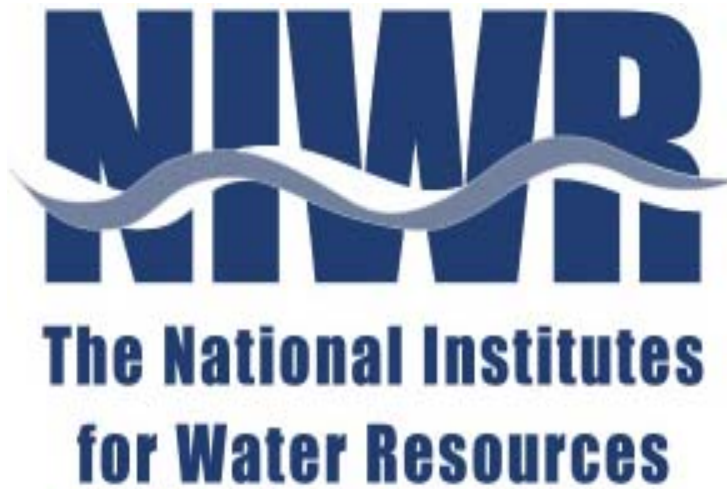


**2003**  
**Program Executive Summary**



*THE FUTURE OF  
WATER  
RESOURCES:  
INNOVATIVE  
RESEARCH AND  
CREATIVE YOUNG  
PROFESSIONALS*

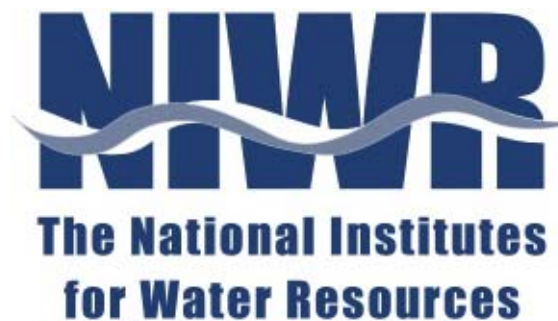
**An  
Introduction to  
the  
Nation's 54  
State  
Water Resources  
Research  
Institutes**



*The Water Resources Research Act's State Institutes at Work  
on the Nation's Water Problems  
<http://wrrri.nmsu.edu/niwr/niwr>*

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**The National Institutes for Water Resources**  
**Member List**



The National Institutes for Water Resources is a 501(c)4 organization dedicated to providing representation for the State Water Research Institutes and Centers in collective activities to implement the provisions of the Water Resources Research Act of 1984. The current President is Dr. Robert Ward, Director, Colorado Water Resources Research Institute, E-102 Engineering Building, Colorado State University, Fort Collins, CO 80523-2033; (970) 491-1636; Robert.Ward@ColoState.edu. The Executive Secretary is Dr. Paul Godfrey, Director Emeritus, Massachusetts Water Resources Research Center, 47 Harkness Road, Pelham, MA 01002; (413) 253-5686; godfrey@tei.umass.edu.

# The Water Resources Research Act

The Water Resources Research Act of 1964 (P.L. 88-379 codified at 42 U.S.C. 10301 et seq.) authorized establishment of a water resources research and technology institute or center in each state. The institutes were charged with (1) arranging for competent research that addresses water problems or expands understanding of water and water-related phenomena, (2) aiding the entry of new research scientists into the water resources fields, (3) helping to train future water scientists and engineers, and (4) getting results of sponsored research to water managers and the public. The program is administered by the U.S. Geological Survey as the Water Resources Research Act Program under the general guidance of the Secretary of the Interior.

The Water Resources Research Act of 1984 (P.L. 98-242) reauthorized the program, which was further amended by the 101<sup>st</sup>, 104<sup>th</sup>, and 106<sup>th</sup> Congresses. These changes also require institutes to match each federal dollar received through the program with two non-federal dollars and specify that the federal funds are not to be used to pay the indirect costs of the institutes.

The 106<sup>th</sup> Congress reauthorized the Water Resources Research Act through 2005 (P.L. 106-374) and authorized base funding at the following levels: \$9 million for fiscal year 2001, \$10 million for fiscal years 2002 and 2003, and \$12 million for fiscal years 2004 and 2005. The Act also authorized additional research funding for competitive grants for projects of regional or national significance (Section 104(g)) at the following levels: \$3 million for 2001, \$4 million for 2002 and 2003, and \$6 million for 2004 and 2005.



# What are the Elements of the Water Resources Research Act

(42 USC 10301 et seq.)

## INSTITUTE RESEARCH GRANTS (SECTION 104 (b))

Research priorities are set by the State Advisory Panel.

Creates a long-term linkage between universities, state agencies and federal agencies for the solution of the nation's water problems and supports a national network of water resources research institutes.

Focuses on state and regional water resources problems that can be solved by researchers at academic institutions in states with common problems.

