

57th Annual Meeting of the Delaware Water Resources Center

Hillside Park
103 Hillside Dr.
Newark, Del.
May 5, 2022

Gerald Joseph McAdams Kauffman
Director
University of Delaware
Water Resources Center

Martha B. Narvaez
Associate Director
University of Delaware
Water Resources Center



JOSEPH R. BIDEN, JR. SCHOOL OF PUBLIC POLICY & ADMINISTRATION

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MEMORANDUM

TO: Advisory Panel of the University of Delaware Water Resources Center
Undergraduate/Graduate Water Research Students and Advisors

FROM: Gerald J. Kauffman, Director
Martha B. Narvaez, Associate Director
University of Delaware Water Resources Center

DATE: April 25, 2022

SUBJECT: 57th Annual UDWRC Advisory Panel Meeting, May 5, 2022, 10 am-1 pm

You are invited to the 57th Annual Meeting of the Advisory Panel of the University of Delaware Water Resources Center at 10 am on Thursday May 5, 2022 to be held outdoors adjacent to the campus of the University of Delaware at the beautiful new City Hillside Park at 103 Hillside Drive in Newark, Delaware. Our purpose is to review the research presentations of the FY22 water resources students, discuss upcoming FY23 research projects, discuss the DOI/USGS WRRRA FY23 budget appropriation, and establish water research priorities in Delaware for the upcoming year. Students will present a poster that presents your research to the DWRC Advisory Panel on May 25, 2022 and your 10 - 15 page research report will be due June 21, 2022. For guidance on posters and templates, please see our website here. <https://www.wrc.udel.edu/education/internships/>

Agenda
Delaware Water Resources Center
57th Annual Advisory Panel Meeting

10:00 am
May 5, 2022

Hillside Park (103 Hillside Dr.)
Newark, Del.

- | | |
|--|----------|
| 1. Introductions | 10:00 am |
| 2. DWRC 5-yr Strategic Plan | 10:10 am |
| 3. FY22 Undergraduate/Graduate Research Presentations | 10:30 |
| 4. DOI/USGS WRRRA FY23 Budget Request | 11:30 |
| 5. FY23 Undergraduate Water Internship Proposals (start Jun or Sep 2022) | 11:40 |
| 6. DWRC Advisory Panel Membership | 11:55 |
| 7. Federal/State/Local/Foundation Water Finance Opportunities | 12:10 |
| 8. Luncheon | 12:30 pm |

Water Resources Research Act Program



HOME

CURRENT BUDGET
JUSTIFICATION

PRIOR BUDGET

Authorizations

Water Resources Research Act Program (WRRAP) activities are conducted under the authority of various pieces of authorizing legislation. Many of the primary authorizations that allow the USGS and WRRAP to serve the American people are listed below, along with descriptions of either how the authorization relates to USGS or what WRRAP activities are performed under a particular authorization.

CHAPTER 109—WATER RESOURCES RESEARCH

Sec.	
10301.	Congressional findings and declarations.
10302.	Congressional declaration of purpose.
10303.	Water resources research and technology institutes.
10304.	Research concerning water resource-related problems deemed to be in national interest.
10305.	Development of water-related technology.
10306.	Administrative costs.
10307.	Types of research and development.
10308.	Patent policy.
10309.	New spending authority; amounts provided in advance.

§ 10301. Congressional findings and declarations

The Congress finds and declares that—

(1) the existence of an adequate supply of water of good quality for the production of materials and energy for the Nation's needs and for the efficient use of the Nation's energy and water resources is essential to national economic stability and growth, and to the well-being of the people;

(2) the management of water resources is closely related to maintaining environmental quality, productivity of natural resources and agricultural systems, and social well-being;

(3) there is an increasing threat of impairment to the quantity and quality of surface and groundwater resources;

(4) the Nation's capabilities for technological assessment and planning and for policy formulation for water resources must be strengthened at the Federal, State, and local governmental levels;

(5) there should be a continuing national investment in water and related research and technology commensurate with growing national needs;

(6) it is necessary to provide for the research and development of technology for the conversion of saline and other impaired waters to a quality suitable for municipal, industrial, agricultural, recreational, and other beneficial uses;

(7) the Nation must provide programs to strengthen research and associated graduate education because the pool of scientists, engineers, and technicians trained in fields related to water resources constitutes an invaluable natural resource which should be increased, fully utilized, and regularly replenished; and¹

(8) long-term planning and policy development are essential to ensure the availability

