



National Great Rivers  
Research and Education Center

Introducing the  
**Confluence Field Station**  
Alton, Illinois



## A Confluence of Great Rivers

Earth's majestic landscapes, vast oceans and great rivers inspire us and invite exploration and discovery. A noteworthy example of such inspiration lies in the heart of North America where the powerful Mississippi, Missouri and Illinois Rivers and their tributaries form a watershed of immense proportions. Alton, Illinois is strategically positioned between the confluence of the Illinois and Missouri Rivers with the Mississippi.

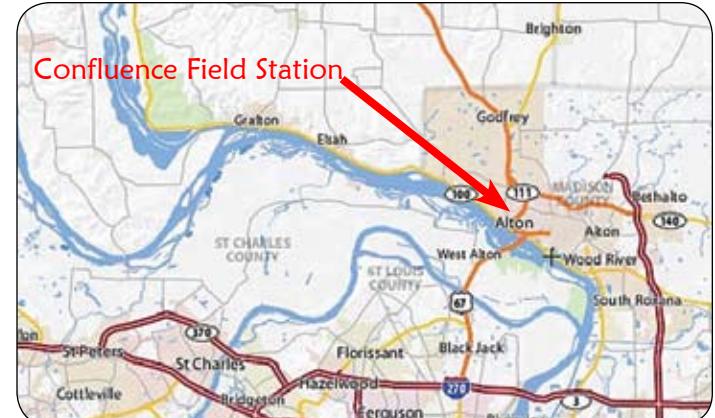


Image courtesy of Yahoo Maps

Fifty-three million people reside in the ten states that border the Mississippi River, and 84 million in the states that fall within the watershed that stretches from Minnesota to the Gulf of Mexico and the Appalachian Mountains to the Rocky Mountains.