All federal funds must be matched by at least two non-federal dollars for each federal dollar.

Objectives include support of: research responsive to priority needs, seed projects, new and emerging career professionals, and quick transfer of results to users.

Management of water resources has always been primarily a state and local responsibility. Research, with the exception of the Institute Program, has been a national undertaking. The Institute Program has permitted states to participate significantly in addressing their specific water research needs in concert with federal priorities and programs.

State Water Resources Research Institute research projects funded for 1996-2002 can be viewed at: <http://water.usgs.gov/wrri/projects.html>.

## NATIONAL RESEARCH GRANTS (SECTION 104 (g))

Research priorities are set jointly by the National Institutes for Water Resources (NIWR) and the U.S. Geological Survey.

Depends on the existence of the state, regional and national network created by the 104(b) program.

Focuses on regional and interstate water resources problems beyond those of concern only to a single state.

All federal funds must be matched by at least one non-federal dollar for each federal dollar.

Awards are made only after joint, state and federal, priority setting and reviews for regional and national relevancy and technical merit.

Objectives include: development of research on regional and national water problems in support of State and Federal priorities.

Important regional research has not been adequately supported by any other federal programs and is weakly supported by state consortia. This effort effectively taps the potential of academic expertise while facilitating linkages of Institutes across states and with federal and state agencies. 104(g) provides the major mechanism to meet the growing needs not filled by state or federal research programs

Research grant awarded from 1999 to 2002 under Section 104(g) can be viewed at: <http://water.usgs.gov/wrri/projects.html>

# What are the Water Resources Research Institutes?

The Water Resources Research Institutes are cooperative agreements between public universities and federal and state government that engender lasting partnerships among state universities; federal, state, and local governments; businesses and industries; and non-governmental organizations aimed at solving problems of water supply and water quality at local, state, regional, and national levels.

At the land grant university of each state, a small federal grant provides base support for a program that identifies water resources research needs, finds university researchers capable of conducting useful research, and leverages federal funds with state and other resources to sponsor the needed investigations. More importantly, the modest federal grant creates an environment that encourages the other partners to incorporate science into their efforts and fund additional research in ways that might not occur without the aegis of the federal grant. Some of these programs are free-standing university institutes, others are subunits within university departments or cross-discipline research entities.

The State Water Resources Research Institute Program is administered by the U.S. Department of Interior through the U.S. Geological Survey.

Program contact: John E. Schefter, Chief  
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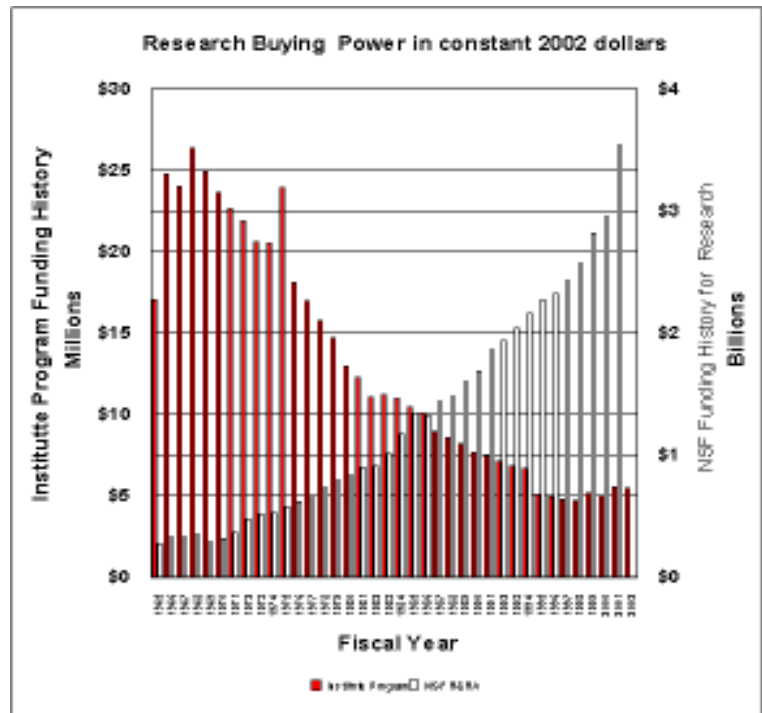
## The Network of Water Resources Research Institutes



# USGS Water Resources Institute Program

## The Multiplier Effect

The Water Resources Research Institute Program provides a very modest level of funding to each institute, an amount that has stayed relatively constant over the past 38 years but declined substantially in real dollars (4.5 fold). For comparison, the NSF R&RA program has increased by 12 fold. Despite the declining level of research buying power via the Water Resources Institute Program, the institutes have capitalized on the Institute Program concept of research, future professional training and information transfer and the accompanying concept of bridging the needs of state and regional agencies with university expertise to leverage significantly larger support from other sources. Each dollar of federal Institute Program support translates into 22.7 dollars of support from other sources.