Page 2441

§ 10303

of product water, considering the amortization of all components of the demonstration plant and ancillary facilities. Such report shall be accompanied by a proposed contract (or cooperative agreement) between the Secretary and a duly authorized non-Federal entity, in which such entity shall agree to provide not less than 15 per centum and not more than 35 per centum of the total cost of the demonstration; such cost to include, without being limited to, necessary water rights, water supplies, rights-of-way, power source interconnections, brine disposal facilities, land, construction, ancillary facilities, and the operation and maintenance costs for a period of four years following final acceptance of the construction of the plant from the plant contractor. The contributions of the non-Federal entity under such proposed contract may be in-kind. During the participation by the Secretary in the construction and the operation and maintenance of such demonstration, access to the demonstration and its operating data will not be denied to the Secretary or his representatives. The period of participation by the Secretary in the operation and maintenance of any such demonstration shall be four years. The Secretary is authorized to include in the proposed contract a provision for conveying, as appropriate, and in such amounts as are appropriate, rights, title, and interest of the Federal Government in the demonstration project to the non-Federal public entity.

“(c) There is authorized to be appropriated, to remain available until expended, for the fiscal year ending September 30, 1978, and thereafter, the sum of \$50,000,000 to finance the total Federal share of the cost of the demonstration plants authorized by this section; such cost to include, without being limited to, necessary water rights, water supplies, rights-of-way, power source interconnections, brine disposal facilities, land, construction, ancillary facilities, and the operation and maintenance costs for the four-year period of Federal participation in such costs.

“(d) When appropriations have been made for the commencement or continuation of design, construction, or operation and maintenance of any demonstration plant authorized under this Act [this note], the Secretary may, in connection with such design, construction, or operation and maintenance, enter into contracts and cooperative agreements for miscellaneous services, for materials and supplies, as well as for construction, which may cover such periods of time as the Secretary may consider necessary but in which the liability of the United States shall be contingent upon appropriations being made therefor.”

[For termination of Trust Territory of the Pacific Islands, see note set out preceding section 1681 of Title 48, Territories and Insular Possessions.]

§ 10302. Congressional declaration of purpose

It is the purpose of this chapter to assist the Nation and the States in augmenting their water resources science and technology as a way to—

(1) assure supplies of water sufficient in quantity and quality to meet the Nation's expanding needs for the production of food, materials, and energy;

(2) discover practical solutions to the Nation's water and water resources related problems, particularly those problems related to impaired water quality;

(3) assure the protection and enhancement of environmental and social values in connection with water resources management and utilization;

(4) promote the interest of State and local governments as well as private industry in research and the development of technology that will reclaim waste water and to convert saline and other impaired waters to water

suitable for municipal, industrial, agricultural, recreational, and other beneficial uses;

(5) promote more effective coordination of the Nation's water resources research program;

(6) promote the development of a cadre of trained research scientists, engineers, and technicians for future water resources problems; and

(7) encourage long-term planning and research to meet future water management, quality, and supply challenges.

(Pub. L. 98-242, title I, § 103, Mar. 22, 1984, 98 Stat. 97; Pub. L. 101-397, § 1(a), Sept. 28, 1990, 104 Stat. 852; Pub. L. 104-147, § 2, May 24, 1996, 110 Stat. 1375.)

REFERENCES IN TEXT

This chapter, referred to in text, was in the original “this Act”, meaning Pub. L. 98-242, Mar. 22, 1984, 98 Stat. 97, known as the Water Resources Research Act of 1984. For complete classification of this Act to the Code, see Short Title note set out under section 10301 of this title and Tables.

AMENDMENTS

1996—Par. (5). Pub. L. 104-147, § 2(1), struck out “to” before “promote” and “and” after “program”.

Par. (6). Pub. L. 104-147, § 2(2), substituted “; and” for period at end.

Par. (7). Pub. L. 104-147, § 2(3), added par. (7).

1990—Par. (5). Pub. L. 101-397 substituted “to promote more effective coordination of” for “coordinate more effectively”.

§ 10303. Water resources research and technology institutes

(a) Establishment; designation of site by State legislature or Governor

Subject to the approval of the Secretary of the Interior (hereafter in this chapter referred to as the “Secretary”) under this section, one water resources research and technology institute, center, or equivalent agency (hereafter in this chapter referred to as the “institute”) may be established in each State (as used in this chapter, the term “State” includes the Commonwealth of Puerto Rico, the District of Columbia, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Mariana Islands and the Federated States of Micronesia) at a college or university which was established in accordance with the Act approved July 2, 1862 (12 Stat. 503) [7 U.S.C. 301 et seq.], or at some other institution designated by act of the legislature of the State concerned. If there is more than one such college or university in a State established in accordance with such Act of July 2, 1862, the institute in such State shall, in the absence of a designation to the contrary by act of the legislature of the State, be established at the one such college or university designated by the Governor of the State. Two or more States may cooperate in the establishment of a single institute or regional institute, in which event the sums otherwise allocated to institutes in each of the cooperating States shall be paid to such single or regional institute.

