

# water and climate

## How changes in climate change our water future

The water cycle — yes, the one you remember from elementary school — is fundamental to the planet's climate system. Evaporation, precipitation, and so on.

Although not everyone agrees on the causes and rate of climate change, most scientists agree that we are experiencing increasingly rapid change in the earth's climate. During the process of this change, it is very possible that the planet as a whole will experience changes in precipitation, soil moisture, sea level and ecological systems. In many cases, these changes will threaten established agriculture, industry and recreation. Climate change will increase Arkansas' existing water problems, and will increase the rate at which these problems develop.

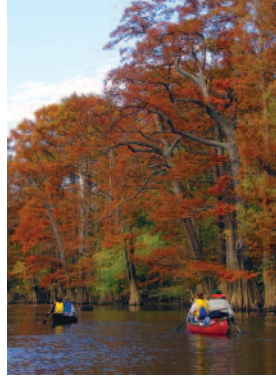
Birds are already adjusting their ranges to cope with climate changes to date — 125 Arkansas species have already moved an average of 100 miles north.

## Challenges

### Flood and drought

Climate change will increase the frequency and severity of events at both ends of the spectrum — flooding and drought. In either scenario lives, livelihoods and property are endangered. Areas that have historically not been prone to extreme weather may experience it with increasing frequency.

Between floods and droughts, wind and water erosion will increase pollution of surface and



groundwater sources. Aquifers could reach dangerously low levels, and reach them sooner. Remaining water sources may be more saline or polluted, requiring more treatment to make it usable.

## Supply and demand

It's hard to name an endeavor that does not require water: domestic life, commercial enterprise, industrial process, mining, raising livestock, aquaculture, irrigation of cropland, hunting and fishing and thermoelectric power generation all demand ample water. It is likely that, without wise and participative advance planning, demand may begin to exceed supply, limiting economic development and quality of life. Conflict and litigation could increase. The sectors with a high water demand will be impacted the greatest.

## Management

Planning and management will be the keys to ensuring adequate, high-quality water for all uses. Approaching our water future with a stewardship spirit and the participation of all interested parties will produce the fairest plan with the highest chance of sustaining Arkansas' unique lifestyle and economic future. Providing for citizens' health, food, energy availability and the state's natural assets will be a formidable challenge, with a need for strong leadership and patient collaboration. Our water future can be sparkling and abundant, but we must all take part in working toward that goal.

*Climate change will increase Arkansas' existing water problems.*

## Arkansas is at a critical juncture in water management.

Decisions we make now can move the state toward or away from crisis. Citizens and institutions have the opportunity to participate in those decisions now and in the next few years, or risk being left high and dry after decisions are made by others.

Arkansas' Water Future Coalition maintains that well-managed water, both now and in the future, must start with the protection of water quality, water quantity, healthy natural habitats and the recharge of groundwater aquifers.

The **Winthrop Rockefeller Foundation** commissioned the following efforts to promote policy options that achieve sustainable water resources in Arkansas.

### Water Issues in Arkansas: An Unfinished Story, 2008

A summary report and a larger companion report include references, literature review and multiple perspectives on Arkansas water use.

### Troubled Water (2008 AETN)

This documentary film summarizes water issues and aired in April 2008.

### Arkansas' Water Future Coalition (2008)

The Coalition includes Audubon Arkansas, Arkansas Public Policy Panel, and The Nature Conservancy. The Coalition will assist the Foundation with strategies that engage Arkansans in efforts that focus on improving water policy.

## Thirsty for more?

### Water Issues in Arkansas:

**An Unfinished Story** can be found at [www.wrfoundation.org](http://www.wrfoundation.org)

Other websites of interest:

[www.anrc.arkansas.gov](http://www.anrc.arkansas.gov)  
[www.adeq.state.ar.us](http://www.adeq.state.ar.us)  
[www.arkansaswater.org](http://www.arkansaswater.org)  
[www.awag.org](http://www.awag.org)  
[www.watersheds.cast.uark.edu](http://www.watersheds.cast.uark.edu)

Arkansas' Water Future Coalition Members:

[www.ar.audubon.org](http://www.ar.audubon.org)  
[www.arpanel.org](http://www.arpanel.org)  
[www.nature.org/wherewework/northamerica/states/arkansas](http://www.nature.org/wherewework/northamerica/states/arkansas)



A Coalition of Audubon Arkansas, Arkansas Public Policy Panel & The Nature Conservancy, Arkansas Field Office. Funded by the Winthrop Rockefeller Foundation.

## Water Glossary

### Watershed

A watershed is an area of land that drains rain and snow into a particular lake or river. Arkansas has 57 "coded" watersheds, sometimes called hydrologic units, and seven regional watersheds. Decisions made by stakeholders in a watershed will affect others.

### Aquifer

Groundwater is contained in aquifers, underground beds of saturated soil or rock. Arkansas is the fourth largest user of groundwater in the U.S. Water level declines and other measures indicate that aquifer withdrawals in the state are occurring at an unsustainable rate.

### Riparian Zones

A general term for land areas directly influenced by a body of water. Stream banks, lake borders and marshes are typical riparian zones. A healthy riparian zone contains native plants that filter sediment and other contaminants from water and provide wildlife habitat. Loss of healthy native riparian zones reduces water quality.

### Runoff

Runoff, as the term suggests, is any amount of water that runs off a surface, either into a waterway or absorbed by the soil. Runoff can transport sediment, nutrients and contaminants into surface and groundwater, and is a major culprit in loss of water quality.

### Sedimentation

Sediment is the largest pollutant of water worldwide. It's the deposit and accumulation of eroded soil into waterways. Erosion from deforestation, urbanization, roads and agriculture can contribute.

### Point and Nonpoint Pollution

In order to manage pollution's impact on a body of water, we must determine its starting point. If a pollutant can be traced back to a particular source, it's referred to as "point" pollution. If not, the pollution is referred to as "nonpoint."