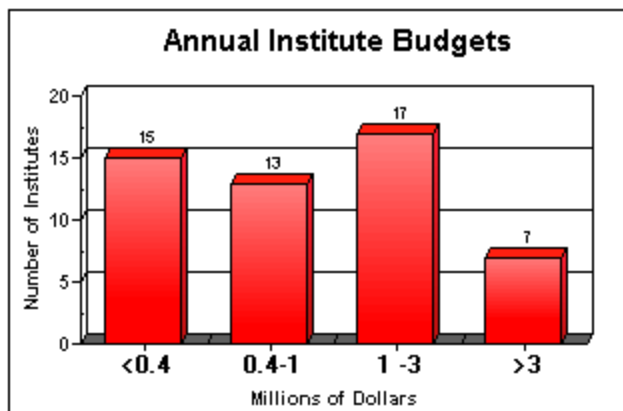
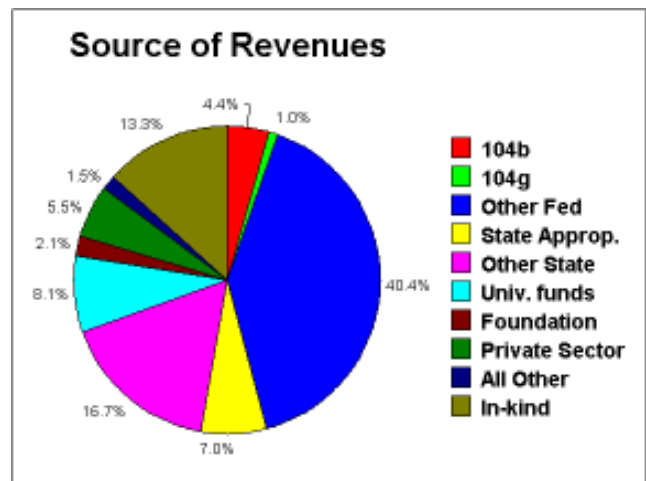


The analogy of a lever is appropriate. The physical principal of the lever is that a little force applied over an extended connection creates a much larger force on a specific object. To expand the analogy, the Water Resources Institute Program dollars, applied over an extensive network of researchers and information users, creates impacts nearly 23 times greater in resolving the nation’s water resources problems. Few, if any, federally supported programs can document this degree of reward for its investment. Hidden in these historical trend data is the simple fact that institutes have become extraordinarily efficient at converting every Institute Program dollar into water resources results. Clearly, such effectiveness is limited only by the initial leveraging force - the federal support of the Water Resources Institute Program. Equally clear is the effect of elimination of that primary leveraging force - the elimination of all the institute contributions described in the rest of this report.

# Institute Support

## Revenues

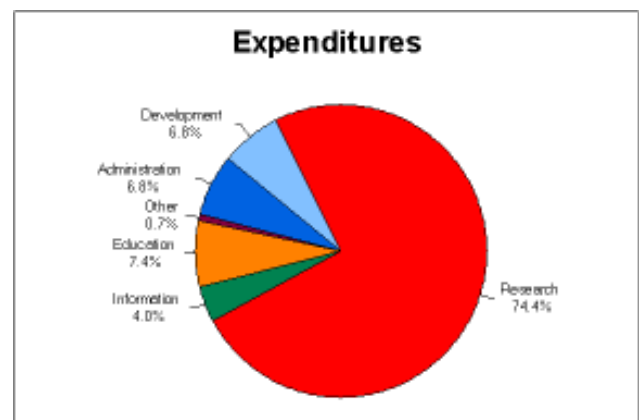
The nation's Water Resources Research Institutes were provided \$6.0 million in funding for FY2002 from the Institute Program. With a very small amount removed for national administration, each of the 54 institutes received \$84,785 to conduct its program. Utilizing that core support, institutes multiplied the effect by 22.7 fold. Consistent with the intent of the Water Resources Research Act, the core funds encouraged support from multiple sources. As shown in the chart, institutes generated 40.4% of their total support from other federal agencies that took advantage of the capabilities of institutes, 23.7% of their support from state sources, 8.1% from university sources, 9.1% from other sources (the private sector and non-profit foundations), and 13.3% from in-kind contributions. The total leveraged benefit of the federal appropriation was \$100.8 million dollars.



Institutes are equal only in the amount of funding from the Water Resources Institute Program; otherwise they are very diverse. Much of the difference is historical and depends on the original arrangements made at the creation of the institute. The chart shows the range of total revenues. Whatever the revenue circumstances, it is critical to know that the Water Resources Institute Program almost always provides the motivation to maintain each institute.

## Expenditures

A measure of a program's cost effectiveness is the ratio of funds that are directly applied to the tasks versus the amount used for general administration; 10% for administration is commonly regarded as quite reasonable. The Institutes are quite frugal in this regard, averaging only 6.5% of all funds for administrative purposes. On the elements of the tasks outlined in the Water Resources Research Act, 74.4% is devoted to research, 6.8% is for coordination and development, 7.4% is for education, and 4.0% for information transfer.



