

# **STRATEGIC PLAN**

for the  
**UNIVERSITY OF DELAWARE**  
**WATER RESOURCES CENTER**  
July 4, 2022

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## **Mission Statement**

Established in 1965 as one of the 54 National Institutes for Water Resources (NIWR) in the United States, the mission of the University of Delaware Water Resources Center (UDWRC) is to provide water science and policy assistance to governments and the public through the University's land-grant public service, education, and research role. The UDWRC is a research unit of the Institute for Public Administration within the Joseph R. Biden, Jr. School of Public Policy & Administration.

## **Water Resources Center**

The UDWRC was established on campus in 1965 as one of the 54 NIWR at land grant universities in the 50 states, District of Columbia, and three island territories of Guam, Puerto Rico, and U.S. Virgin Islands. The UDWRC is Congressionally-mandated by Section 104 of the Water Resources Research Act (WRRRA) of 1984 administered by the U.S. Department of the Interior and U.S. Geological Survey. As part of the national NIWR network at land grant universities throughout the nation, the mission of the UDWRC is to: (1) support research, education, and public outreach programs that focus on water supply, water management, and water quality issues of importance to Delaware citizens and (2) foster/support training and education programs for future water scientists, engineers, managers, and policy-makers who will lead the water resources research, planning, and management efforts in the First State.

## **Water Resources Agency**

The Water Resources Agency (WRA) provides water assistance to governments in Delaware through the land-grant public service, education, and research role of the University of Delaware. Since the passage of the Federal Clean Water Act amendments in 1977 and then in 1990 and 1997, the WRA is sponsored by a board of the State of Delaware, New Castle County, City of Newark, and City of Wilmington to provide for clean and plentiful water supplies in Delaware. A regional, intergovernmental approach is essential for water management since watersheds and aquifers cross many political jurisdictions. The Brandywine-Christina watershed in northern Delaware with headwaters in the Piedmont plateau of Maryland and Pennsylvania provides drinking water to  $\frac{2}{3}$  of the population of Delaware,  $\frac{3}{4}$  of New Castle County, and 100% of Newark and Wilmington. Public and private water purveyors deliver drinking water from sole source aquifers in the Atlantic Coastal Plain to  $\frac{1}{3}$  of Delaware in southern New Castle, Kent, and Sussex counties. Delaware watersheds contribute \$6 billion annually to the First State economy and support 70,000 jobs and \$2 billion in wages.

## **Goals**

The goal of the University of Delaware Water Resources Center is to be one of the preeminent water resources institutes in America through contributions in the trifold public service, education, and research role of a land grant university. This model of cooperation is known nationally as the "Delaware Model."

**Goal #1 - Sharpen the Focus of Public Service and Engagement:** Provide water-science and policy assistance to governments and the public.

**Significance**

The UDWRC is supported by governments and foundations to provide water outreach and translate research to the public. This public service/engagement role is significant to the UD land-grant mission.

**Challenges**

Expand and diversify revenue sources to continue providing water-resources assistance to governments in Delaware, the Delaware Valley and along the Atlantic seaboard.

**Future Steps**

Seek opportunities to pursue more supported work with governments and foundations in the Delaware River and Chesapeake Bay watersheds in Delaware, Pennsylvania, New Jersey, New York. Expand the capacity of GIS laboratory (the first water resources–based GIS lab in the U.S. established in 1977) to conduct more outreach with federal, nonprofit, and business partners.

**Goal #2 – Enhance the Quality of Education and Learning:** Offer courses, seminars, and forums with a water-resources focus and advise and mentor undergraduate and graduate students with funded internships and assistantships.

**Significance**

Water resources learning at the University is significant to the UDWRC interdisciplinary science and policy education mission. The UDWRC strives to educate students who will thrive and build careers as future leaders in water resources with public-, private-, and nonprofit-sector partners.

**Challenges**

The challenge is to participate in water resources education opportunities on campus while expanding UDWRC support from funding federal, state, and local government and foundation partners.

**Future Steps**

Strengthen courses for water-resources specializations in the undergraduate majors of environmental studies/science, public policy, civil/environmental engineering, geology, geography, environmental humanities and partner with the graduate programs of Water Science and Policy Public Administration, Urban and Regional Planning, Disaster Research, Water Resources Engineering, Geography, and Marine Science and Policy. Co-sponsor courses and seminars in water science and policy.

**Goal #3 - Strengthen Programs of Research and Scholarship:** Collaborate with University faculty, scientists, and students to fund, conduct, and publish supported water-resources research.

**Significance**

Research and scholarship, the search for new knowledge, is central to the mission of the University.

**Challenges**

The challenge is to obtain federal, state, private, and foundation support to carry out water-science and -policy research while maintaining a focus on the public service and education role of the UDWRC.

**Future Steps**

Pursue funded research and partnerships in emerging water-resources areas of GIS-based watershed modeling, climate change, water economics, water quality, and flood/drought management.

