

Discovering Alabama

Teacher's Guide

Cahaba River Watershed

Suggested Curriculum Areas

Earth Sciences
Geography
History

Suggested Grade Levels

4–12

Key Concepts

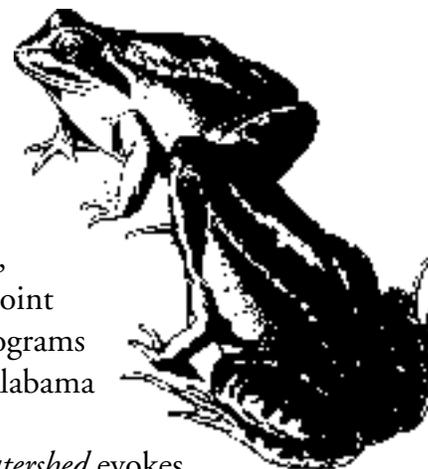
Watershed
Nonpoint Source Pollution
Growth Management

Key Skills

Map Reading
Calculating
Information Research

Synopsis

The “Cahaba River Watershed” video highlights the history and natural diversity of the Cahaba. The film explores the river and its watershed showing environmental changes that confront many rivers across the state and nation. Problems that cause lowered water quality are stressed, particularly those related to nonpoint source pollution. Examples of programs to improve the water quality in Alabama have been included.



For some people, the term *watershed* evokes an image of small tributary streams feeding into a larger river. As with the Rorschach test, in which a set of ink blots are interpreted according to one's frame of reference, we may need to think of watersheds from a different viewpoint. To use the term correctly, we must understand that a watershed is essentially the *land* rather than the stream. Likewise, the quality of water in a stream largely reflects the quality and condition of the *land* in the watershed.



THE UNIVERSITY OF
ALABAMA



Discovering Alabama is a production of the Alabama Museum of Natural History in cooperation with Alabama Public Television. For a complete list of titles in the *Discovering Alabama* series, as well as for information about ordering videos and accompanying Teacher's Guides, contact us at either: *Discovering Alabama*, Box 870340, Tuscaloosa AL 35487-0340; phone: 205-348-2036; fax: 205-348-4219; or email: orders@discoveringalabama.org. Also visit our website: www.discoveringalabama.org.

This program was produced with support from the following organizations:



Before Viewing

1. Allow five minutes for each student to write individual definitions of the term “river.” Call on several volunteers to read their definitions to the class. Ask if anyone has a river or creek near home and briefly discuss any questions, concerns, or personal experiences that may emerge.
2. Inform the class that Alabama contains one of the nation’s most significant rivers—the Cahaba. Divide students into groups of four to six and give each a copy of the simplified map of the Cahaba Watershed (see back page of this Guide). Have the groups determine: a) where the river begins and where it ends, b) the change in land elevation along the length of the watershed, c) the approximate length of the watershed and the approximate number of square miles contained in the watershed, and d) the major human disturbances that probably occur within the watershed.

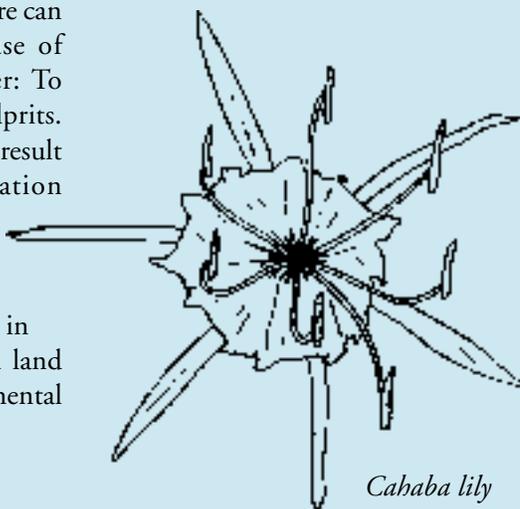
While Viewing

Have students note: a) how features of the Cahaba differ as the river proceeds from north to south, b) specific kinds of pollution to the Cahaba, and c) how student definitions of “river” compare to the video characterization.