# Independent panel concurs on excellence of the Institutes

The Water Resources Research Act requires that the Secretary of the Interior conduct a “careful and detailed evaluation” of each institute at least once every five years to determine its eligibility to continue receiving funds. In 1999, detailed evaluations of all 54 institutes were conducted by an independent panel appointed by the U.S. Geological Survey.

The panel found that:

- < “there are few federal programs that leverage federal dollars with non-federal dollars to the extent that the Water Resources Research Institute Program does.”
- < “the vast majority of the Institutes are strong and thriving and a significant subset are very strong and distinguished.”
- < several institutes, judged by earlier evaluations to be weak, “grew substantially in stature and quality despite reductions in their base federal funding.”

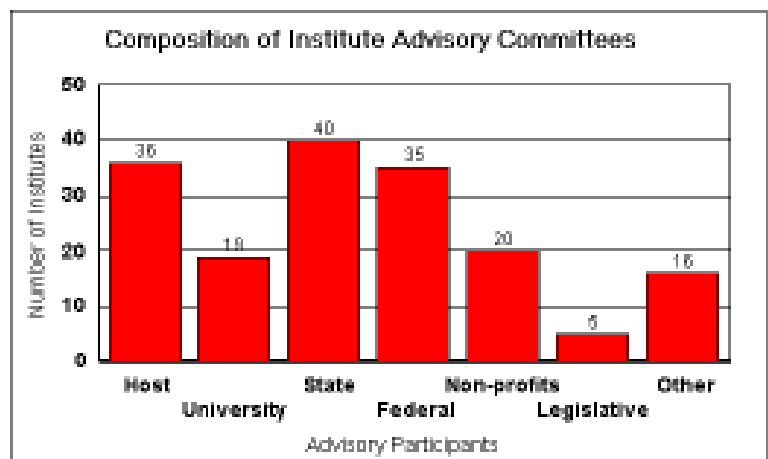
The panel made constructive comments to all institutes.

## How do the Institutes leverage so much additional support? — Collaboration!

Water Resources Research Institutes don’t try to do it all alone. In fact, their strength lies in their interconnections with other water resources participants. The secret is to combine strengths; for academic institutions, the Institutes are unparalleled in their ability to elicit involvement by a wide spectrum of other local, state, regional and national organizations. Because water resources management is traditionally seen as a state and local responsibility and research a national undertaking, the Institutes fill a special niche largely unoccupied by other programs – the bridge between national priorities and the specific needs of states and regions that may not be fully addressed by national priorities but are pressing needs in all parts of the nation. Further, the foundation for that research is built on the strong base of our nation’s universities and colleges.

Specifically...

- By establishing and utilizing state advisory panels, Institutes help states employ a conscious and systematic process for identifying and prioritizing needs for water-related information and



analysis. These advisory panels vary in composition among institutes but represent a cross-section of scientific expertise. Typically Institute Advisory Committees are representative of more than three of the following groups: the host university, other universities, state and federal agencies, non-profit organizations, and the state legislature

- ▶ By drawing upon university faculties throughout the states, Institutes tap a wealth of research expertise and foster multidisciplinary and innovative approaches to research on local water issues. Institutes take their responsibility to involve other academic institutions in their states quite seriously. Even though not all states have other research universities, the combined effort of the institutes resulted in 140 projects involving researchers from 74 other universities and colleges.
- ▶ By collaborating with federal, state and local agencies and the private sector, Institutes leverage their funding and help build statewide and regional networks to share resources and information. In fiscal 2002, Institutes had significant interactions with more than 164 state agencies, 53 federal agencies (and many more offices, departments and divisions of both state and federal agencies), 97 local, municipal and regional organizations and 97 private sector entities.
- ▶ By awarding research grants through a competitive, peer review process, Institutes sponsor research that will produce useful results and make sure research is of the highest quality. During fiscal year 2002, Institutes sponsored 1134 research projects across the nation. At an average of \$51,500 per project, the Institutes supported \$58.4 million in research as a result of the \$6.0 million federal appropriation.
- ▶ By publishing reports and other publications; by conducting seminars, workshops and conferences; and by one-on-one communication with state and local agency personnel, Institutes make sure the results of research are available to those who need the information and can put recommendations into action to improve water resource management. Each year the Institute Program produces about 1,000 technical publications related to water resources. Nearly one-fourth of the publications are in refereed scientific journals. Last year the institutes conducted more than 160 conferences, seminars and workshops with more than 17,000 participants. In addition thirty-three institutes published newsletters detailing research projects and promoting workshops and conferences. Institute program newsletters had a total circulation of more than 73,000. Nearly every institute maintains a frequently updated internet web site to further enhance the institutes' ability to disseminate water resources throughout the nation and world.
- ▶ By stimulating water-related research in universities, Institutes provide opportunities for undergraduate and graduate training and education of future water scientists, engineers, managers, and technicians. In fiscal year 2002, Institutes provided research support for more than 1,165 students.