## UD Strategic Initiatives

The University of Delaware Strategic Plan (May 2022) stresses that UD is an institution engaged in addressing the critical needs of the state, nation and global community. UD's goal is to be a pre-eminent learner-centered research university led by exceptional faculty and staff dedicated to excellence. Faculty effort, long defined in terms of teaching, research and service, will emphasize learning, scholarship and engagement, reaffirming that this work must have a meaningful impact for UD students and the world. The University of Delaware Water Resources Center seeks to contribute to these initiatives through the five strategic pillars of the **Forever and Beyond** planning process.

### Strategic Pillar 1. Expanding Student Access & Success

- Teach multidisciplinary courses based in the Biden School, College of Engineering, and Geography Department such as CIEG 440 Water Resources Engineering, UAPP 411/611 Regional Watershed Management, UAPP 225 Public Policy, UAPP 655 GIS in Public Policy, GEOG 432/632 Environmental Hydrology.
- Sponsor an annual Delaware water-and policy forum on campus.
- Partner with the Delaware State chapter (DEAWRA) and the UD student section (UDAWRA) of the American Water Resources Association (AWRA).
- Coordinate the Wilmington Green Jobs program for high school students.
- Provide service-based and problem-based learning opportunities for undergraduate students within the White Clay Creek National Wild and Scenic River watershed.
- Serve in leadership positions with the AWRA, NIWR, and Universities Council on Water Resources (UCOWR).

### Strategic Pillar 2. Building a Social Justice Foundation to Support a Diverse, Inclusive & Intercultural Campus

Diversity is essential in civil society and in the scientific mission at the University of Delaware. The UDWRC will redouble efforts to reach out and recruit talented minority and economically disadvantaged students and researchers. In accordance with the UDWRC mission as designated by Congress under the Water Resources Research Act of 1984, the UDWRC will reach beyond the University of Delaware to strengthen partnerships across the state at research institutions of higher-learning at Delaware State University and Delaware Technical and Community College. In this way UDWRC will strengthen and broaden its research and scientific reach and enhance its ability to serve the needs of Delaware and all Delawareans, to whom water is a crucial resource and a prerequisite to health and happiness. UDWRC will focus on:

- Correspond directly with the presidents of University of Delaware, Delaware State University, and Delaware Technical and Community College requesting nominations of diverse students for UDWRC undergraduate water research internships beginning with Fall 2021 semester.
- Examine the composition of the UDWRC Advisory Panel and request feedback from the UDWRC Advisory Panel on ways UDWRC may increase diversity and inclusiveness among its students, board and project work.
- Look at the UDWRC student alumni and celebrate their stories and their background, see <https://www.wrc.udel.edu/about-wra/student-research-assistants/>.
- Continue UDWRC's K-12 STEM education programs which provide opportunities to learn about advancing fields in science and technology. Prioritize the programs that reach the State's most vulnerable populations, such as the City of Wilmington Green Jobs Program and Delaware's GIS Day.

- Incorporate demographics of race, ethnicity, gender, and income of the study area into every research report including the rights of people of color and indigenous people. Assess how existing and future projects may be enhanced to improve diversity and inclusiveness.
- Utilize University of Delaware and Coalition for the Delaware River Watershed (CDRW) resources to increase DEIJ at UDWRC, for example: University of Delaware Office of Diversity and Inclusion (<https://sites.udel.edu/diversity/>) and CDRW (<http://www.delriverwatershed.org/equity>).

### **Strategic Pillar 3. Expanding Interdisciplinary and Global Opportunities**

- Increase collaboration with DE Sea Grant (DESG), UD Environmental Institute (DENIN) and UD Climate Hub.
- Partner on research with philanthropic organizations such as the William Penn Foundation.
- Develop a study-abroad program in water science and policy and advise international students interested in water resources (e.g., Uzbekistan, Kyrgyzstan, Brazil, Portugal, Germany, New Zealand, Georgia, Ukraine, China, and South Korea).
- Work with the International Joint Commission between the United States and Canada.

### **Strategic Pillar 4. Redefining Creativity, Innovation & Entrepreneurship**

- Utilize USGS NIWR funding with faculty advisors from colleges throughout Delaware to support a cohort of 10-15 undergraduate students in a water research internship program.
- Advise and support graduate research students through the UDWRC and IPA research assistantship program.
- Partner with the State of Delaware, New Castle County, City of Newark, and City of Wilmington in funded support to conduct regional water resources planning and management.
- Serve as technical advisor to the Delaware Water Supply Coordinating Council as per state law.
- Serve as watershed coordinator of the Christina Basin Clean Water Partnership among Delaware and Pennsylvania, Delaware River Basin Commission, and USEPA.
- Serve as watershed coordinator of the White Clay Creek Wild and Scenic River Committee with the National Park Service.

### **Strategic Pillar 5. Reimagining Intellectual/Physical Capital for a Sustainable & Boundless Campus**

- Develop a strategic plan to raise capital to construct a new building/GIS lab for the UDWRC as a center for innovation for the UD campus community.
- Continue partnerships in Sussex County with the College of Earth, Ocean, and Environment at the Pollution Ecology Lab at the UD Lewes campus.
- Expand the GIS laboratory to serve the Biden School and IPA in the new home at Biden Hall.