Video Mystery Question: Where can we go to see the ultimate cause of watershed degradation? (Answer: To the mirror. We are the chief culprits. Many kinds of pollution are the result of our growing human population combined with many human activities. Solutions lie in learning to understand streams from a watershed perspective and in insisting on better planning and land management to reduce environmental impacts.)

After Viewing

1. Have students reassemble in groups and develop group definitions of “river” to incorporate any new thoughts or information they acquired from the video. Take a moment for each group to present its definition to the class. Discuss how the group definitions differ from the individual ones developed before watching the video.
2. Discuss the term “nonpoint source pollution” with the class. Explain that nonpoint source pollution, or polluted runoff, is the accumulated pollution that rainwater washes into our surface and underground waters. The sources of this runoff include improper waste disposal, soil erosion (from construction sites, abandoned mines, and improper logging practices), sediments from fertilizers and pesticides, bacteria and parasites from animal wastes, and the residues from city streets and parking lots. Have students suggest other pollution sources.
3. Locate the Cahaba River Basin using the *Alabama’s Water Resources Map* from Legacy: Partners in Environmental Education Inc. (see **Additional References and Resources**). Identify the other major river watersheds outlined on the map. Discuss why the video concludes that the entire state of Alabama can be viewed as one large watershed.



Cahaba lily

Extensions

1. Invite a member of the Alabama Water Watch program (see **Additional References and Resources**) to speak to the class about how stream quality is measured.
2. Invite the Cahaba River Society to help you organize a visit to the Cahaba or a float trip along part of the river. The Society also has slide programs and other materials available (see **Additional References and Resources**).

Philosophical Reflections

Scientists believe that life originated in water. The physical makeup of our bodies is about 80% water. Many religions use water as the chief anointment to signify spiritual rebirth. With such an intimate bond with water, how would you judge the observation that human abuse of water resources is a sign of modern society’s psychological separation from nature?

Nature in Art

The music in the video, which accompanies scenes showing the Cahaba lily, is from the great classical work, “The Moldau,” by the 19th-century composer Bedrich Smetana. The piece was inspired by Smetana’s love for a river in his native Czechoslovakia and is part of a larger work entitled, *My Fatherland*. Is there a special river in your life? What thoughts does it bring to your mind? What music portrays your river?

Community Connections

1. Join Alabama Water Watch (see **Additional References and Resources**), learn the essential water-monitoring procedures, and obtain a water-monitoring kit. You are now ready to adopt a stream in your local area. Consult with Water Watch leaders to help select an appropriate stream. Obtain topographic maps of your river and have the class develop basic information about the stream: location of headwaters, length of the river, boundaries and area of the watershed, average annual stream flow, water-quality conditions, flora and fauna living in the river and in the watershed, the location of special natural areas in the watershed, and the location of disturbances to the watershed. After doing research and compiling sufficient information about the river, prepare a citizen-education campaign to raise local awareness and appreciation for the river.

2. Develop a wall map of your adopted river. Invite interested local leaders to join with the class to explore ways that the community can work together to insure the future protection of their river and its watershed.

Complementary Aids and Activities

Project Learning Tree, Activity Guide, Grades 7–12, “Water We Doing.” Available through Alabama Forestry Association, 555 Alabama St., Montgomery AL 36104.

Project WILD Aquatic, Activity Guide, Grades 6–12, “Riparian Retreat.” Available through Alabama Department of Conservation and Natural Resources, 64 N. Union St., Montgomery AL 36130.

Ground Truth Studies Project, Unit III, Activity: “Make a Watershed Model.” Available from Environmental Studies, The University of Alabama–Huntsville, 201 Wilson Hall, Huntsville AL 35899.

Nonpoint Source Water Quality Curriculum Guide, Activity: “Where Does Water Go after School?” Available through the Center for Environmental Research and Service, Troy State University, Troy AL 36082.