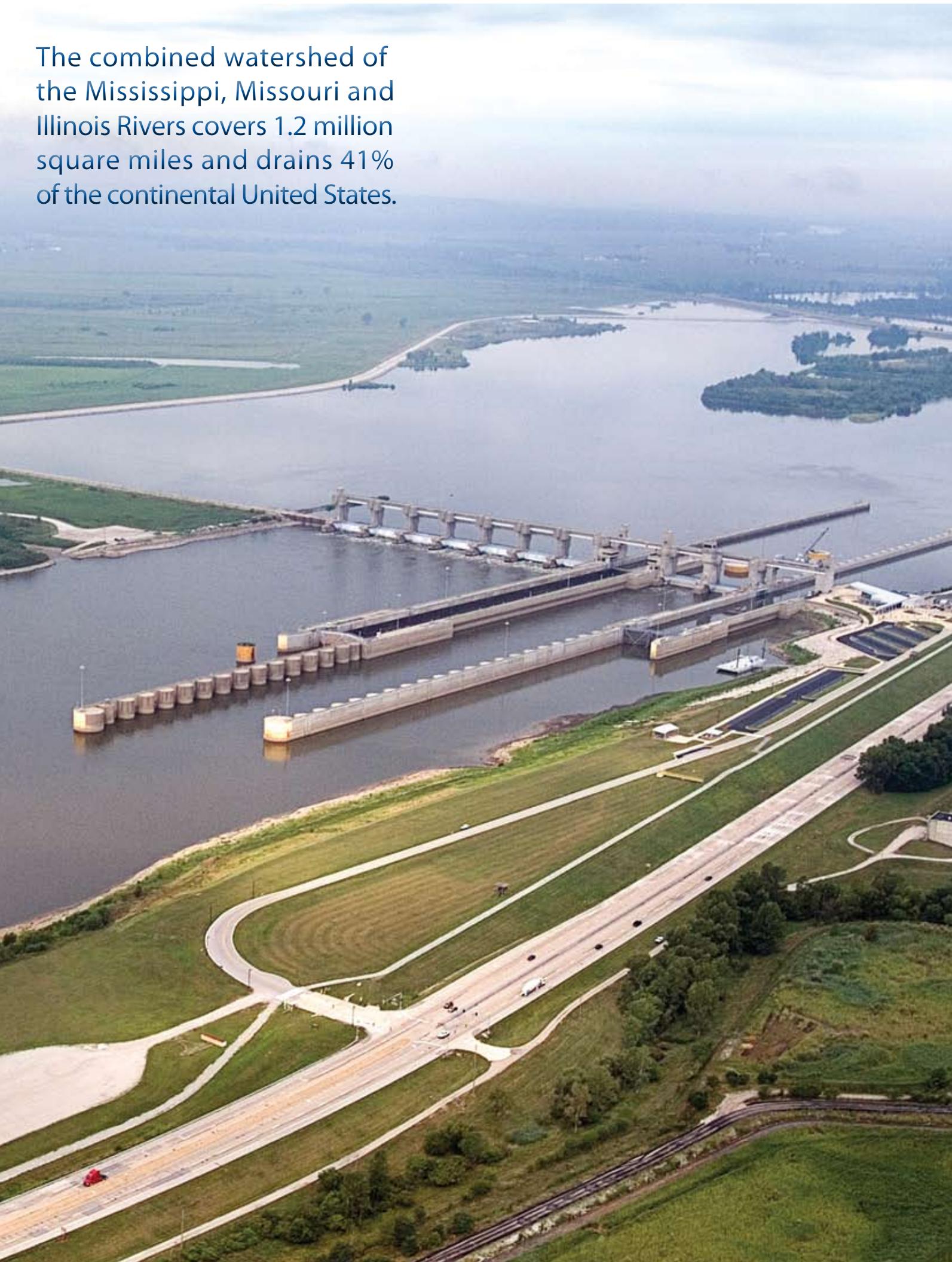
## Global Implications

The combined watershed of the Mississippi, Missouri, and Illinois Rivers covers 1.2 million square miles and drains 41% of the continental United States. Sound strategies for managing rivers and their watersheds can have global implications, especially as nations strive to protect and sustain river systems amid exploding populations and increasing scarcity of freshwater resources.

## NGRREC (the Center)

The National Great Rivers Research and Education Center (NGRREC) is uniquely positioned to help preserve and protect this vital resource. NGRREC is a partnership of Lewis and Clark Community College, the Illinois Natural History Survey, and the University of Illinois at Urbana-Champaign. The Center partners with The Great Rivers Land Trust, The McKnight Foundation, The Meeting of the Rivers Foundation, The Nature Conservancy, Southern University at Baton Rouge, and the United States Army Corps of Engineers.

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## Big River Research

The close proximity of three rivers of this magnitude offers an ideal location for the study of big rivers. NGRREC's staff conducts research and education programming to increase our understanding of big rivers, their watersheds and floodplains, and the interaction between the rivers and their human, plant and animal communities. Researchers gather data, conduct experiments, and disseminate their discoveries through peer-reviewed publications and presentations at symposia and conferences.

This research contributes to the body of scientific knowledge about big river systems, and informs both public opinion and policy makers regarding key river issues.



U. S. Congressman Jerry Costello

## The Confluence Field Station

In 2008, construction began on the Center's new field station in Alton, Illinois, near the National Great Rivers National Museum along Highway 143 and adjacent to the Melvin Price Locks and Dam. The completed structure will be a model of "green" construction with virtually no environmental impact, integrated renewable energy systems and internal recycling systems. Scientists working in the field station will focus on ecosystem restoration, floodplain and watershed management, and achieving sustainability for rivers and their environments.



Research has revealed how, during spring floods, fish assist in seed dispersal and promote germination of plants that grow in the floodplain (Chick et al., 2003).



NGRREC interns learn about turtle research.

## Research

NGRREC staff conduct research independently and in collaboration with other scientists and organizations. Center scientists have co-authored more than 20 peer-reviewed articles. They continue to work in local, national, and international research with wide implications for the health of our rivers, the well-being of the communities that reside within the river environments, and national sustainability issues.

NGRREC has demonstrated how, in response to recent climate changes, some animal species are using the Mississippi River as a pathway for northward movement (Tucker and Sparks, 2007). NGRREC scientists were among the first to quantify the benefits of working with natural river processes to maintain resilient ecosystems that can recover from natural and human disturbances (Sparks and Braden, 2007).

## Cache River Symposium

NGRREC recently co-sponsored a symposium on the continuing restoration of the Cache River in southern Illinois. Other sponsors included the Illinois Department of Natural Resources, the U.S. Fish and Wildlife Service, Ducks Unlimited, and The Nature Conservancy. The Cache River is one of just 22 designated *Wetlands of International Significance* in the United States. This symposium brought together scientists, educators and community leaders to set future direction for continued restoration of the river and its watershed.

