

Use of Monitoring Information to Identify and Implement Water Quality Improvements

Tyler Baker and Don Dycus

Tennessee Valley Authority, 1101 Market St., Chattanooga, TN 37402-2801

Abstract

The Tennessee Valley Authority (TVA) began a program to systematically monitor the ecological condition of reservoirs in the Valley in 1990, termed Vital Signs Monitoring. The program was designed to provide the necessary information from key ecological indicators to evaluate current conditions, provide data for comparing future water quality conditions, and to target detailed assessment studies if significant problems are found. To inform the public and increase their involvement in water resource improvement activities, TVA developed Reservoir Ecological Health scores, a communication product appropriate for the general public.

The ecological health of Chatuge and Nottely Reservoirs has been monitored since 1991 and a downward trend in ecological health has been documented. TVA watershed teams used this information to identify the Chatuge and Nottely watersheds as areas in need of improvement and/or protective actions. This information was instrumental in generating interest by public and local governments and helped the Hiwassee River Watershed Coalition (HRWC) to develop a locally led effort to improve water quality. The watershed coalition has been successful in identifying issues, developing action plans and securing funding for improving water quality. In 2002 and 2003, eutrophication studies were initiated for Nottely and Chatuge, respectively. This includes developing reservoir water quality models using CE-Qual-W2 and the HSPF Model, Hydrologic Simulation Program Fortran, a U.S. EPA program for simulation of watershed hydrology and water quality, to aid in developing future action plans and implementing water quality improvement and protection projects within the watersheds.