# Research

A very large fraction of all revenues received by institutes is devoted to research (74.4%). The Institute Program core funding supported 198 projects nationwide. The additional research funds leveraged from the core funding produced an additional 936 projects, i.e. each Institute Program funded project created an appropriate environment for nearly 5 more needed projects.

Because Institutes access the research capacity of the universities and colleges in all the states rather than develop a permanent research staff, institutes tackle a diverse array of problems, assemble multidisciplinary teams, and easily shift focus to respond quickly to emerging issues. For FY2002, the primary emphasis for Institute Program core funding was on water quality issues of non-point pollution of surface waters, vital to resolution of the TMDL problem and others. In the first half of the 1990s, the primary emphasis was on groundwater and toxic contamination. As a result of the basic institute program concept, institutes are both highly responsive to new research needs and able to recognize future needs before most other organizations.

As an example of the responsiveness of the Institute Program to highly topical issues, institutes were surveyed for their research efforts in two areas: homeland security and climate change.

In the field of homeland security, the California institute is working on biosensors for detection of viruses or contaminants in drinking water. The Institutes in Arizona, Illinois, Montana, Oregon, Texas, and Virginia have reinforced training workshops, manuals and research components on drinking water security. Nebraska has focused on security and storage of pesticides. Kentucky has focused on security issues as they affect dam safety.

In the field of climate change, Arizona, California, Kentucky, Louisiana, New Mexico, North Carolina, Oregon, Texas, and Virginia Institutes have focused on issues surrounding changes related to drought and flooding that could be exacerbated by climate change. These efforts include research, workshops, conferences, books and manuals and participation in government commissions.

## Selected Research Accomplishments

The **Colorado Water Resources Research Institute**, with support from the U.S. Geological Survey, South Platte Basin water users associations, the State Engineer's Office, the Northern and Central Colorado Water Conservancy Districts, the Lower South Platte Conservancy District, and the cities of Fort Collins and Greeley, continues to develop and enhance its South Platte Mapping and Analysis Program (SPMAP). SPMAP is used to evaluate ground-water recharge systems and to develop and operate plans whereby junior water right holders can augment flows to ensure that senior water right holders can utilize the full amount of their rights. The Northern Colorado Water Conservancy District has said that "In this current severe drought . . . the computer software of SPMAP has become indispensable." The Central Colorado Water Conservancy District has said "it is committed to the use of the tools developed [to provide] assistance in the Water Court application of its Plan for Augmentation for its 1000 member wells." The Groundwater Appropriators of the South Platte River Basin, Inc. (GASP) has been involved in the development of SPMAP from the project's inception.

Results of research by the **Delaware Water Resources Center** on improved phosphorus and nitrogen management techniques influenced recommendations leading to the development of Delaware's Nutrient Management Act. Research conducted by three Delaware Water Resources Center Graduate Fellows is supporting the work of the new Nutrient Management Commission created by the act.

For more than ten years, the **Hawaii Water Resources Research Center** has monitored the quality of waters near ocean outlets from Honolulu's major sewage treatment plants. The program checks polychaete, mollusk, crustacean and fish species and abundance and performs histopathological examinations of fish caught near the outlets and a reference station. The program has found no indication of deterioration in the sediment quality, despite years of wastewater emissions. Indeed, the species and quantities of certain mollusks appear to be about the same as in samples taken by the Challenger expedition in its late-19<sup>th</sup> century visits to the Islands. The work is a condition attached to Honolulu's waiver of EPA's secondary treatment rule. Using secondary processes would have cost the City over \$200 million in capital plus substantial annual operating and maintenance costs.

The City of New Orleans lies below sea level and is at extreme risk from Hurricanes and other major storm events. The **Louisiana Water Resources Research Institute**, under the direction of Joe Suhayda, has led an effort to model the magnitude of the storm surge threatening New Orleans with inundation and ways of mitigating the effect. This research has been sponsored by many organizations and agencies including the New Orleans Army Corps of Engineers, Jefferson Parish Office of Emergency Preparedness, and the Louisiana Office of Emergency Preparedness. It has been featured in Scientific American, the New York Times, on National Public Radio, CNN, and elsewhere.

Irrigating crops with sprinkler instead of furrow irrigation systems can substantially reduce shallow groundwater nitrate contamination, according to results of a 6-year study conducted by the **Nebraska Water Resources Center**. The research consistently found higher average nitrate-nitrogen levels under furrow and surge-irrigated plots than beneath the center pivot-irrigated plot. There also were larger fluctuations in nitrate-nitrogen concentrations associated with the furrow irrigation method, suggesting that center pivots are vastly superior in applying uniform amounts of water.

