

Water Quality

All life depends upon water. To say that water quality is important is an understatement. However, describing a water's "quality" is a challenging process. Water quality is typically assessed using the biological, chemical, and physical properties of a water. Because these properties naturally vary depending upon

location, season, and other factors, what may be considered "good" water quality in one area may be considered "poor" water quality in another. In other words, the natural water quality of a mountain stream can be very different from a coastal swamp, and the water quality in these systems can be affected very differently by pollution.

Did you know?

Sediment is the number one pollutant of streams in North Carolina and the United States.

Water Pollution: It's Not Just The Old Factory...

When most people think about water pollution, an image of a pipe emptying untreated wastewater or industrial chemicals into a stream probably comes to mind. That's what's known as "point source" pollution, when concentrated pollution comes from a specific point. Just as significant, and often more so, is "nonpoint source" pollution, when pollution enters a water body from a wide area or a long strip such as a parking lot or the edge of an agricultural field. This usually occurs when rain water runs off the land surface, carrying pollution with it. In a parking lot, the pollution would likely include heavy metals, oils, grease, and nitrogen. In an agricultural field, the pollution would probably include sediment, nitrogen, herbicides, and pesticides.

When land is converted from natural conditions to developed areas, the amount of rainfall that doesn't soak into the ground (and runs off the surface) typically doubles, and the peak flow rate typically triples. Even small amounts of development can create significant amounts of water pollution. To protect surface waters from the pollution carried with this runoff, a variety of runoff management techniques can be used. In most areas, however, these were not required when the development occurred and the polluted runoff flows directly into streams and lakes without any treatment. Regulations requiring such stormwater treatment options are now in place in some areas and being considered in others.

Stormwater Management Options

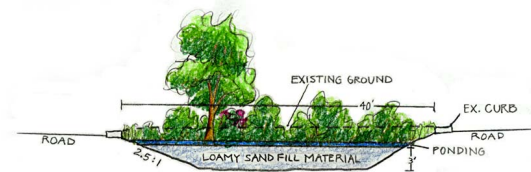
The Environmental Protection Agency has identified urban runoff (stormwater) as one of the leading sources of water quality impairment in streams, lakes, and estuaries. This has resulted in continual increases in regulatory restrictions on new development. These unexpected or unrealized restrictions have and continue to result in major project delays and budget overruns. Surprisingly, these delays affect environmental restoration projects as much as they impact traditional development. No matter the project type, it is imperative that regulatory requirements are met while keeping the project within budgetary constraints. To accomplish this task, stormwater must be approached with a toolbox full of traditional and innovative management options. In the current environmental climate, it is a necessity that consulting firms be able to plan, model, and design bioretention areas and constructed wetlands as easily as riprap channels and wet detention basins. By integrating all the various management options together, project permitting will stay on course and construction budgets will be met. If you would like to know about the many stormwater management options available and how they can be integrated into your project or watershed plan, please contact us.

Water Quality in NC

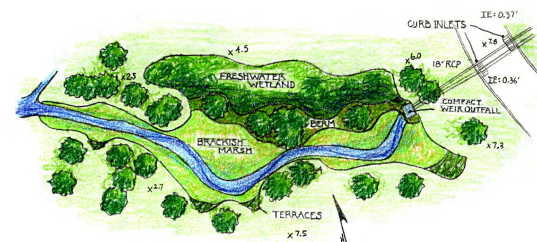
North Carolina's Department of Environment and Natural Resources produces a list of impaired streams and other water bodies every two years under Section 303(d) of the Clean Water Act. These water bodies are either polluted with specific pollutants such as nitrogen, phosphorus, or fecal coliform bacteria, or they have general symptoms of impairment such as significant habitat degradation. In the year 2000, there were 3,295 pollutant-miles of streams, rivers, and creeks on the 303(d) list in North Carolina. In this reporting system, one mile of stream with two pollutants would be counted as two pollutant-miles. The list also includes 105,574 pollutant-acres of lakes, ocean and estuarine areas.

Did you know?

Our waterways become more polluted during times of drought than periods of average rainfall.



Stormwater Treatment Examples: Raingardens and Created Wetlands



Questions or comments?
Email us at blwi@blwi.com or
call us toll-free 877.266.2594