

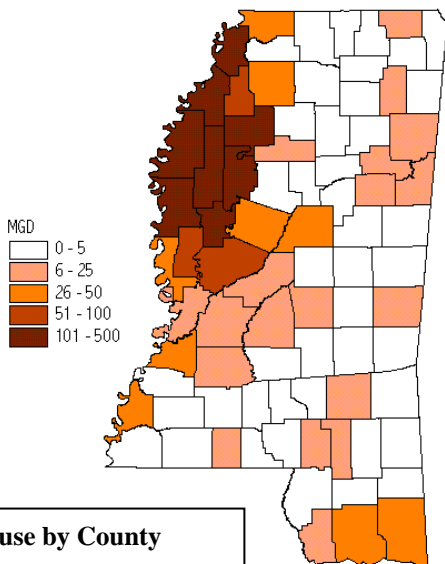
MISSISSIPPI GROUND WATER RESOURCES

How Important Is Ground Water? Mississippi is more dependent on its ground water resources than any other state. This reliance is atypical of most states which are more dependent on surface water than Mississippi.

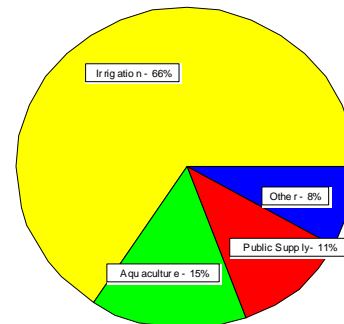
- ◆ More than 80% of Mississippi's total water supply is obtained from its ground water resources.
- ◆ More than 93% of the potable water supply is extracted from water wells that tap available aquifers.
- ◆ Mississippi has only 3 public surface water systems (out of 1,535 total systems).
- ◆ Ground water is used exclusively to supply the water needs for over 100,000 acres of channel catfish ponds.
- ◆ Many of Mississippi's farmers are dependent upon ground water for the irrigation of crops such as rice.

depending on the specific water quantity and quality needs. In most cases, the unconsolidated sand and/or gravel aquifers are capable of supporting a wide range of beneficial uses. Natural springs are still utilized in some locations; however, most of the potable water supply is obtained from the 3,400 public ground water system wells and thousands of domestic wells in the state. Domestic wells typically are relatively shallow compared to the deeper public water system wells which can reach in excess of 2,000 feet.

How Is It Used? An estimated 2,600 million gallons of ground water are pumped each day from the aquifers of Mississippi. The irrigation of crops accounts for the largest use of ground water. Other significant beneficial uses of ground water include aquaculture and potable water supply. Because the estimated 3 million inhabitants of the state are fairly evenly dispersed throughout its boundaries, Mississippi is predominantly rural. This characterization is even more pronounced when considering the state's demographics, which indicate that only 11 municipalities have populations in excess of 20,000. Water level declines in aquifers underlying some of the more densely populated areas and in northwest Mississippi, where crop irrigation and aquaculture interests are concentrated, are noticeable and need to be monitored.



Ground Water Use



Where Is It? With 14 major aquifer systems and numerous minor aquifers, ground water is readily available in virtually all areas of the state. Regions of Mississippi are often fortunate enough to be able to select among several fresh water aquifers at various depths

How Safe Is It To Drink? The overall quality of ground water resources in Mississippi is quite good. Most of the drinking water supply in the state is obtained from deep aquifers which are naturally protected to some extent by overlying clay (confining) layers. Incidents of ground

water contamination impacting large segments of the population have been rare. Most of the documented cases involving ground water problems have been localized incidents, which have been traced to sources such as leaky, underground (gasoline) storage tanks and faulty septic tanks. Most of these cases have resulted in only shallow (water table) aquifers being impacted over limited areas. However, there are incidents of shallow as well as deep public water system wells in the state being adversely impacted by contaminants. Effectively addressing incidents of ground water contamination have proven costly since they have involved replacing wells, installing water treatment devices, and long-term ground water remediation projects. For example, the Town of Wesson spent more than \$1 million to drill two new municipal wells and install the necessary infrastructure when their confined aquifer became contaminated in 1987. The remediation project to clean up the aquifer in Wesson is expected to take years and cost hundreds of thousands of dollars.

How Is It Being Protected? Mississippi has made a concerted effort through the years to protect its ground water resources and to prevent contamination. Much of this effort has focused on the effective regulation of facilities and sites handling potential sources of contamination as well as managing a variety of nonpoint sources of pollution. A host of different federal, state, and local agencies and groups have pursued the various avenues available to manage and protect the ground water quality of the state.

Wellhead Protection Program -- Only 100 public water systems have initiated steps to protect their ground water supplies from contamination. The final component of this program is the development and implementation of management plans to address identified sources of contamination.

Source Water Assessment Program -- This new program is expected to assess the susceptibility of all 1,535 public water systems to contamination by 2004 and to provide this information to the public.

Basin-Wide Water Management Approach -- Mississippi has adopted a new methodology

which concentrates efforts within established river basins on a set 5-year cycle to better coordinate the effective management of all its water resources.

What Else Is Needed? Among the many critical funding challenges facing Mississippi in protecting its valuable ground water resources are the following:

- ◆ Assistance for updating source water assessments after 2003. No funding is currently available to address this need.
- ◆ Assistance for the Source Water Protection - Wellhead Protection Programs. Simply assessing the susceptibility of systems will be of limited benefit without the development and implementation of effective management practices.
- ◆ Pollution prevention and technical assistance to small businesses. A concerted effort needs to be made to educate and assist small businesses in the adoption of best management practices.
- ◆ Increased ground water education efforts. In many cases, this is the only available means to address the protection and management of ground water resources in Mississippi.
- ◆ Further monitoring and evaluation of ambient ground water quality and quantity. The identification of critical and/or susceptible ground water areas of the state is crucial to the development of effective planning and management.
- ◆ Support for addressing the thousands of abandoned and/or orphaned wells in the state. These conduits may contribute to the degradation of available aquifers.
- ◆ Incentives for communities to develop management approaches. These would include any practices that would address the protection of drinking water supplies.