**New Mexico Water Resources Research Institute** staff joined forces with the Universidad Autónoma de Ciudad Juárez and the University of Texas at El Paso to develop and create a regional geographic information system (GIS) to support regional water planning in the Paso del Norte borderland area of the southwestern United States. The map incorporates several components: geodetic control, orthoimagery, elevation, transportation, hydrography, governmental units, and cadastral information. The widespread use of the map will remind water managers in the border area of the regional character of water in the Paso del Norte, rather than the more common partial perspectives derived from county, municipal, state, or national maps. The effort also stimulated cross-border cooperation, within the framework of the Paso del Norte Water Task Force.

The **North Carolina Water Resources Research Institute's** Urban Water Consortium cooperated with the North Carolina Division of Water Quality to develop a method for consistently identifying intermittent and perennial streams. The North Carolina Environmental Management Commission has implemented rules requiring that forested buffers be left undisturbed along perennial streams in water supply watersheds and along intermittent and perennial streams in the Neuse and Tar-Pamlico river basins. Local governments responsible for implementing these rules discovered that existing maps do not always identify these streams accurately, and the N.C. Division of Water Quality's stream identification method was found to be unreliable in identifying the origin of perennial streams. Several months of field investigations and input from stakeholders and citizens resulted in a stream identification method by which local governments across Piedmont North Carolina can implement buffer requirements.

A new exploratory research project funded through Penn State-Harrisburg and the **Pennsylvania Water Resources Research Center** was initiated last year to study an innovative filter media for wastewater consisting of crumb rubber from recycled tires. Crumb rubber as a filter media is far more effective than conventional dual-media sand-anthracite filters and helps to reduce tire disposal problems. Crumb rubber allows for greater depth filtration and a higher filtration rate and has a much lower weight than conventional media. Filtration with crumb rubber is proposed for use with domestic wastewater and ship ballast water.

## Information Transfer and Education

While Institutes use only a small portion of their funds for Information Transfer (4.0%) and Education (7.4%), many maintain highly effective efforts to educate citizens and transfer research results.

### Selected Information Transfer Accomplishments

The state fair educational exhibition of the **Kentucky Water Resources Research Institute 2001: *A Water Odyssey*** received a Spirit of the Land award recognizing international excellence in Environmental Education. The award was presented at the 2002 Olympic Winter Games in Salt Lake City, Utah on February 18, 2002. Funding for the project was provided by an EPA Section 319(h) Nonpoint Source Implementation Grant administered by the Kentucky Division of Water (Water Quality Branch, Nonpoint Source Section).

In recent years, with growing populations, water conservation has assumed a much greater importance in our lives. Graywater use is the next step for those committed water conservationists who are already practicing good water-saving behavior. Some people, however, are reluctant to take that step, put off by the thought that a graywater system involves the installation of equipment and possible physical alterations. A booklet produced by the **Arizona Water Resources Research Center** will provide a boost to those reluctant, well-meaning individuals. Written for the novice or layperson, the publication clarifies graywater issues in a simple and straightforward manner and includes helpful illustrations. The text helps readers to decide if graywater is suitable for them and provides guidelines on a variety of appropriate materials and methods of system installation. The booklet also contains a copy of the common-sense rules issued by the Arizona Department of Environmental Quality for the use of residential graywater.

In cooperation with the City of Springfield on an EPA EMPACT grant, the **Massachusetts Water Resources Research Center** helped establish neighborhood lake monitoring groups to encourage active stewardship of the 16 ponds and lakes in greater Springfield and to make subsistence fisherman from several cultural groups aware of fish consumption health concerns.

The Watershed Information System Website was created by the **Michigan Institute of Water Research** to assist a variety of users in exploring their watershed. The site functions as a tool to identify potential sensitive areas for surface water contamination and as a site-specific information system for chosen areas in the watershed — <http://www.hydra.iwr.msu.edu/water/>. The system provides access to a variety of data layers such as: Transportation System, Lake and Stream Systems, Watershed Boundaries, Potential Risk Areas, Wetlands, Digital Orthophotos (1 Meter), and Water Flow Patterns. Over three thousand individuals have visited this site with a twenty percent return rate to obtain additional maps. This system was

developed with support from Michigan Agricultural Experiment Station, Michigan State University Extension, Michigan State University in cooperation with the Michigan Department of Environmental Quality, Michigan Department of Natural Resources, and Michigan Department of Agriculture.