(b) Scope of research; other activities; cooperation and coordination

Each institute shall—



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DWRC has two Delaware offices its main office on the University of Delaware's Newark campus, between Penny Hall and the Perkins Student Center, and on the Hugh R. Sharp campus of the University of Delaware in Lewes. Detailed directions for both locations are at www.wrc.udel.edu.



DWRC Newark Office
DGS Annex
261 Academy Street
University of Delaware
Newark, Delaware 19716

DWRC Lewes Office
805 Plottown Road
Pollution Ecology Lab, Room 109
Lewes, Delaware 19958

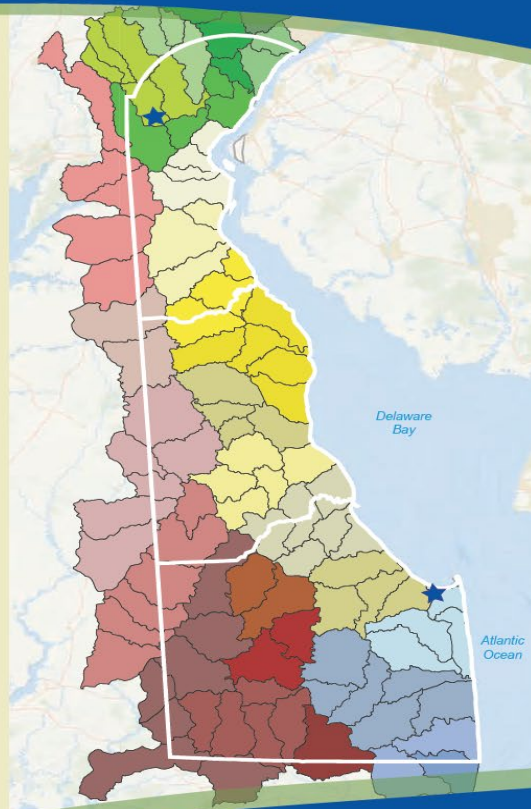


Where to find us



An Equal Opportunity / Affirmative Action Employer

The University of Delaware is committed to assuring equal opportunity to all persons and does not discriminate on the basis of race, color, gender, religion, ancestry, national origin, sexual orientation, veteran status, age, or disability in its educational programs, activities, admissions, or employment practices as required by Title IX of the Education Amendments of 1972, Title VI of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, the Americans with Disabilities Act, other applicable statutes and University policy. Inquiries concerning these statutes and information regarding campus accessibility should be referred to the Affirmative Action Office, 305 Hullen Hall, (302) 831-2835 (voice), (302) 831-4563 (TDD).



Mission

The University of Delaware Water Resources Center (DWRC), established in 1966, is one of the 34 National Institutes for Water Resources (NIWRs) at land-grant universities in the 50 states, District of Columbia and island territories of Guam, Puerto Rico, and U.S. Virgin Islands. The DWRC receives funding through Section 104 of the Water Resources Research Act of 1984, which was originally signed into law by Lyndon Baines Johnson in 1964. The U.S. Geological Survey administers the provisions of the Act and provides oversight of the nation's Water Resources Centers through the National Institute of Water Resources (NIWR).

As a member of the NIWR, the DWRC has two key missions related to Delaware's water resources – our precious groundwater aquifers and our streams, ponds, lakes, and coastal waters to: (1) support research, education, and public outreach programs that focus on water management issues of importance to Delaware citizens and (2) to foster and support training and education programs for the future water scientists, engineers, managers, and policy-makers.



Education

DWRC provides an important role in water resources education at the University of Delaware and to the greater public. The DWRC carries out its education role through participating in outreach activities; offering courses, seminars and forums with a water resources focus; and advising undergraduate and graduate students through funded assistantships.