Earth Matters, Activity: “Population Scavenger Hunt.” Available through Zero Population Growth, 1400 16th St. NW, Suite 320, Washington DC 20036.

Agriculture in the Classroom. A series of classroom activities available from the Alabama Farmers Federation, P.O. Box 11000, Montgomery AL 36191.

Additional References and Resources

Alabama’s Water Resources Map and student activity guide. Available from Legacy: Partners in Environmental Education Inc., P.O. Box 3813, Montgomery AL 36109.

“Water: The Power, Promise, and Turmoil of North America’s Fresh Water,” *National Geographic Society Special Edition* 1993, vol. 184, no. 5. Available from National Geographic Society, 1145 17th St. NW, Washington DC 20036.

Alabama Geographic Alliance, Department of Geography and Anthropology, Jacksonville State University, Jacksonville AL 35001.

Geological Survey of Alabama, The University of Alabama, Box 869999, Tuscaloosa AL 35486–9999.

Alabama Water Watch, c/o Water Division, Alabama Department of Environmental Management (ADEM), 1751 Cong. W.L. Dickinson Drive, Montgomery AL 36130.

NatureSouth, vol. 3, no. 1. Issue devoted to Alabama rivers. Order through Alabama Museum of Natural History, The University of Alabama, Box 870340, Tuscaloosa AL 35487–0340; 205–348–9826.

Explore the Cahaba River: An Activities-Based Education Guide. Available from the Cahaba River Society, 2717 7th Ave., Suite 207, Birmingham AL 35233.

Environmental Resources Guide: Nonpoint Source Pollution Prevention. A series of classroom activities produced by Tennessee Valley Authority. Copies through Air and Waste Management Association, P.O. Box 2861, Pittsburgh PA 15230.

Parting Thoughts

Ancient people often chose to settle along a river because the river was a convenient place to dump their garbage. Today, despite the progress of our more advanced society, we still seem to have an affinity for this primitive practice.

Oh yeah, I almost forgot. If you plan to go canoeing, do so with someone who understands the principles of safe canoeing. Always wear your life jacket and never canoe a rain-swollen stream.