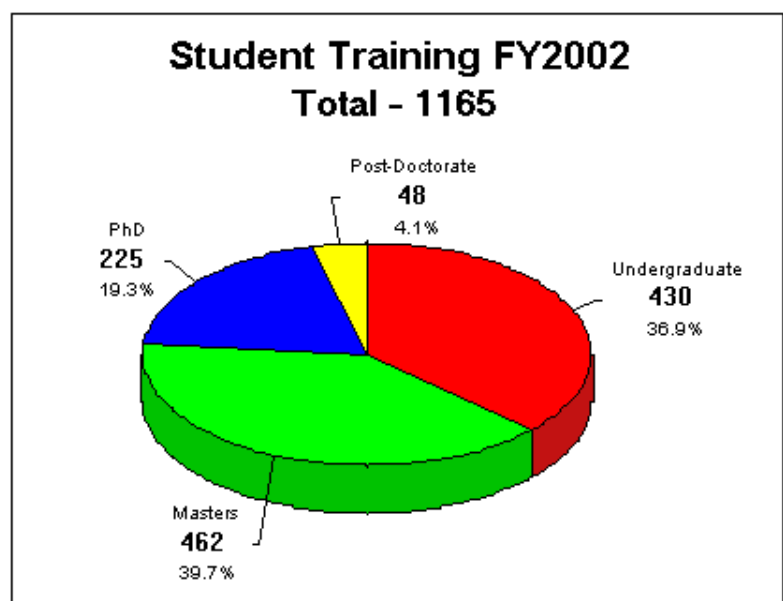
The **Montana Water Center** has created the Technology Assistance Center for Small Systems in cooperation with the EPA Office of Ground Water and Drinking Water, EPA Region 8 and Indian Health Service. The Operator Basics training course for operators of small public water systems has proved to be popular nationwide. The course covers all aspects of operations, from source water protection to water quality to cross-connection control, at an introductory level. Development of this interactive, computer-based training tool is funded by a US Environmental Protection Agency grant to the Small Systems Technical Assistance Center operated by the Montana Water Center. Operators can take their training online or from a CD-ROM. The state agencies that certify operators are in the process of approving the tool for training, so operators in most states can now receive continuing-education credit for the time they spend with Operator Basics.

The **Nebraska Water Resources Center's** CLEAR Team Offers Help in Restoring Community Lakes. A joint state and University of Nebraska program is offering local communities help in restoring park and community lakes that through the years may have silted-in, become choked with algae or suffer from general neglect. The Community Lake Enhancement and Restoration, (CLEAR) program, combines aquatic resource experts from UNL and two state agencies to provide technical and financial assistance to communities with lakes needing restoration work. The team is working with \$2.9 million in state and federal grant funds over the next three years, allowing them to work with community leaders to develop complete overhaul plans. After restoration efforts are completed, the lakes will be stocked with fish and managed for fishing, by the state. Community involvement and youth education are part of each CLEAR restoration project. The Nebraska Department of Environmental Quality and Nebraska Game and Parks Commission fund this work.

## Training of Future Professionals

The basic statistics are that 1165 students were supported in FY 2002 by institute generated support. These are potential future water resources professionals. But there is more to this story.

Thirteen institutes worked closely in FY2002 with state and regional USGS offices to provide interns to USGS. USGS specifies the talent that it needs and the institutes find that talent among the undergraduates and graduates at colleges and universities in their state. The students have a real-world professional experience, USGS gets



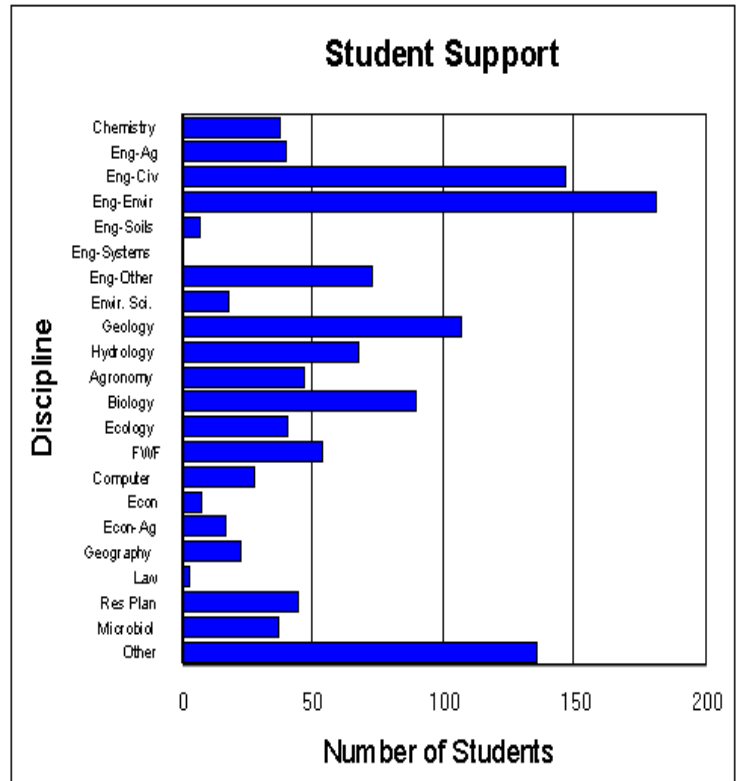
pre-trained help with a university mentor, and both establish a relationship that may lead to a career with the USGS. In fact, it is fair to say that the internship program provides an excellent opportunity for the agency and the student to get to know each other so that both can be more certain of a successful career relationship.