Courses Offered

- UAPP 611: Regional Watershed Management
- GEOG 432: Environmental Hydrology
- CIEG 440: Water Resources Engineering
- UAPP 667: GIS Applications in Public / Nonprofit Sectors
- UAPP 652: GIS in Public Policy

Conferences

- Water Policy Forum
- Delmarva GIS Conference

Community Events

- Delaware Clean Water Rally
- Delaware GIS Day
- University of Delaware Ag Day
- University of Delaware Coast Day



Public Service

DWRC provides water policy assistance to governments in Delaware and the surrounding region. This public service role is significant to the mission of the College of Arts & Sciences and the School of Public Policy & Administration (SPPA). DWRC takes a regional, intergovernmental approach to water management since watersheds and aquifers cross many political jurisdictions.

The Water Resources Agency, a project of the DWRC, receives support from Delaware, New Castle County, and the cities of Wilmington and Newark to provide water resources assistance to the public with regard to water supply, water quality, and watershed planning and management.



Water Supply

- Delaware's Water Supply Coordinating Council
- Office of the State Water Coordinator
- New Castle County Water Resource Protection Areas, Technical Advisory Committee
- Delaware Source Water Assessment and Protection Program

Watershed Management and Planning

- Christina Basin Clean Water Partnership
- White Clay Creek Wild and Scenic Management Committee
- Nonpoint Education for Municipal Officials (NEMO)
- Floodplain/Stormwater Management

Mapping and Data Services

- Comprehensive Plan Mapping
- Mapping Applications
- Public and Private Education (K-12) Assistance
- Regional Watershed Mapping, Data Creation, and Analysis



Research

DWRC seeks opportunities to collaborate with University faculty, scientists, and students to fund, conduct, and publish water-resources research.

University of Delaware Experimental Watershed

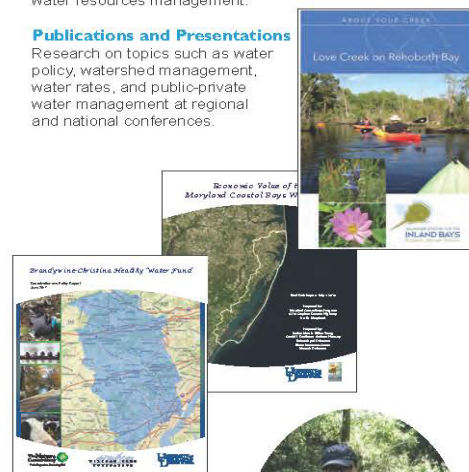
Development of an experimental watershed as an on-campus education and research laboratory.

Geospatial Analysis and Information Management

Repository of core DWRC data and information collaboration in water research with other groups on campus and beyond. Advancement of GIS and remote-sensing technologies for water resources management.

Publications and Presentations


Research on topics such as water policy, watershed management, water rates, and public-private water management at regional and national conferences.





JFK signs 1961
DRBC Compact

LBJ signs 1964
Water Resources
Research Act



LYNDON B. JOHNSON
XXXVI President of the United States: 1963-1969
461 - Statement by the President Upon Signing the Water Resources Research Act.
July 17, 1964

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THE Water Resources Research Act of 1964, which I have approved today, fills a vital need.


Abundant, good water is essential to continued economic growth and progress. The Congress has found that we have entered a period in which acute water shortages are hampering our industries, our agriculture, our recreation, and our individual health and happiness.

Assuming a continuation of current practices, by the year 2000 there will not be enough usable water to meet the water requirements of parts of the States of Arizona, California, Colorado, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Texas, Utah, Wisconsin, and Wyoming.

This legislation will help us solve this problem. It will create local centers of water research. It will enlist the intellectual power of universities and research institutes in a nationwide effort to conserve and utilize our water resources for the common benefit. The new centers will be concerned with municipal and regional, as well as with national water problems. Their ready accessibility to State and local officials will permit each problem to be attacked on an individual basis, the only way in which the complex characteristics of each water deficiency can be resolved. The bill contemplates a high degree of interstate cooperation, and I urge that this be encouraged.

In large measure, this legislation is a tribute to the vision and wisdom of Senator Clinton P. Anderson of New Mexico. He has long recognized the problems. He developed the program. He guided it through Congress. He has been in the forefront of the effort to see that adequate supplies of water are available in all parts of the Nation.

COLLECTION:
*Public Papers
of the Presidents*



Lyndon B. Johnson
1963-64: Book II
Font Size:
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Joe Biden, UD '65
elected in 2020 as
46th President
of the United
States.

