

New reports on water quality

USGS recently released reports on water quality in 16 major river basins and aquifers across the Nation. The assessments indicate that the Nation's waters are generally suitable for irrigation, drinking water supply, and other home and recreational use. Major challenges remain, however, in protecting aquatic resources from nonpoint sources of pesticides, nutrients, metals, petroleum-based compounds, naturally occurring pollutants and other contaminants that continue to enter waterways in every basin.

Because each of the assessments adheres to a nationally consistent design and sampling methods, managers and planners in a specific locality or watershed can compare their water-quality conditions to those in other geographic regions. Collectively the assessments advance an understanding of the status of our Nation's waters and whether it is getting better or worse over time.

Pollution levels vary from season to season and among watersheds because of differences in land and chemical use, land-management practices, degree of watershed development, and natural features, such as soils, geology, hydrology, and climate. Understanding these variations and their causes helps in the implementation of effective management for water-quality improvement in specific geographic areas.

Information supports water-resource decisions by communities and states

A sampling of the types of information contained in the newly released assessments is provided, as well as examples of how this information is used to support science-based decisions at all levels for the protection of drinking water, the health of aquatic ecosystems, and for resource management. For more details, go to the USGS website: <http://water.usgs.gov/nawqa>.

- Increased nutrients from the St. Croix River tributaries are increasing the rate of eutrophication in Lake St. Croix, **Minnesota**. In response to these findings, a multi-agency, cooperative agreement was signed to implement a protection strategy for the St. Croix River.
- **Mississippi Embayment** ground water is good for drinking-water supply; however, concentrations of DDT in streams and rivers are often higher than national norms. These results have contributed to decisions by the State of Mississippi to establish fish-consumption advisories for selected organochlorine compounds and other contaminants.
- Findings in 14 major urban centers across the Nation, including **San Antonio and Dallas, Texas** show that lead, PCBs, and DDT are decreasing since restrictions on their use in the 1970s. In contrast, the studies show that polycyclic aromatic hydrocarbons (PAHs) and zinc are increasing in watersheds experiencing urban growth and increased motor vehicle traffic.
- Fish and aquatic invertebrate communities are commonly impaired in the urbanized parts of **New Jersey**. The findings suggest that the amount of impervious road area and density of development affect the amount of runoff in a watershed and are important considerations in maintaining stream quality. These findings are used by the State of New Jersey in its development of realistic stream management and restoration goals for urbanized streams, to be adopted in the State's Watershed Management Plans.

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If you are interested in more information or would like to set up a briefing on water-resource topics of interest to you, please contact:

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- Conservation tillage practices by farmers have resulted in reduced sediment erosion to streams in **northwestern Ohio** and **northeastern Indiana**.
- Diazinon, used by homeowners on lawns and gardens, was frequently detected in urban streams in the **Puget Sound** and **Sacramento River Basins**, often exceeding guidelines for protecting aquatic life.
- Nutrients are elevated and have resulted in increased algal growth in areas of urban development in the Southern Rocky Mountains. These findings were used by officials in **Grand County, Colorado** to help support legislation requiring improved septic systems and annual septic system monitoring in an effort to prevent further water-quality degradation.
- Concentrations of two pesticides—alachlor and cyanazine—have decreased in the **Illinois River** since 1991 because of decreased use of these pesticides by farmers. Relations between chemicals used in agricultural and urban settings, and the types and concentrations of contaminants in streams and ground water, are seen in every basin.
- Herbicide degradation products, which are mostly non-regulated, are commonly 10 times the concentration of parent compounds in the Iowa River, Iowa. On the basis of these findings, local officials in the city of **Cedar Rapids, Iowa** require monitoring and analysis of herbicide degradation products in the city water supplies.
- Since the Surface Mining Control and Reclamation Act of 1977, stream quality in the coal regions of the **Allegheny and Monongahela River Basins in Pennsylvania** and **West Virginia** and the **Kanawha River Basin in West Virginia** and **Virginia** has improved because of decreased acidity, but the diversity and abundance of aquatic organisms are reduced compared to unmined areas.
- Findings for Shingle Creek and 13 other major streams in the **Minneapolis metropolitan area** indicate clear relations between chloride concentrations and impervious surfaces and snowmelt. The information, placed in the context of other sampled urban watersheds throughout the Nation, helped to demonstrate to the Shingle Creek Watershed Management Commission that elevated chloride in Shingle Creek was not a local stockpile issue. The Commission has since recommended a metropolitan approach to assess current practices of road salt use, which is leading to improved strategies needed to meet **Minnesota** standards.

*“The NAWQA Program is essential to understanding the impact of land-use changes on the quality of water flowing to the **Great Lakes**...Findings are directly applicable to resource managers and planners and transferable throughout the Great Lakes Basin” (Great Lakes Commission, composed of 8 states).*

*“The **Florida Everglades** has the misfortune to exhibit some of the highest concentrations of mercury in its fish and wildlife. The USGS has brought together scientists of many disciplines and enabled the South Florida Mercury Science Program to develop a deeper understanding of the scope, scale, status, and trends of mercury problems in Florida. This has thereby greatly enhanced our ability to model and manage the factors that contribute to this problem” (Dr. Thomas Atkeson, Florida Department of Environmental Protection).*

“The NAWQA Program [provides data to] the U.S. Environmental Protection Agency (USEPA) [to help in their] implementation of the new pesticide law...Food Quality Protection Act (FQPA), passed in August 1996. USEPA has been required to factor potential exposures to pesticides through drinking water into already complex procedures used to set pesticide “tolerance levels” in foods...We do not have all the answers yet by any means, but we in USEPA who are charged with implementing this part of the new FQPA are greatly impressed with the knowledge and expertise contributed by NAWQA Program scientists and managers to assist USEPA in addressing the questions” (Joseph Merenda, Office of Pesticide Programs, USEPA).