## Education/Community Outreach

Research findings from the Center's staff and others are integrated into our education programs to increase public understanding of big rivers and their environments. These findings also form the basis for workshop and symposia topics including indicators of river health diagnostics, the economics of river communities, eco-tourism, and ecological restoration. These educational programs offer professional development opportunities for ecologists and others working in the environmental sciences and related fields.

The Center's comprehensive education and outreach programs target audiences ranging from K-12 students and teachers to local citizens and constituency groups. NGRREC educational programs meet guidelines established by the Illinois Learning Standards and the North American Association for Environmental Education. NGRREC annually hosts a teacher-student water festival, a birding festival, RiverXchange, and education in environmental conflict resolution.

## RiverWatch

In 2007 NGRREC assumed responsibility of the RiverWatch Program. Initiated in 1995 by the Illinois Department of Natural Resources, RiverWatch enlists citizen volunteers to help gather long-term data on the health of Illinois streams and rivers. Through this program, several hundred citizen-scientist volunteers currently monitor water quality throughout the state's river systems.



Annual water festival for elementary-school children



RiverWatch citizen volunteers



Cache River restoration



## Summer Intern Program

One of NGRREC's signature educational programs is a 10-week summer internship program for college students. Internships both on site and in the field address issues such as aquatic and terrestrial ecosystems surrounding the Great River's confluence area, public policy, and youth education. More than 120 students have served as interns since the program's inception.

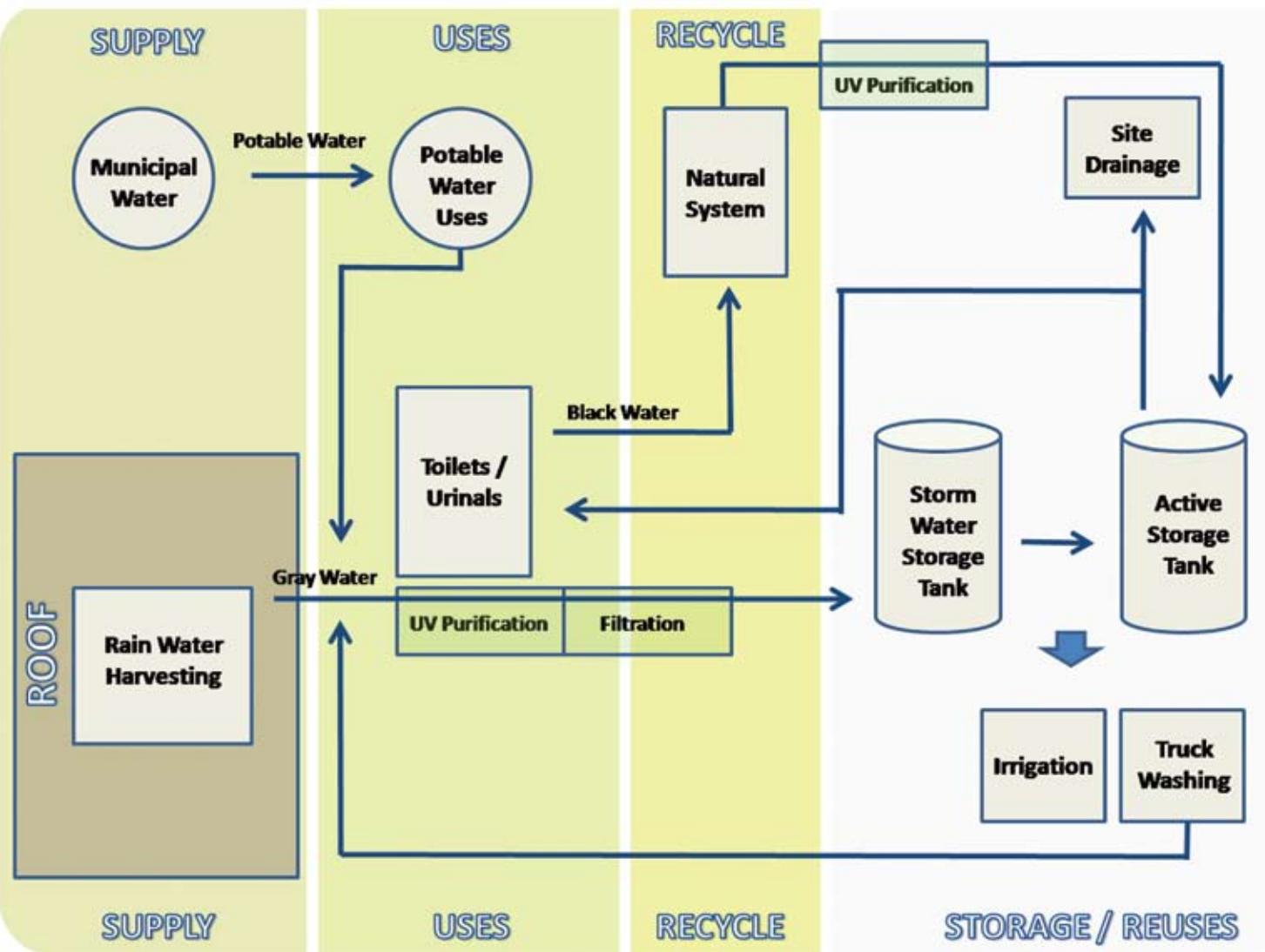
For more information about NGRREC programs, visit our website at [www.ngrec.org](http://www.ngrec.org).