FY22 DWRC Undergraduate Water Research Interns and Graduate Water Research Assistantships

Last	First	Major	Research
Bianchini	Brielle	Environmental Science	Forest Hydrology and Stream Health in the Hickory Run Watershed at Mt. Cuba Center
Blackburn	Andrew	Chemical Engineering	Use of Biochar to Modify Soil Structure to Assist the Filtration of Stormwater
Gutkowski	Nicole	Marine Science - Oceanography	Utilizing Bivalves in Monitoring Heavy Metal and Emerging Contaminant Concentrations
Jarocki	Megan	Environmental Engineering	White Clay Creek Wild & Scenic River Water Quality Assessment
Kennedy	Brian	Energy & Environ. Policy	Watershed Characterization of 1 st Order Tributaries along the White Clay Creek
Levia	Nathaniel	Insect Ecology and Conservation	The Effects Mill Dams Have on Insects and Spiders in Aquatic and Riparian Ecosystems
Rodriguez	Erik	Environmental Engineering	Watershed Characterization of 1 st Order Tributaries along the White Clay Creek
Roros	Andreanna	Geological Sciences	Impact of Stormwater Infiltration on Groundwater Radium Levels in Delaware
Talley	Sophia	Environmental Engineering	White Clay Creek Wild & Scenic River Water Quality Assessment
Wassil	Megan	Environmental Engineering	White Clay Creek Wild & Scenic River Water Quality Assessment
Pasquariello	Karmyn	Environmental Engineering	Hydraulic Analysis of Drought and Flood along the Brandywine River in Wilmington, Del.
Rost	Hayley	Master of Public Administration	Reconnaissance of Eligible Rivers in Delaware for the National Wild & Scenic River System
Phillips	Sophie	Master of Energy and Environ. Policy	Environmental Justice and Water Use in Rural Delaware. Research
Shields	Elizabeth	Master of Public Policy	Indigenous, European, and American Place Names of Streams and Rivers in Delaware



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March 22, 2022

Senator Tom Carper
513 Hart Senate Office Building
Washington, DC 20510

Re: Water Resources Research Act (WRRA)
Fiscal Year 2023 Interior, Environment and Related Agencies Appropriations Bill

Dear Senator Carper:

As Associate Director of the University of Delaware Water Resources Center, I wish to thank you for your continuing support of the Water Resources Research Act (WRRA) program and respectfully request your support of the Senate Subcommittee to provide \$18 million for the Water Resources Research Act program in the Fiscal Year 2023 Interior, Environment, and Related Agencies Appropriations bill.

The Water Resources Research Act, signed by Lyndon Baines Johnson in 1964, establishes the National Institutes for Water Resources (NIWR) at 54 land grant universities (such as the University of Delaware) in the 50 states, Washington D.C., and three island territories of Guam, Puerto Rico, and Virgin Islands. Through the U.S. Geological Survey in the Department of Interior, these institutes provide a federally supported and state-based network dedicated to solving problems of water supply and quality in partnership with universities, local governments, water industry, and the public. Each state contributes a minimum of a 1:1 match, thus ensuring that local, state, and regional priorities are addressed, and the impact of federal dollars is maximized. The University of Delaware Water Resources Center was established on campus in 1965 and since then we have supported the education, training, and research of thousands of students (many from Delaware high schools) who have focused on the significant water resources issues of the day in Delaware, the Delaware Valley, and the United States.

Please don't hesitate to contact me at mcconrroi@udel.edu or 302-438-0389 if you have any questions about this important appropriation concerning our state and national water resources.

Warmly,

Martha Narvaez, Associate Director
University of Delaware Water Resources Center
Institute for Public Administration
Biden School of Public Policy & Administration
Newark, Del. 19716

CC: Dr. Maria P. Aristigueta, Dean, Biden School of Public Policy & Administration
Dr. Jerome R. Lewis, Director, Institute for Public Administration
Dr. Gerald J. Kauffman, Jr., Director, University of Delaware Water Resources Center

JOSEPH R. BIDEN, JR. SCHOOL OF PUBLIC POLICY & ADMINISTRATION
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March 22, 2022

Senator Chris Coons
218 Russell Senate Office Building
Washington, DC 20510

Re: Water Resources Research Act
Fiscal Year 2023 Interior, Environment and Related Agencies Appropriations Bill

Dear Senator Coons:

As Associate Director of the University of Delaware Water Resources Center, I wish to thank you for your continuing support of the Water Resources Research Act (WRRA) program and respectfully request your support of the Senate Subcommittee to provide \$18 million for the Water Resources Research Act program in the Fiscal Year 2023 Interior, Environment, and Related Agencies Appropriations bill.

