tar-Pamlico River basin Nutrient Sensitive Waters strategies. The Division of Water Quality is also responsible for implementing the US Environmental Protection Agency's Total Maximum Daily Load or TMDL Program which will require strategies to address polluted waters. To visit the US EPA site and learn more about the federal requirement go to http://www.epa.gov.

Other state agencies with regulatory program include the Division of Coastal Management - which has some coastal buffer requirements and the Division of Land Resources, which along with local governments, regulates construction activities. Finally, theNorth Carolina Department of Transportation?s project development and Environmental Analysis Branch has the primary responsibility to prepare and develop environmental studies that adequately address environmental concerns and obtain the necessary permits for construction and maintaining the state?s highway system.

Funding Sources

There are various funding sources of urban related nonpoint source pollution. Two major sources of funding are the NC Clean Water Management Trust Fund and the 319(h) Grant Program. These two sources can help fund nonpoint source pollution prevention (e.g., education and land acquisition) as well as water quality improvement projects (e.g., stream restoration and implementation of Best Management Practices).

Urbanization Links

Regulatory Agencies

- NPDES Stormwater Program
- NC Water Supply Watershed Protection Program
- US Environmental Protection Agency?s Total Maximum Daily Load (TMDL) Program
- North Carolina Department of Transportation?s project development and Environmental Analysis Branch
- Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters

Funding Sources

- NC Clean Water Management Trust Fund
- 319(h) Grant Program