

# Water Quality Monitoring Strategies in Two NPS Units

More than 160 units of the national park system may be affected by degraded water quality, but in many cases adequate resources are not available to conduct detailed hydrologic or limnological research. In such situations, a strategy for water quality reconnaissance and monitoring using a small number of parameters directly affected by specific activities in the watershed, is most appropriate. The results of these monitoring efforts can then be used to develop management alternatives and to assess the need for more intensive studies. Involvement of park resources management staff, as opposed to the contracting of entire programs to outside entities, both saves

money and helps integrate water quality planning into the operational resource management activities of the park unit.

Programs of two NPS areas illustrate this approach. At **Big Thicket National Preserve**, the principal activities that degrade water quality are oil and gas development, sewage effluent discharge, and local timber operations. Monitoring is restricted to a few parameters associated with these activities. Analysis of certain types of samples is conducted at a park laboratory and of other types at a contract lab. It has been possible to establish a water quality program responsive to Preserve needs for about \$15,000 per year plus staff support. At **Big South Fork National River and Recreational Area**, parameters directly related to acid mine drainage, oil and gas activity, domestic wastes, and watershed disturbance were selected for monitoring. Because of the remote location, a staff hydrologist was hired in 1982 to establish a water quality laboratory and conduct the monitoring program. Analysis of the first two years of data, collected from more than 30 stations, indicates that the park can be categorized into five major water quality types ranging from undisturbed to severely polluted. With the areal extent of each category in hand, park managers now can identify areas needing further research and can formulate management alternatives to help improve water quality.