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March 22, 2022

Congresswoman Lisa Blunt Rochester
1724 Longworth House Office Building
Washington, DC 20515

Re: Water Resources Research Act
Fiscal Year 2023 Interior, Environment, and Related Agencies Appropriations Bill

Dear Congresswoman Blunt Rochester:

As Associate Director of the University of Delaware Water Resources Center, I respectfully request your support of the House Subcommittee to provide \$18 million for the Water Resources Research Act program in Fiscal Year 2023 Interior, Environment, and Related Agencies Appropriations bill.

The Water Resources Research Act, signed by Lyndon Baines Johnson in 1964, established the National Institutes for Water Resources (NIWR) at 54 land grant universities (such as the University of Delaware) in the 50 states, Washington D.C., and three island territories of Guam, Puerto Rico, and Virgin Islands. Through the U.S. Geological Survey in the Department of Interior, these institutes provide a Federally supported and state-based network dedicated to solving problems of water supply and quality in partnership with universities, local governments, water industry, and the public. Each state contributes a minimum of a 1:1 match, thus ensuring that local, state, and regional priorities are addressed, and the impact of federal dollars is maximized. The University of Delaware Water Resources Center was established on campus in 1965 and since then we have supported the education, training, and research of thousands of students (many from Delaware high schools) who have focused on solving the significant water resources issues of the day in Delaware, the Delaware Valley, and the United States.

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March 22, 2022

Senator Jeff Merkley
Chairman
Interior, Environment, and Related Agencies
Subcommittee
Committee on Appropriations
U.S. Senate
Washington, DC 20510

Senator Lisa Murkowski
Ranking Member
Interior, Environment, and Related Agencies
Subcommittee
Committee on Appropriations
U.S. Senate
Washington, DC 20510

Dear Chairman Merkley and Ranking Member Murkowski:

Thank you for the Subcommittee's continuing support for the Water Resources Research Act (WRRA) program. I write to urge your continued support for the WRRA program in FY23 and a request for an FY23 appropriation of \$18 million. The WRRA is a proven and effective program since 1964 and is a vital resource for many constituencies, regional water managers, and local business leaders. The WRRA (32 USC 109 et seq.) established National Institutes for Water Resources (NIWR) at 54 land grant universities in the 50 states, District of Columbia, and island territories of Guam, Puerto Rico, and Virgin Islands to research water-related phenomena, aid the entry of new research scientists into water resources fields, train future water scientists and engineers, and distribute the results of sponsored research to water managers and the public.

The U.S. Geological Survey administers the program that provides valuable support for water research critical to local, state, and regional communities. These state programs match federal funds with a 1:1 match that leverages federal support to address regional needs. These funds support long-term water planning and management and foster the next generation of water scientists, managers, and engineers. The WRRA program is responsive to water needs of states and regions, and addresses major national concerns related to drought, harmful algal blooms, flooding, and water contamination. The institutes collaborate with over 150 state agencies, 180 federal offices, and more than 165 local and municipal offices. Each year, Federal dollars are leveraged to support over 350 students in training, over 200 research projects, and more than 550 researchers. Such support fosters successful entry into the STEM job market regionally and nationally.

I appreciate the Subcommittee's support for the Water Resources Research Act and request that you continue funding this program in the FY23 Interior, Environment, and Related Agencies bill.

Warmly,

Martha Narvaez, Associate Director
University of Delaware Water Resources Center
Institute for Public Administration
Biden School of Public Policy & Administration
Newark, DE 19716

CC: Dr. Maria P. Aristigueta, Dean, Biden School of Public Policy & Administration
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March 22, 2022

Congresswoman Betty McCollum
Chairwoman, Interior, Environment, and Related
Agencies Subcommittee
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Chairwoman McCollum and Ranking Member Joyce:

Thank you for the Subcommittee's continuing support for the Water Resources Research Act (WRRA) program. I write to urge your continued support for the WRRA program in FY23 and a request for an FY23 appropriation of \$18 million. The WRRA is a proven and effective program since 1964 and is a vital resource for many constituencies, including regional water managers and local business leaders. The WRRA (32 USC 109 et seq.) established National Institutes for Water Resources (NIWR) at 54 land grant universities in the 50 states, District of Columbia, and island territories of Guam, Puerto Rico, and Virgin Islands to research water-related phenomena, aid the entry of new research scientists into water resources fields, train future water scientists and engineers, and distribute the results of sponsored research to water managers and the public.