Happy outings,

A. Long



Discovering Alabama

Activity/Information Sheet

Cahaba River Watershed

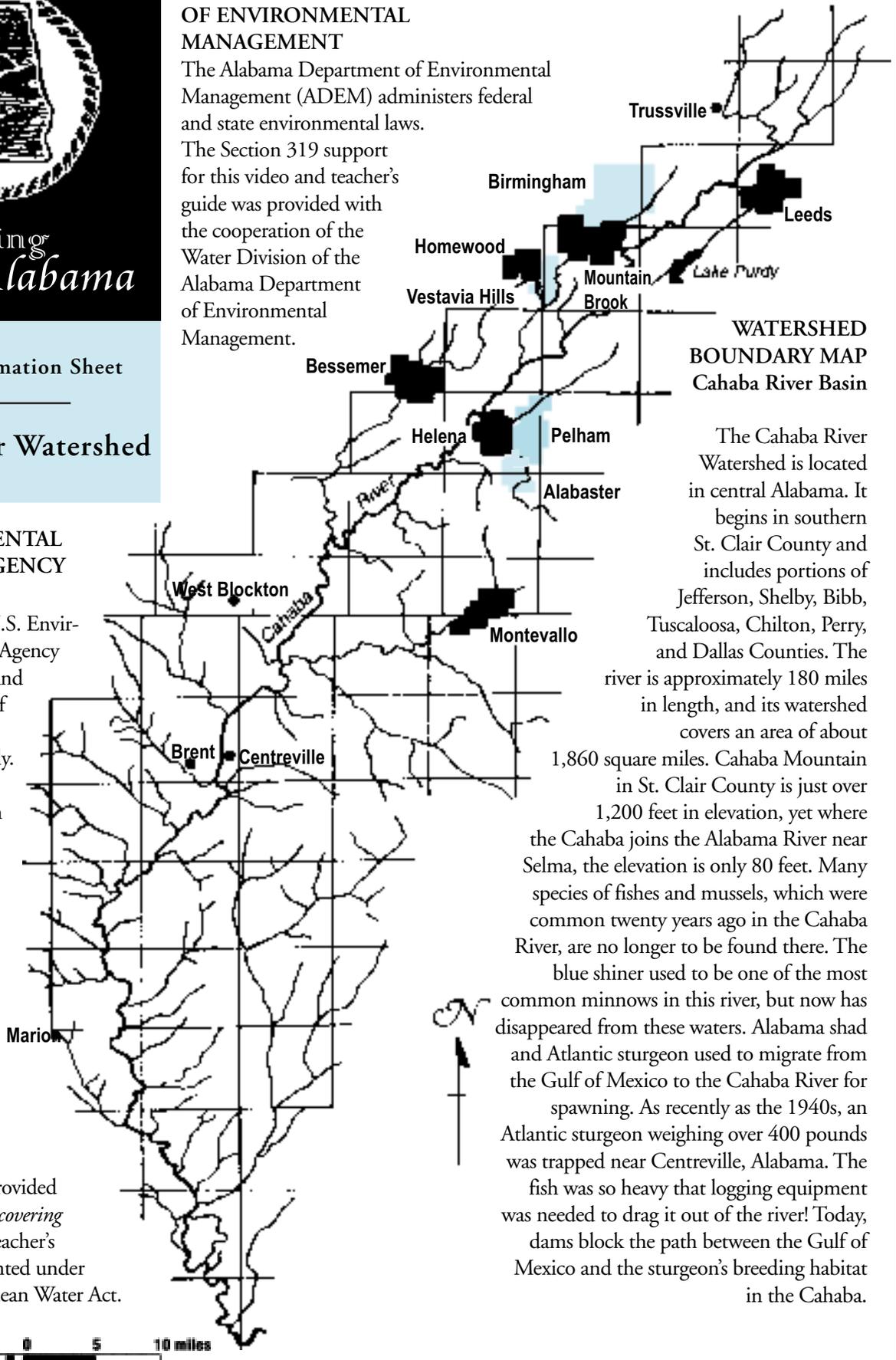
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The Alabama Department of Environmental Management (ADEM) administers federal and state environmental laws.

The Section 319 support for this video and teacher's guide was provided with the cooperation of the Water Division of the Alabama Department of Environmental Management.

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION IV

The mission of the U.S. Environmental Protection Agency (EPA) is to improve and preserve the quality of the environment, nationally and globally. The EPA works to protect human health and the natural resources on which all human activity depends. The EPA Office of Water defines goals and standards to achieve pollution controls. Region IV of the EPA covers an eight-state area of the southeast that includes Alabama. Region IV USEPA provided assistance for this *Discovering Alabama* video and teacher's guide with funds granted under Section 319 of the Clean Water Act.



WATERSHED
BOUNDARY MAP
Cahaba River Basin

The Cahaba River Watershed is located in central Alabama. It begins in southern St. Clair County and includes portions of Jefferson, Shelby, Bibb, Tuscaloosa, Chilton, Perry, and Dallas Counties. The river is approximately 180 miles in length, and its watershed covers an area of about 1,860 square miles. Cahaba Mountain in St. Clair County is just over 1,200 feet in elevation, yet where the Cahaba joins the Alabama River near Selma, the elevation is only 80 feet. Many species of fishes and mussels, which were common twenty years ago in the Cahaba River, are no longer to be found there. The blue shiner used to be one of the most common minnows in this river, but now has disappeared from these waters. Alabama shad and Atlantic sturgeon used to migrate from the Gulf of Mexico to the Cahaba River for spawning. As recently as the 1940s, an Atlantic sturgeon weighing over 400 pounds was trapped near Centreville, Alabama. The fish was so heavy that logging equipment was needed to drag it out of the river! Today, dams block the path between the Gulf of Mexico and the sturgeon's breeding habitat in the Cahaba.