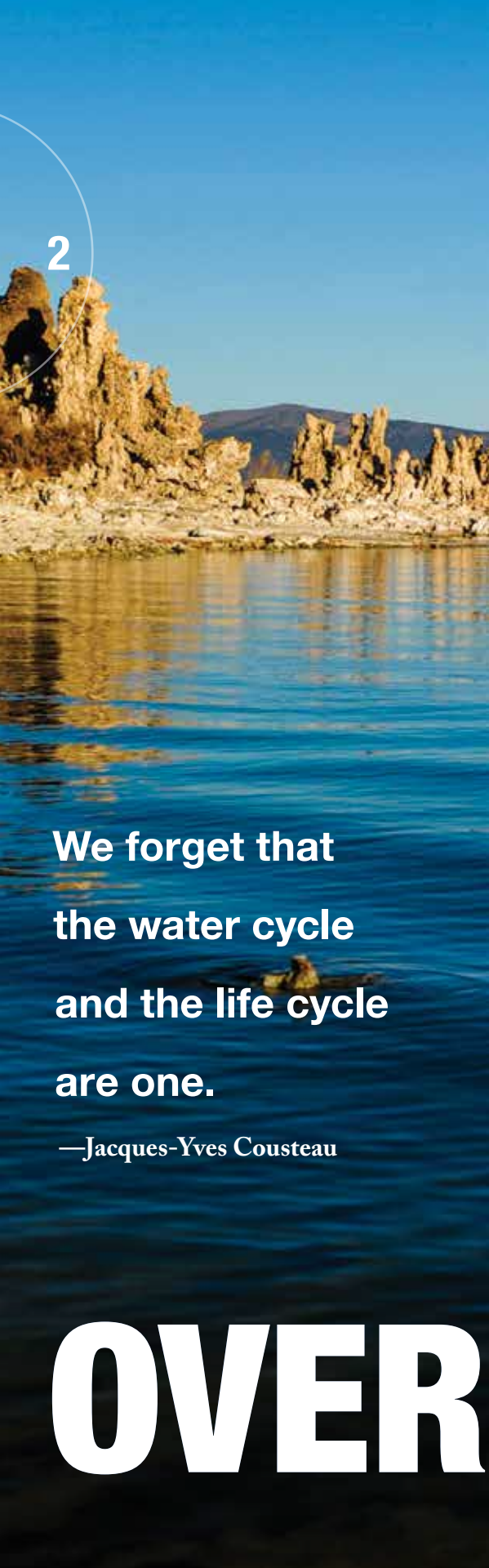


# 2015 Executive Summary

THE NATIONAL  
INSTITUTES  
FOR WATER  
RESOURCES

**NIWR**



**We forget that  
the water cycle  
and the life cycle  
are one.**

—Jacques-Yves Cousteau

Water makes headlines when there's too little or too much. Persistent droughts throughout the Great Plains and the West, and flooding from Hurricane Sandy are dramatic examples of the power water has over our economy, safety and public health. Beyond the headlines, it's the long-term, ongoing management of this precious resource that's a critical issue facing our nation and the world in the 21st century. The National Institutes for Water Resources (NIWR) plays a major role in addressing water-related concerns by providing a national platform for research, training and collaboration at the state level. Housed in the nation's land-grant universities, the 54 NIWR member institutes leverage university expertise in the fields of engineering, biology, chemistry, law, agriculture, social sciences and public health toward solutions to the challenges of our finite water supply.

# OVERVIEW

NIWR promotes water-related research, education and technology transfer at the national, state and local levels. There are 54 member institutes, one in each state, the District of Columbia, Puerto Rico, the U.S. Virgin Islands and Guam.

NIWR represents the Water Resources Research Institutes, which were established under provisions of the Water Resources Research Act of 1964. The act authorized a state-based network of institutes dedicated to solving problems of water supply and water quality in partnership with universities, local governments and the general public.

The NIWR network is the only federally mandated research program that focuses on applied water resource research, education, training and outreach.

Each institute works in consultation with state and local agencies, leading experts in higher education and private industry, stakeholders, and the general public to determine its research agenda. The U.S. Geological Survey (USGS) supports each institute with funding that targets local priorities, helps train and recruit researchers, and aids in the transfer of technology and best practices.