Other students also excel as a result of institute efforts. For example, several institutes have created fellowship programs that permit students to obtain support for their research creativity. In all cases, students are paired with faculty who mentor their efforts; ideas are peer reviewed, and students provided significant encouragement. The Delaware Institute supported 22 undergraduate and 3 graduate interns; North Dakota has placed several student fellows with various water-related organizations.

In Maryland, the Pennsylvania Water Environment Association chose an Institute student as winner of a 2002 Student Research Award. In Nevada, Institute-supported students won several awards: Outstanding student paper, George B. and Jane C. Maxey award, Sulo and Aileen Maki Fellowship, and George Burke Maxey Hydrogeology Fellowship. In Delaware, Jennifer Campagnini published her work in the AWRA/UCWRI proceedings.

At other institutes, students have been recognized for their institute supported research efforts. In California, three graduate students are working with key state regulatory agency heads: one on MTBE, another on groundwater and a third on aquatic toxicology of the Bay-Delta region.

Students are encouraged to develop water-related careers in a variety of disciplines. While many are students in civil and environmental engineering and geology, many other disciplines are supported.



# Who are the customers of the Water Resources Research Institutes?

Water Resources Research Institutes serve the citizens of the states and territories in which they are located. Direct consumers of Institute research and information transfer are:

- ▶ state water quantity and water quality management agencies, state environmental health agencies, state geological surveys, state forest surveys, state economic and community development
- ▶ local governments, councils of governments
- ▶ municipal water, wastewater, and environmental health agencies, water conservancy/reclamation/irrigation districts, farm bureaus, League of Women Voters
- ▶ private water and wastewater companies
- ▶ businesses and industries which use and manage or otherwise affect natural resources
- ▶ farmers and other agricultural enterprises
- ▶ environmental organizations
- ▶ schools
- ▶ individuals
- ▶ regional agencies such as river authorities, regional planning commissions, Appalachian Regional Commission, river basin commissions, development councils, Great Basin Unified Air Pollution Control District, and Pacific Development Council
- ▶ federal agencies such as the U.S. Geological Survey, Environmental Protection Agency, Corps of Engineers, Department of Energy, Department of Defense, Department of Agriculture, Department of Interior, NASA, NOAA, NRCS, Bureau of Reclamation, Indian Health Services, National Park Service, FEMA, various national labs, and FAA
- ▶ nearly 100 private sector businesses
- ▶ Indian tribes



# The National Institutes for Water Resources

The Water Resources Research Act encouraged cooperation among institutes but did not provide a formal mechanism for it. In the very early history of the program, the institutes realized that national networking was critical. Evolving over the 38 years of the program, a national organization of directors was created in 1973 to formalize communication between institutes. In 1992, it was realized that the network of institutes had greater potential than just sharing information. The National Institutes for Water Resources (NIWR) was created to encourage institute collaborations, develop special national capabilities and provide more complete information to Congress and the Administration. NIWR is a non-profit organization.

In recent years, NIWR has become a partner with the U.S. Geological Survey in the conduct of the Institute Program National Competitive Grants Program (Section 104G) by assisting with priority identification, solicitation, and peer review. NIWR has also partnered with USGS in the development of a web-based program management system that simplifies the task of USGS in managing the process of program and proposal submissions, annual reports and five-year evaluations while reducing the difficulty and duplication in these tasks for the institutes. NIWR has also created strong professional ties to other water resources associations such as the Universities Council on Water Resources, National Association of State Universities and Land Grant Colleges, and the American Water Resources Association and helped create better linkages between institutes and other federal agencies with interest in water resources. Through NIWR, the flow of information between Congress and the institutes is enhanced. NIWR encourages institutes to link together on large research projects and provides a mechanism for managing the linkage. While each institute has developed the capability to assemble research talent in multidisciplinary ways in their state, NIWR provides the means to permit this concept to be expanded nationally without losing the close connection to grass roots research needs.

To learn more about NIWR, we encourage a visit to the NIWR web site at <http://wrri.nmsu.edu/niwr/>. At the site can be found the following:

- Introduction to the NIWR
- By-laws of NIWR
- The 54 Water Resources Research Institutes
- Brief Descriptions of the Programs of The Institutes
- Water Resources Research Act Chapter 109, Title 42, USC Sec. 10301 et. seq.
- NIWR 2002 Executive Summary
- History of the Water Resources Research Institute Program
- Administrative Procedures for the Water Resources Research Institute Program
- 2002 Annual NIWR Meeting - Federally Supported Water Research
- FY 2000 projects funded under the State Water Resources Research Institute Program
- Abstracts for projects funded under the 2002 USGS-NIWR National Competitive Grants program
- NIWR job board



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