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Dr. Gerald J. Kauffman, Jr., Director, University of Delaware Water Resources Center

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Congressman David Joyce
Ranking Member, Interior, Environment, and Related
Agencies Subcommittee
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Authorization

Legislation establishing or extending a program and setting funding limits and policy

Appropriation

Legislation that provides annual funding for agencies and programs

117th Congress, First Session

Senate: Environment & Public Works

Chair- Tom Carper, (D-DE)
Rnk Mem.- John Barrasso (R-WY)

House: Natural Resources

Chair, Raul Grijalva (D-AZ-3)
Rnk. Mem., Bruce Westerman (R-AR-4)

Senate: Appropriations

Chair, Patrick Leahy, (D-VT)
Rnk Mem. Richard Shelby (R-AL)

House: Appropriations

Chair: Rosa DeLauro (D-CT-3) Rnk.
Mem., Kay Granger (R-TX-12)

Subcmte: Transportation and Infrastructure

Chair, Ben Cardin (D-MD)
Rnk Mem., Kevin Cramer (R-ND)

Subcmte: Water, Oceans and Wildlife

Chair, Jared Huffman (D-CA-2)
Rnk. Mem., Tom McClintock (R-CA-4)

Subcmte: Interior, Environment, and Related Agencies

Chair, Jeff Merkley (D-OR)
Rnk. Mem., Lisa Murkowski (R-AK)

Subcmte: Interior, Environment, and Related Agencies

Chair, Chellie Pingree (D-ME-01)
Rnk. Mem., Dave Joyce (R-OH-14)

Figure 10. Congressional water and climate committees (Van Scoyoc 2021)

FY23 DWRC Undergraduate Water Research Interns and Graduate Water Research Assistantships

Last	First	Major	Proposed Research
Levia	Nathaniel	Insect Ecology and Conservation	The Effects Mill Dams Have on Insects and Spiders in Aquatic and Riparian Ecosystems
Schneier	Max	Energy and Environ. Policy	
Smith	Adam	Political Science and Criminal Justice	Climate policies
Bertneski	Theodora	Food Science	AMR detection and analysis of spread through Delaware watersheds
Wentzel	Alyssa	Energy & Environ. mental Policy	Water quality monitoring and evaluating microplastics and Delaware's waterways
Feeny	Cooper	Economics and Public Policy	Plastic pollution
Talley	Sophie	Environmental Engineering	Watershed characterization of the tidal Christina River in Wilmington, DE
Manning	Elizabeth	Environmental Engineering	Watershed characterization of the tributaries along the Red Clay Creek
Blackburn	Andrew	Chemical Engineering	Use of Precipitation and Evaporative Flux on Treating Soils High Salt Concentrations
Discenza	Francesca	Environmental Engineering	Water Quality Trends in White Clay Creek Nat'l Wild & Scenic River
Shields	Elizabeth	MS Public Policy	Red Clay Creek Watershed Restoration Plan
Franks	Lydia	MS Water Science & Policy	Governance and Policy in the Chesapeake & Delaware Basins

WATER RESOURCES RESEARCH ACT PROGRAM ANNUAL BASE GRANTS FISCAL
YEAR 2022 REQUEST FOR APPLICATIONS<https://water.usgs.gov/wrri/>Notice of Funding Opportunity - Fiscal Year 2022
Funding Opportunity Number (FON) G22AS00237

Closing Date: 05/02/2022

A1. Authority

This Program Announcement is issued under the provisions of section 104 of the Water Resources Research Act of 1984 (Public Law 98-242), as amended by Public Laws 101-397, 104-147, 106-374, 109-471, and 117-58. Section 104 of the Water Resources Research Act directs the Secretary of the Interior to administer program grants to Institutes and Centers established under the provisions of section 104(a) of the Act.

Catalog of Federal Domestic Assistance (CFDA) Number
15.805

A2. Background, Purpose and Program Requirements

Water Resources Institutes or Centers have been established in each of the 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. The Institute in Guam also serves the Federated States of Micronesia and the Commonwealth of the Northern Mariana Islands. The Institute in Hawaii also serves American Samoa. Responsibility for administration of the State Water Resources Research Institute program has been delegated to the U.S. Geological Survey (USGS).

Section 104(b) of the Water Resources Research Act of 1984 requires the Institutes or Centers to:

(1) "plan, conduct, or otherwise arrange for competent applied and peer reviewed research that fosters –

- (A) improvements in water supply reliability;
- (B) the exploration of new ideas that –
 - (i) address water problems; or
 - (ii) expand understanding of water and water-related phenomena;
- (C) the entry of new research scientists, engineers, and technicians into water resources fields; and
- (D) the dissemination of research results to water managers and the public.

(2) "cooperate closely with other colleges and universities in the State that have demonstrated capabilities for research, information dissemination, and graduate training in order to develop a statewide program designed to resolve State and regional water and related land problems."