NIWR is established under provisions of the Water Resources Research Act (42 USC 10301) and was most recently reauthorized by Congress in Public Law 109-471. The law authorizes base funding grants for each institute, as well as nationally competitive grants for projects of regional or national significance. Congress appropriated \$6.5 million for the Water Resources Research Act program in FY 2015.

The Water Resources Research Institutes are required to match federal support with non-federal dollars at a ratio of 2-to-1. Using base funding grants from the USGS, NIWR member institutes leverage funds at a rate that exceeds 16-to-1. In fact, the water institutes program is one of the most cost-effective, cost-shared national research programs, with the federal-to-non-federal funding ratio far outpacing other federal science programs, including the National Science Foundation. The majority of the Water Resources Research Institute funds are used directly to support students and the researchers who educate them. This makes the program one of the most effective mechanisms to train the next generation of our nation's water resource professionals.

The Water Resources Research Act program is administered by the USGS under the general guidance of the Secretary of the Interior. The U.S. Department of the Interior evaluates each institute every three years. Most institutes have an advisory panel comprised of state water experts that guides the institute's priorities and oversees outreach goals.

# FUNDING & ACCOUNTABILITY

# NIWR FUNDING

NIWR represents a state-based network of water institutes funded through the Water Resources Research Act, which has two components:

- 104B Program, the institutes' base funding used to conduct applied water research, education, training and outreach, and
- 104G Program, a nationally competitive grants program focused on solving national water issues.

## THE NIWR MISSION

### RESEARCH

- Focus on applied water research, providing innovative solutions to address state and national needs
- Fund projects that lead to peer-reviewed scientific publications
- Leverage base funds to secure research contracts from other sources, including federal, state and non-governmental organizations

### EDUCATION

- Provide the opportunity for on-the-job training through participation in research projects
- Boast training for more than 25,000 students in NIWR's 50-year history
- Establish a vital link between state and federal water interests and academic expertise within university systems

### INFORMATION TRANSFER

- Disseminate information specific to priority water issues
- Organize local, regional and national conferences and symposiums on water issues
- Transfer technical information and expertise to stakeholders to help inform regulations, policy and management

### PARTNER ORGANIZATIONS

**U.S. Geological Survey**

**U.S. Army Corps of Engineers**

**U.S. Environmental Protection Agency**

**National Science Foundation**

**U.S. Department of Agriculture**

**National Oceanic and Atmospheric Administration**

**Bureau of Reclamation**

**U.S. Fish and Wildlife Service**

**U.S. Armed Forces**

**U.S. Agency for International Development**

**Nuclear Regulatory Commission**

**Federal Emergency Management Agency**

**State agencies focused on water issues**

The USGS' investment in NIWR makes for a powerful combination of innovative water research and boots-on-the-ground solutions that address the most pressing challenges facing our country's water resources.

Headquartered in the nation's leading research universities, NIWR institutes bring world-class science and concrete solutions to emerging water issues. With USGS support, NIWR helps the federal government meet its water-related mission by transferring emerging tools and knowledge to water professionals around the country, while training the next generation of water scientists and tackling emerging water issues with science and first-class policy know-how.

In 2014, the 54 NIWR institutes received \$5.2 million in USGS 104B funding. Through NIWR-initiated matching funds, the institutes more than tripled USGS funding to \$16.7 million, which directly supported more than 200 critical research projects affecting all U.S. regions.



# IMPACT & COLLABORATION



The **ALABAMA WATER RESOURCES CENTER** hosts an annual water conference that attracts hundreds of participants from universities, governmental and non-governmental organizations throughout the state.

The **ALASKA WATER AND ENVIRONMENTAL RESEARCH CENTER** collects and transfers critical hydrologic data to local, state and federal agencies to plan transportation corridors in mining areas.

The **ARIZONA WATER RESOURCES RESEARCH CENTER** manages Arizona Project WET, a curriculum-based educational campaign that champions responsible water stewardship among K-12 students.

The **ARIZONA, NEW MEXICO AND TEXAS WATER CENTERS** play a leadership role in developing the multi-state, international Transboundary Aquifer Assessment Program.

The **TEXAS WATER RESOURCES INSTITUTE** produces the Texas Water Journal, a publication covering priority water issues, public engagement and the latest research.



The **UTAH CENTER FOR WATER RESOURCES RESEARCH** developed a decision support system that helps farmers improve production while managing irrigation timing, amount and delivery.

The **VIRGINIA WATER RESOURCES RESEARCH CENTER** launched the Virginia Stormwater BMP Clearinghouse, a user-friendly, information-rich website promoting best management practices.

