

# Missouri Water Resources Law

## 2004

### Annual Report



*Integrity and excellence in all we do*



**Missouri Department of Natural Resources**  
Geological Survey and Resource Assessment Division





The *2004 Missouri Water Resources Law Annual Report* is a status report that explains how the Missouri Department of Natural Resources has complied with the legislative mandates of the water resources law in 2004 and the progress the department has made in fulfilling the law's objectives. This report represents work done by many of the department's divisions and programs. For more detailed information about individual topics within this report, follow the links to the corresponding websites.

During the 2003-2004 calendar year, widespread interest and concern about water issues stimulated robust testimony around the state before the Missouri House of Representatives Interim Committee on Water Quality Issues. The department has begun addressing many of the recommendations pertinent to our statutory responsibilities. Many recommendations focus on appropriate water quality and quantity monitoring, proper waste disposal technologies, and a watershed approach to planning and regulation.

## CITATION OF THE WATER RESOURCES LAW

*RSMo 640.400. 1. Sections 640.400 to 640.435 shall be known and may be cited as the "Missouri Water Resource Law," in recognition of the significance of the conservation, development and appropriate use of water resources in Missouri.*

*2. The department shall ensure that the quality and quantity of the water resources of the state are maintained at the highest level practicable to support present and future beneficial uses. The department shall inventory, monitor and protect the available water resources in order to maintain water quality, protect the public health, safety and general and economic welfare.*

The law in its entirety may be viewed on-line at:

[www.moga.state.mo.us/statutes/c640.htm](http://www.moga.state.mo.us/statutes/c640.htm) .

This report may be viewed on-line at:

[www.dnr.mo.gov/geology/wrp/wr73.pdf](http://www.dnr.mo.gov/geology/wrp/wr73.pdf).

If you have any questions or comments, please feel free to contact the Geological Survey and Resource Assessment Division, Water Resource Program at (573) 368-2175 or by e-mail at [mowaters@dnr.mo.gov](mailto:mowaters@dnr.mo.gov).



## Water Inventory

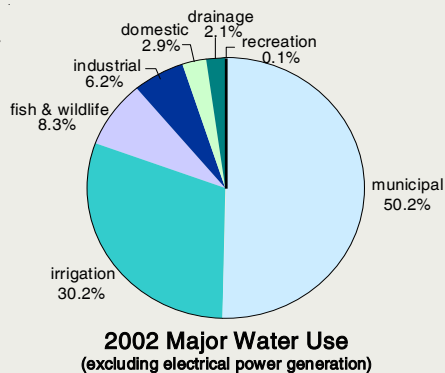
(Sections 640.400 and 640.412)

### Major Water Users

The department maintains an inventory of major water users, as authorized under RSMo Chapter 256.400. This is an inventory of both surface water and groundwater users with the capacity to produce at least 70 gallons per minute. In 2002, 2041 users reported 7.9 trillion gallons of water usage.

By registering major water users, annual data is collected on Missouri's surface water and groundwater use. These data are used to describe present resource uses and are a required tool to predict future water demands. "Major Water Use in Missouri: 1996-2000" is available online at [www.dnr.mo.gov/geology/wrp/wr72.pdf](http://www.dnr.mo.gov/geology/wrp/wr72.pdf) or you may call (573) 368-2125.

The department also inventories water use by electrical utilities. Unlike the other uses in the chart, most water used to generate electricity is returned to its original source. Only two percent of water used is actually consumed.



### Measuring Stream Flow

The department partners with the U.S. Geological Survey in collecting and analyzing stream flow information through a network of approximately 167 stream gages. This data is necessary for water irrigators, water use trends analyses, pollutant loading studies, development of wastewater discharge permits, drought assessment, flood crest predictions and flood evacuations on the Missouri and Mississippi rivers.

For Missouri stream gage information go to <http://mo.water.usgs.gov/> and click on REAL-TIME WATER DATA - Stage and Streamflow Data.

### Public Water Supply

The annual "Census of Missouri Public Water Systems" offers an inventory of surface water and groundwater use by public water systems. Almost five million Missouri citizens rely on public water systems as their source for drinking water. The census provides information on sources of public water supplies, production capacity, average daily consumption, and number of customers served. This information helps the department to determine which water sources are impacted and how many people are relying on a specific water source, be it an aquifer, river or lake.

