



NEWS RELEASE

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Contact
Michael L. Plunkett
USGS State Representative,
Mississippi

Address
U.S. Geological Survey
308 S. Airport Road
Pearl, Mississippi 39208

Phone
(601) 933-2900

Fax
(601) 933-2901

Website
<http://ms.water.usgs.gov>

USGS: DELTA GROUND WATER GOOD, QUALITY OF RIVERS AND STREAMS OFTEN BELOW NATIONAL NORMS



Aquatic insects and other macroinvertebrates were collected for the study using a dip net in areas of likely habitat for the organisms.

The U.S. Geological Survey (USGS) has released a report summarizing the results of a multiyear water quality study in the Mississippi Embayment area, locally known as the Delta. The study, which is part of the National Water Quality Assessment (NAWQA) program, showed that groundwater, which is the primary source of drinking water for the region, rarely had concentrations of chemicals that exceeded national guidelines. However, the concentrations of several substances in the rivers and streams, including many pesticides and nutrients, were often higher than national averages. Biological

communities in the rivers and streams sampled were also of lower quality than biological communities in streams sampled throughout the nation due to both the water quality as well as the loss of habitat associated with Delta streams.

Major findings regarding the ground water from the Mississippi Embayment NAWQA report include:

- Nutrient concentrations in the ground water in the Mississippi Embayment study area generally were low. All nitrate concentrations were below the U.S. Environmental Protection Agency drinking water standard.
- The pesticides atrazine and dieldrin were found at levels greater than the drinking water standards at one well each, but the water was not from wells that supply drinking water. Other pesticides were also found in the ground water, but at levels less than the drinking water standards.
- Volatile organic compounds (VOCs), organic compounds which are components of gasoline, fuel oils and lubricants, as well as some solvents, were frequently found in the ground water samples taken in the Study Unit, but all of the compounds were well within the range considered safe for drinking water.

Major findings regarding the surface water (rivers and streams) and biology from the Mississippi Embayment NAWQA report include:

- Herbicides were frequently detected in streams draining agricultural or mixed land-use basins; insecticides were detected less often. Pesticides in over 60 percent of samples collected from the streams exceeded guidelines established for the protection of aquatic life. Insecticides, usually diazinon and chlorpyrifos, were frequently detected in samples from the urban stream, usually in concentrations above aquatic-life guidelines.
- Nitrogen concentrations in the streams and rivers of the Mississippi Embayment were about average compared to national data, while total phosphorus concentrations were somewhat higher than those found elsewhere in the Nation. The total phosphorus levels were often above the levels that the U.S. Environmental Protection Agency has recommended for the prevention of nuisance aquatic plants in streams.
- Although the sale of the organochlorine insecticide DDT was discontinued in 1972, DDT and its metabolites (chemicals resulting from the breakdown of DDT) were widespread within the study area. DDT or one of its metabolites was found in all of the more than 50 fish tissue samples collected and at the highest levels found in the United States; DDT also was found in 67 percent of the streambed-sediment samples. Detectable levels of total DDT were also measured in 14 percent of the surface water samples.
- The aquatic organisms present in the Mississippi Embayment stream were typical of those found in other impacted or degraded streams. Fish tolerant of poor water quality dominated fish communities in most streams. Also, the aquatic insects and algal communities found generally were those tolerant of turbid, silty conditions.

- Methyl parathion, a metabolite of DDT, and several other pesticides were detected in air and rain samples collected in an agricultural area and in the urban area of Jackson, Mississippi, showing that these compounds may still be volatilizing from the soils and can be transported in the atmosphere.

The USGS report, “Water Quality in the Mississippi Embayment, Mississippi, Louisiana, Arkansas, Missouri, Tennessee and Kentucky, 1995-98” by Barbara A. Kleiss, Richard H. Coupe, Gerard J. Gonthier and Billy G. Justus, published as USGS Circular 1208 is available free of charge from the USGS Branch of Information Services, Box 25286, Denver Federal Center, Denver, CO 80225, (303) 202-4700 (fax request to (303) 202-4693.) The Circular may also be viewed on the World Wide Web as downloadable portable document files (.pdf) at <http://water.usgs.gov/pubs/nawqasum> .

The Mississippi Embayment Assessment is part of a national program, currently releasing results on surface and ground water in 15 additional major river basins. Check the status and availability of the individual basin reports on the NAWQA website.

As the nation’s largest water, earth, and biological science and civilian mapping agency, the USGS works in cooperation with more than 2,000 organizations across the country to provide reliable, impartial, scientific information to resource managers, planners and other customers. This information is gathered in every state by USGS scientists to minimize the loss of life and property from natural disasters, contribute to the sound conservation, economic and physical development of the nation’s natural resources; and enhance the quality of life by monitoring water, biological, energy, and mineral resources.

For additional information contact:

Barbara A. Kleiss, Project Chief, Mississippi Embayment (MISE) National Water Quality Assessment Program (601) 933-2980 (bakleiss@usgs.gov).