NGRREC interns



Field station includes a vegetative roof



Rainwater from the vegetative roof and "grey water" from wash basins and drains will be collected and recycled for non-potable uses, including irrigation and washing of trucks and boats.

## Confluence Field Station

With the completion of the field station at Alton, big river research will advance to a higher level of sophistication. The field station represents a major step forward in protecting and preserving our great rivers. It will attract researchers and scientists worldwide and focus international attention on this region as an important center of ground-breaking research. Researchers will continue to use this and other facilities, including those of partner institutions, to gather data and conduct experiments that add to our knowledge of river systems.

## Model of Green Construction

The field station will be a model of green construction, with minimal environmental impact, integrated renewable energy systems, and internal recycling systems, and a vegetative roof.

## Sophisticated Mesocosms

A key element of the field station will be six mesocosms located just outside the wet lab. Mesocosms are large concrete channels containing flowing water and plankton pumped directly from the Mississippi River. In these artificial environments, researchers are able to conduct controlled experiments by changing the water velocity and other environmental conditions. The results of these experiments can be used to predict effects on populations in the river and to develop fish conservation strategies.

## Minimal Environmental Impact

NGRREC will incorporate a number of unique elements into the Confluence Field Station and grounds that will reduce the environmental impact of the facility and its surrounding landscape to a minimum. Energy to run the facility and mesocosm system will be generated by wind and hydrokinetic turbines. The roads and parking areas will drain into bio-swales and utilize pavers that allow drainage through the pavement rather than over the top and into stormwater systems.

## LEED Certification

NGRREC officials are seeking platinum-level LEED certification (Leadership in Energy and Environmental Design), affirming that the new facility meets U.S. Green Building Council standards for energy and resource efficiency and a dramatic reduction of CO<sub>2</sub> emissions from conventional levels.

## Building Features

Features of the field station include wet and dry labs (with wet labs having a source of water pumped directly from the Mississippi River), office space, a boat dock, and indoor-outdoor education facilities. Some public access for scheduled group tours will be accommodated.

## Education Center

Located on the Lewis and Clark campus, Haskell Hall serves as NGRREC's education and administrative center. Haskell Hall houses programs for terrestrial ecology, environmental education, RiverWatch, environmental communications, and administration.



Aerial view from river



Interactive educational displays



NGRREC Administration, Lewis and Clark Community College



## National Great Rivers Research and Education Center

*“The Confluence Field Station symbolizes a vision shared by many—that of sustainable river systems in harmony with human and wildlife communities. Realizing this vision will require the continuing support of our elected officials; of federal, state, and local government agencies and non-governmental organizations; and of scientists, researchers, students, citizen groups, and individual citizens.” — Dr. Dale Chapman, NGRREC Chair*

To find out more about how you or your organization can support NGRREC big river research and education programs, we invite you to contact us:

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