(3) "cooperate closely with other institutes and other organizations in the region to increase the effectiveness of the institutes and for the purpose of promoting regional coordination."

Applications submitted under this Announcement are to be in furtherance of these objectives and promote the national mission and objectives of the U.S. Geological Survey which are focused on

providing water-quality and -quantity information, understanding water availability, addressing the influence of climate on water resources, and responding to water-related emerging needs. Specific areas of emphasis are at the discretion of the individual Institute or Center Directors.

B. Federal Award Information**B1. Total Funding**

Estimated Total Funding
\$7,625,000

B2. Award Amount**Maximum Award****\$401,310****Minimum Award****\$133,770**

Funds have not yet been allocated for this program for FY 2022. For planning purposes, it is currently anticipated that the amount available to each Institute or Center in FY 2022 will be **\$133,770**. Anticipate that a total of **\$401,310** will be available to the regional Institute in Guam, which serves Guam, the Federated States of Micronesia and the Commonwealth of the Northern Mariana Islands. Anticipate that a total of **\$267,540** will be available to the regional Institute in Hawaii, which serves Hawaii and American Samoa. The Government's obligation under this program is contingent upon the availability of appropriated funds.

B3. Anticipated Award Funding and Dates**Anticipated Award Date**

September 01, 2022

B4. Number of Awards**Expected Number of Awards****54****DWRC Water Resources Research and Education Priorities**

- Water quality (nutrients, pathogens, public health), harmful algal blooms, PFOA contamination
- Climate change and sea level rise,
- Flooding (riverine, coastal, and urban)
- Water policy (governance and economics, impacts)
- Storm water (hydrology, runoff management and control)
- Water supply, demand, and conservation (resource evaluation, infrastructure/, and echnology)
- 'Surface water and groundwater interaction
- Groundwater (flow, transport, remediation, and treatment) • Watershed management
- Wetlands (hydrology, protection ,and restoration)
- Wastewater management (treatment and reuse)
- Water, food, and energy nexus

2019-2019

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2019 Conference - David Stevens
2019 Tech Program - Kevin Wagner
2019 Tech Reception - Kelly Coburn
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Warren Hall Media - Kevin Wagner
Strategic Planning - Jeff Johnson
NOMI Liaison - Doug Parker
NCSU Representative - Jeff Johnson

April 3, 2019

Dr. Gerald Kauffman
University of Delaware
Water Resources Center
DGS Annex, 261 Academy St
Newark, DE 19716

Dear Jerry:

I am pleased to announce that you have been elected by the delegates of the Universities Council on Water Resources to serve as a member of the Board of Directors. On behalf of the entire Board, congratulations!

Your term will commence with the UCOWR Board meeting to be held on Thursday, June 13 at 7:00 am, at the 2019 UCOWR/NIWR Conference at Snowbird, Utah. There will be an earlier Board meeting held the day before the conference begins, on Monday, June 10 at 9:00 am, which you are encouraged to attend as a guest. Your term will extend for a period of three years, ending with the 2022 Annual Conference.

We hope that you will be able to attend this year's conference in order to formally meet the other Board members, be introduced to the delegates at the Delegate Luncheon on June 11, and attend both of the Board meetings that will be held at the conference. Registration for the conference is available at <https://ucowr.org/2019-conference/registration/>. If you have questions regarding the conference, please contact Staci Ekins at sekins@siu.edu.

Thank you for your willingness to assume the responsibility of serving on our Board. We look forward to working with you to further the mission of UCOWR.

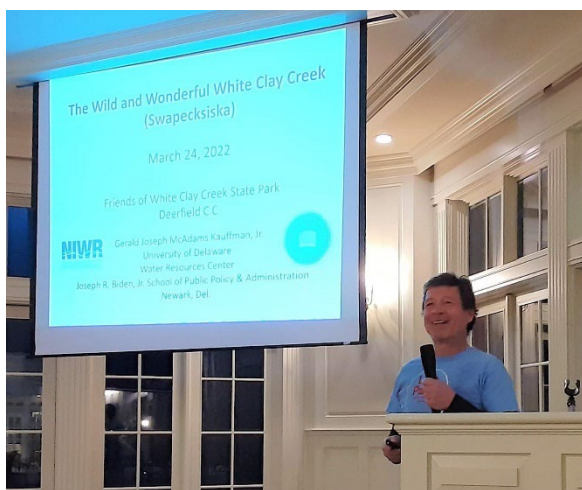
Sincerely,

Karl W. Willard

Karl W.J. Willard
Executive Director

KW:se

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