

**ROANOKE RIVER BASINWIDE
WATER QUALITY MANAGEMENT PLAN**

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consumption advisory was issued. Common carp, white catfish and green sunfish remain in the fish consumption advisory. DWQ considers Hyco Lake as an *impaired* stream until such time the fish consumption advisory is completely lifted, but it is not included on the 303(d) list (Appendix VI) since a management strategy is in place.

6.5.4 Roanoke River (from Williamston to Batchelor Bay) and Welch Creek (Subbasins 08 and 09)

Weyerhaeuser Paper Company operates a paper mill near Plymouth. The outfall originally discharged to Welch Creek until 1988 when it was relocated to the Roanoke River. In the 1980's it was recognized that dioxin, a carcinogen byproduct of the chlorine paper bleaching process, was accumulating in fish tissue in the receiving stream. The EPA mandated all states to include a dioxin limitation in NPDES permits for bleach kraft paper mills by mid 1993. In light of this, Weyerhaeuser implemented measures to drastically reduce dioxin concentrations in its effluent. In 1993, a dioxin limitation was added to the NPDES permit. Weyerhaeuser dioxin reduction efforts culminated in 1994 with a complete modernization of the paper mill in which chlorine is not used in the process.

Weyerhaeuser is required by the NPDES permit to provide extensive water quality and biological monitoring of the area of impact. The data indicate that dioxin levels in fish are gradually decreasing since the company started its dioxin reduction programs. However, the State fish consumption advisory remains in effect from Williamston to the mouth at Albemarle Sound for all species except for herring and shad. This section of the Roanoke River and Welch Creek will remain listed as *impaired* streams until such time the fish consumption advisory is completely lifted, but it is not included on the 303(d) list (Appendix VI) since a management strategy is in place.

6.5.5 Nutbush Creek (Subbasin 06)

This stream is impacted by the City of Henderson WWTP and urban run-off. The City of Henderson WWTP effluent dominates the stream flow with an instream waste concentration of 97%. Benthic macroinvertebrate sampling conducted in August and October 1994 indicate that water quality has improved since the previous benthic macroinvertebrate sampling of 1988. However, the abundance and taxa richness values are still considered "fair."

DWQ is currently working with the City of Henderson, and compliance with the whole effluent toxicity test is expected in 1996.

6.6 MANAGEMENT STRATEGIES FOR CONTROLLING SEDIMENTATION

Sedimentation is a concern in the Roanoke Basin (see section 3.2.4 of Chapter 3). Although there are only 14.3 miles of monitored streams in the basin considered impaired due to sedimentation, DWQ staff who conducted sampling in the upper basin noted evidence of sedimentation even though biological ratings were high enough to be ranked as unimpaired. It is important to address this issue before it worsens and the biological communities suffer.

Sedimentation is essentially a widespread nonpoint source-related water quality problem which results from land-disturbing activities. The most significant of these activities include agriculture and land development (e.g., highways, shopping centers, and residential subdivisions). For each of these major types of land-disturbing activities, there are programs being implemented by various government agencies at the state, federal and/or local level to minimize soil loss and protect water quality.