This year the census has been expanded to include non-community water systems, is more user-friendly, and due to a new computer system, includes more timely information than previous editions. For a copy of the 2004 census, call (573) 751-5331.

## Water Monitoring

(Sections 640.400 and 640.409)

### Public Water Supply

The department monitors 2,700 public drinking water supplies for more than 100 chemical, bacteriological, and radiological contaminants that could cause acute sickness or long-term, chronic health effects. Monitoring results, potential health effects, possible contaminant sources, and other information is provided to water system customers in the annual Consumer Confidence Reports (CCRs). CCRs are available at [www.dnr.mo.gov/wpscd/wpcp/pub/dw-ccr.htm](http://www.dnr.mo.gov/wpscd/wpcp/pub/dw-ccr.htm).

### Surface Water Quality

To protect the quality of Missouri's surface water, the department operates a water quality monitoring network (approximately 65 stations), performs surveys to study impacts, operates a biological monitoring program, provides laboratory analyses and support, and supports two volunteer water quality monitoring programs. Requests for more information may be made on the web at [www.dnr.mo.gov/wpscd](http://www.dnr.mo.gov/wpscd).

The 1972 Clean Water Act (CWA) requires states to assess all waters of the state and list impaired waters for which adequate pollution control requirements have not been put in place (303d list). According to the CWA, a lake or stream is impaired if it is not meeting one of the seven beneficial uses established in Missouri Water Quality Standards. To view Missouri's 2002 water quality report or 303d list, visit the website: [www.dnr.mo.gov/wpscd/wpcp/waterquality/index.html](http://www.dnr.mo.gov/wpscd/wpcp/waterquality/index.html).

Some of the current concerns the department has about water quality include eutrophication of large reservoirs, mercury levels in fish, abandoned mines and their tailings, continuing suburban development, combined sewer overflows and indiscriminate sand and gravel mining.



Department wide monitoring information is available on the website [www.dnr.mo.gov/env/monitoring.htm](http://www.dnr.mo.gov/env/monitoring.htm)  
View Missouri's Water Quality Standards: [www.epa.gov/ost/standards/wqslibrary/mo/mo\\_7\\_wqs.pdf](http://www.epa.gov/ost/standards/wqslibrary/mo/mo_7_wqs.pdf).

## Water Monitoring

(Sections 640.400 and 640.409)

### Groundwater Availability

To monitor the quantity and use of groundwater, the department operates and maintains a network of groundwater level observation wells. These wells are equipped with data collection platforms that transmit groundwater-level data every four hours to a satellite. Those depths to water are then posted on the following website: [www.dnr.mo.gov/geology/wrp/grdh20.htm](http://www.dnr.mo.gov/geology/wrp/grdh20.htm) (click on “current groundwater conditions”). This allows real-time access to groundwater level data.

The groundwater monitoring network was begun in the 1950s as a result of the severe drought conditions at that time. The network started with only a few wells and slowly grew over the years to its present state of 73 wells located in 55 counties across the state. The goal of the department is to have at least one monitoring well in

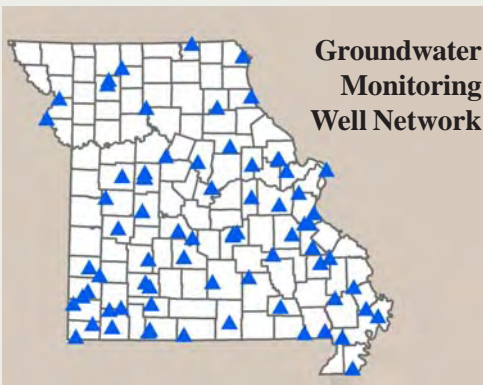


each county, with additional wells located in counties that use large quantities of groundwater.

Groundwater use data submitted in compliance to the Major Water User Law will be used to locate additional monitoring wells. Monitoring of groundwater is essential, especially in areas where demand for municipal, industrial and agricultural water continues to stress the groundwater resources. For example, a groundwater level monitoring well in the City of Noel, McDonald County, has been in operation since 1962. The water level was 49 feet below the surface at that time and has steadily dropped to its present

level of 393 feet. It has been as low as 430 feet below the surface when groundwater withdrawals were very high.

