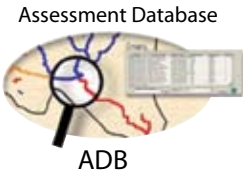
Integrated Water Quality Management

RTI International offers extensive experience in a full range of technical, analytical, and logistical services and expertise in water quality assessment, Sections 305(b) and 303(d) program support, database management and systems analysis, geographic information systems (GIS) development and applications, and other related technical support to states and U.S. Environmental Protection Agency (EPA) regions. RTI also provides support in environmental statistics, modeling, and economics, including estimating the costs and determining the benefits of regulatory controls and Clean Water Act (CWA) policies, public health, and environmental risk assessment.

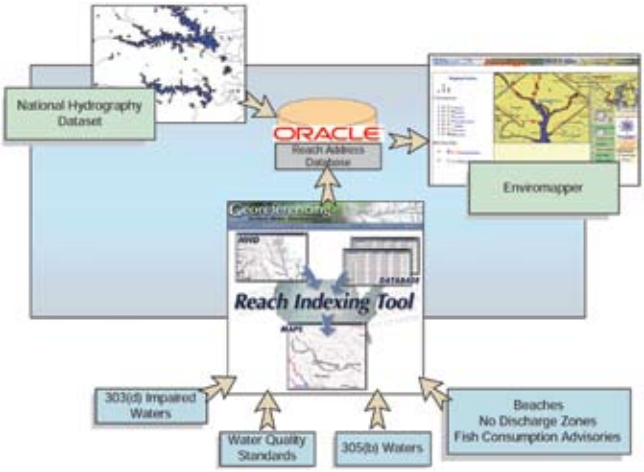
Water Quality Monitoring and Assessment

RTI provides support for several of EPA's Monitoring and Assessment data systems—for example, the Assessment Database (ADB) and the STOrage and RETrieval (STORET) data system.

Assessment Database (ADB): RTI developed and currently provides technical support for the ADB to facilitate state collection and submission of information required under Sections 305(b) and 303(d) of the CWA. The ADB is a uniform and cost-effective approach for EPA to acquire assessment data for use in its data systems, such as a national-level compendium called the National Assessment Database (NAD), and for the development of program activity measures. The ADB is available in three versions: Oracle, Microsoft (MS) SQL Server, and MS Access. The desktop-based front end of the ADB is programmed in MS Visual Basic and uses XML and XSL technology for the reports, updates, and backup and restore features. RTI works with states to convert their legacy (or surrogate) databases into the current Integrated Reporting Data System format used for the ADB.



STOrage and RETrieval system (STORET): EPA encourages states and federal agencies to enter their monitoring data (e.g., water chemistry data, field measurements, and biota information) into the national STORET system to encourage data sharing and analysis. RTI provides technical assistance to support states and EPA offices in these data-migration efforts, including scheduling meetings with environmental scientists to help them understand STORET data requirements; how to use the STORET Import Module; data management and analysis; and documentation of recommendations.



Geospatial Tools and Web-Based Applications

As a leader in the development of reach address indexing datatsets that are georeferenced to the National Hydrography Dataset (NHD), RTI uses its GIS capabilities to develop in-depth water quality management applications, including award-winning and innovative tools such as the PC-Reach Indexing Tool (PC-RIT) and the Drinking Water Mapping Application (DWMA). These GIS tools provide custom NHD georeferencing to meet locational specifications for different programs and clients, thereby establishing the critical foundations necessary for organizing and managing databases and decision support systems.

Reach Indexing Support: RTI developed the NHD-Reach Indexing Tool (NHD-RIT), which provides an interactive GIS interface to assist users in georeferencing or "reach indexing" surface water entities, such as 303(d) and 305(b) waterbodies, to spatial databases. The NHD-RIT

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creates Federal Geographic Data Committee (FGDC)-compliant metadata by prompting the user for required data elements through user-friendly dialogs. The outputs developed through RTI's work (e.g., GIS coverages and event tables, databases, maps) have been used by state agencies in public hearings, by EPA's Office of Water in developing new CWA regulations, and by the EPA Assistant Administrator in briefings about the 303(d) program.

Drinking Water Mapping Application (DWMA): RTI supports EPA's Office of Groundwater and Drinking Water in the development and maintenance of the DWMA. The DWMA provides a Web-enabled query and mapping system using ESRI's ArcIMS. It also makes extensive use of EPA's Envirofacts data warehouse and a special Oracle data mart to store special information related to drinking water intakes and wellheads. The DWMA applies upstream–downstream navigation techniques based on the NHD to support queries on the number of Permit Compliance System (PCS) discharges within specified distances upstream of drinking water intakes. The DWMA also includes information on underground injection control wells and other hydrogeologic materials drawing on national coverages from the USGS.

Water Quality Modeling and Decision Support

RTI's unrivalled familiarity with EPA and other federal agency data systems, combined with our expertise in performing engineering and statistical analyses and building models, are reflected in a number of projects designed to assist EPA in developing performance measures and decision-support tools. In addition to the types of output or outcome measures included in EPA's Strategic Plan, RTI provides support to develop diagnostic indicators for EPA's Total Maximum Daily Load program. These indicators help document a wide range of measures related to management program effectiveness and incremental progress toward achieving water quality goals. RTI's analysis and decision-support tools assist EPA in addressing pollution issues involving multimedia effects that can require leveraging management capabilities across a wide range of federal and state programs.

National Water Pollution Control Assessment Model (NWPCAM): RTI developed the National Water Pollution Control Assessment Model (NWPCAM), a national-level water quality modeling system that can simulate the water quality changes and economic benefits that result from pollution-control policies. NWPCAM's core is its water quality modeling system, which can develop place-specific water quality estimates for most of the country's inland region. NWPCAM's national-scale framework is based on a foundation that integrates Reach File versions 1 and 3 (RF1 and RF3) with a wide variety of other EPA databases. This model also includes an algorithm to translate concentration estimates to measures of beneficial use attainment categories, for activities such as boating, fishing, and swimming, that are commonly used to characterize water quality for policy purposes. These estimates are linked to economic valuation instruments via U.S. Census Bureau data to estimate annualized benefits of various CWA-related policies.

North Carolina Department of Transportation Support: Since 2005, RTI has provided technical support to the North Carolina Department of Transportation's (NCDOT's) Highway Stormwater Program through several initiatives. In 2005, the North Carolina Division of Water Quality issued the NCDOT a new statewide 5-year National Pollutant Discharge Elimination System (NPDES) permit. This permit—part of the ongoing implementation of federal CWA requirements for stormwater—provides the regulatory basis for managing runoff from the state highway and road system. The NPDES permit presents new challenges because, historically, roads have not been included in surface water regulatory requirements.

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