## EDUCATION

Located at major U.S. research universities, the NIWR member institutes are the nation's single largest training program for the next generation of water scientists, technicians and engineers. Each year, NIWR institutes provide research support for more than 1,000 undergraduate and graduate students at more than 150 universities. Students study water-related issues in the fields of agriculture, biology, chemistry, earth sciences, engineering and public policy. Institute-sponsored students receive training in both the classroom and the field, often working shoulder-to-shoulder with the top research scientists in their field on vanguard projects of significant regional importance.

## TECHNOLOGY TRANSFER & PUBLIC ENGAGEMENT

NIWR member institutes play a vital role in sharing and disseminating cutting-edge research and best practices. Most institutes host conferences and workshops throughout the year that bring together leaders and students in water-related fields. They also produce region-specific electronic and print communications on current trends and research breakthroughs, and offer opportunities for the public to engage in water-related volunteer activities.

# IMPACT & COLLABORATION



The **ARKANSAS WATER RESOURCES CENTER** sponsors research that looks at how eutrophication and water quality influence the formation of disinfection by-products during drinking water treatment.

---

The **CALIFORNIA WATER INSTITUTE** examines the balance between the water needs of commercial avocado growers and other agricultural and domestic water demands.

---

The **IDAHO WATER RESOURCES RESEARCH INSTITUTE** researches how demand for Boise River water influences communities, economics and climate in the Treasure Valley region.



The **KENTUCKY WATER RESOURCES RESEARCH INSTITUTE** advances understanding of water quality by developing low-cost, wireless radio sensors that monitor sediment transport in streams.



The **MINNESOTA WATER RESOURCES CENTER** helps regional water resource managers evaluate mining's impact on mercury accumulation and habitat restoration in Duluth's St. Louis River Estuary.

---

The **NEW YORK STATE WATER RESOURCES INSTITUTE** researches the role land cover plays on peak stream flows against the variability of a changing climate.

---

The **OKLAHOMA WATER RESOURCES CENTER** enhanced the capacity of Oklahoma's Mesonet, a statewide network of 120 environmental monitoring stations, to manage water during drought.

---

The **OHIO WATER RESOURCES CENTER** discovered that certain bacteria provide an inexpensive, efficient and sustainable solution to treating acid mine drainage.

## THE IMPORTANCE OF FEDERAL FUNDING

Federal funding of NIWR member institutes through the Water Resources Research Act supports information dissemination, technology transfer and education initiatives that help policymakers across the nation remain on the cutting edge of water-related issues and advancements. It also ensures a national network among states and between state's land-grant universities and other research institutes by linking water investigations, preventing duplication and ensuring that critical topics are addressed. At the state level, federal funding is critical to an institute's leadership and its ability to leverage non-federal funds within its home state.



# WATER IS LIFE

# MAXIMIZING FEDERAL FUNDING IMPACT



NIWR institutes open doors for the USGS at the state level to other funding sources that require non-federal matching funds through the academic-based institutes' ability to attract and match non-federal dollars.

Bolstering the USGS' funding model, NIWR institutes allow funding to pass through the institutes to USGS State Water Science Centers, as NIWR institutes often contract with the centers for research services and technical expertise on multi-partner projects.

NIWR's ability to leverage non-federal dollars on multi-partner projects strengthens USGS' bottom line, helps USGS meet its national water goals and ensures USGS ground-level involvement on regional issues of emerging concern.

## WANTED: INTERNS

The USGS encourages NIWR institutes to take advantage of its nationwide internship program for undergraduates and graduate students.

- The USGS funds the paid internships.
- Interns can be from any of the 54 NIWR institutes.
- The interns are hired by the NIWR institute but work with USGS Water Science Center researchers.
- The USGS prepaes the internships for four years.
- Students receive valuable experience working on water-related research.





**NIWR**  
 THE NATIONAL INSTITUTES  
 FOR WATER RESOURCES

[www.NIWR.net](http://www.NIWR.net)

President Sharon Megdal  
 Water Resources Research Center  
 350 N. Campbell Ave., Tucson, Arizona 85719  
[smegdal@cals.arizona.edu](mailto:smegdal@cals.arizona.edu)

The National Institutes for Water Resources is a 501(c)4 organization dedicated to providing representation for the State Water Research Institutes in collective activities to implement the provisions of the Water Resources Research Act of 1984.