Providing accurate, easily accessible scientific data



to decision makers, industry, and the citizens of Missouri, helps to promote Missouri’s economic growth.

## Source Water Assessment and Protection

(Sections 640.400, 640.409, 640.412)

### Public Water Supply

In December 2003, the department, with assistance from the University of Missouri-Columbia, completed a statewide source water delineation and assessment project to identify public water systems that are vulnerable to contamination. This information is used to help the public water supply systems take appropriate steps to protect their supplies from contamination. The assessments are available on-line at <http://maproom.missouri.edu/swipmaps/pwssid.htm>. Information about source water is also provided in the Consumer Confidence Report.

### Wellhead Protection

Protecting wells from contamination is vital to ensuring groundwater quality. The department protects groundwater resources from contamination by ensuring that all new wells are constructed

properly, and abandoned wells are plugged properly. A proposed rule to make the task of determining the location of the well easier, quicker, less

costly and more accurate by utilizing scientific advances in GPS technology, is currently being filed with the Secretary of State’s office per recommendations from the Well Installation Board.

	<b>2003</b>
water wells drilled	6875
abandoned wells plugged	1654
casing depth requests provided	323
monitoring wells drilled	1500
oil and gas wells drilled	7
heat pump wells drilled	103

### Environmental Emergencies

Emergency response personnel staff a 24-hour telephone hotline, (573) 634-2436, to receive notification of environmental emergencies. On a daily basis staff provide information to local officials, industry and citizens about proper management of hazardous materials, cleanup standards and remediation technologies. For more details, visit their website: [www.dnr.mo.gov/alpd/esp/espeer.htm](http://www.dnr.mo.gov/alpd/esp/espeer.htm).

### Land Pollution

The department also protects the immediate and long-term quality of our state’s water through its regulation of solid and hazardous waste, mined land, and disposal management of clandestine drug lab chemicals. Details are available at [www.dnr.mo.gov/alpd/index.html](http://www.dnr.mo.gov/alpd/index.html).

### Soil and Water Conservation

In order to protect Missouri’s waters from soil erosion and chemical pollution from runoff, the department offers several services including the Special Area Land Treatment (SALT) Program, the Cost-Share Program, and the Loan Interest-Share Program. In addition, the department provides soil maps and financial and technical assistance to the 114 soil and water conservation districts. More information about these programs may be obtained at [www.dnr.mo.gov/wpscd/swcp/service1.htm](http://www.dnr.mo.gov/wpscd/swcp/service1.htm).

## Interstate Use of Water

(Sections 640.405)

The Department of Natural Resources is the lead state agency working to maintain the supply of water in the Missouri, and other interstate rivers. The department maintains a strong representation in interstate river associations, performs complex technical analyses, determines impacts of river operations, and represents the Governor in interstate water issues, reviews, and decision making to defend Missouri's water interests.

In 2004, the revision of the Missouri River Master Manual was completed by the U.S. Army Corps of Engineers. A representative from the department has served as the chairman of the Upper Mississippi River Basin Association in the 2003/2004 timeframe. This association provides a forum for all states in the Upper Mississippi region to coordinate on river management issues. A project proposing renovation of the Lock and Dam System on the Mississippi River has been under review by all stakeholders in the basin and numerous hearings allowed for comment and input into the project. More information about these ongoing issues may be viewed at [www.dnr.mo.gov/riverissues/riverissues.htm](http://www.dnr.mo.gov/riverissues/riverissues.htm).

## Dam Safety

(Sections 236.400-236.500)

The department is currently working with Homeland Security and the Association of State Dam Safety Officials to develop a methodology to assess and address the vulnerability of all dams in the United States. A properly constructed dam can be an asset. The public may be either owners of land along the lake, the owner of the dam itself, or the people living downstream from the dam that would be affected by a failure of the dam. On the other hand, a poorly built or maintained dam is a tremendous risk to the public.

The department regulates all nonfederal, nonagricultural dams that are at least 35 ft. in height. Currently, there are 590 dams regulated in Missouri. The department inspects each regulated dam at least once every five years to determine whether the dams pose a safety threat to the public. These inspections are provided at no cost to the dam owner. The department also responds to requests for emergency assistance on dams when a major seismic or flood event occurs. More information is available at [www.dnr.mo.gov/geology/wrp/damsft/damsfthp.htm](http://www.dnr.mo.gov/geology/wrp/damsft/damsfthp.htm).



## State Water Resources Plan

(Section 640.415)

During 2004, regional water use assessments were completed (Phase II), and staff initiated Phase III of the State Water Plan (SWP), which focuses on watersheds with critical needs. Through active partnerships, staff will address watershed priorities. The Phase III pilot project for the watershed approach is the James River Basin.

During 2003 and 2004, the West and Northwest areas of Missouri experienced severe drought conditions. The Drought Assessment Committee (DAC) provided economic analyses, disaster assistance, crop and livestock updates, water supply studies, and precipitation outlooks. The DAC is a cooperative working entity provided for in the Missouri Drought Plan (a State Water Plan product) which is chaired by the department. The DAC worked quickly to analyze each county affected by the drought and made recommendations to the governor (which were acted upon) concerning the counties that qualified for federal drought assistance. The DAC's proactive work helped minimize the negative economic impact on the agricultural community. State Water Plan and drought information is available at [www.dnr.mo.gov/geology/wrp/statewaterplanMain.htm](http://www.dnr.mo.gov/geology/wrp/statewaterplanMain.htm) or [www.dnr.mo.gov/geology/droughtupdate.htm](http://www.dnr.mo.gov/geology/droughtupdate.htm).

The department provides information for Missouri's comprehensive water needs by examining surface water use and availability. Water supply analyses determine water availability during droughts. Staff engineers prepare lake bathymetry studies and utilize stream gages to provide water quantity evaluations and determine community sustainable yields. Bathymetry studies analyze the bottom profile of the reservoir to determine the holding capacity of the lake for water supply and flood supply purposes. Staff use reservoir computer models to examine inflow, evaporation, reservoir spills and lake seepage to determine if the lakes or lake-stream combinations can sustain the community water demands through historical drought conditions. Over the last several years, six to nine community water system evaluations have been completed each year. The communities and rural water systems rely on state support for these evaluations that are not available locally or privately due to the complexity and specialization of the hydrology and bathymetry expertise and equipment needed for the studies. Recently, the city of Cameron has benefitted from these analyses and the department is currently providing technical water reservoir operations assistance to the North Central Missouri Regional Water Commission. Reports for each of the reservoirs are available at [www.dnr.mo.gov/geology/wrp/drought/RESOPreports.htm](http://www.dnr.mo.gov/geology/wrp/drought/RESOPreports.htm).

## Interagency Task Force (IATF)

(section 640.430)

The IATF work group advises the department on a wide variety of water quantity and quality related issues for the purpose of implementing the Missouri Water Resources Law. Meetings are held semi-annually and are open to the public.



## Financial Assistance Opportunities

The Missouri Department of Natural Resources offers numerous opportunities for financial assistance including tax credits and exemptions, loans and grants. These opportunities are available for communities, organizations, companies and private individuals. Assistance can range from erosion control structures, to sewer and water systems and cleaning up leaking underground storage tanks. The department's Community Assistance Office, a service of the Outreach and Assistance Center, provides a single point of contact to put people in touch with the financial resources of the department, allowing us to serve Missouri citizens and communities better.

## State Water Plan

The third phase of the State Water Plan has just begun. As directed by the Missouri Water Resources Law (RSMo 640. to 640.435) the department is to develop a long-range, comprehensive statewide program for the use of surface water and groundwater resources of the state, including existing and future need for drinking water supplies, agriculture, industry, recreation, environmental protection and related needs. The State Water Plan will have an impact on how and where the department's staff and available financial resources are directed. This effort will focus on the efficient coordinating of other state and federal resources to provide local citizens and local organizations in the watershed basin the support and tools necessary to make comprehensive and far sighted water supply and use, and water quality and quantity management decisions. For more information about the financial assistance opportunities, call the Community Assistance office toll-free at 1-800-361-4827, or e-mail at: [oac@dnr.mo.gov](mailto:oac@dnr.mo.gov).



*The mission of the Missouri Department of Natural Resources is to preserve, protect, restore and enhance Missouri's natural, cultural and energy resources and to inspire their enjoyment and responsible use for present and future generations.*

In order to accomplish this mission and maintain the state's water resources, citizens, lawmakers, businesses, and government must work together. Please do not hesitate to contact us with any water resources questions.



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