

**UNIVERSITY OF FLORIDA WATER INSTITUTE  
ANNUAL ACCOMPLISHMENT REPORT  
July 1, 2021- June 30, 2022**

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# 1 EXECUTIVE SUMMARY

The University of Florida Water Institute coordinates interdisciplinary water-related research, education and outreach programs. Dedicated efforts have forged linkages among diverse groups of faculty and graduate students representing water specialties from geophysical to biological to social sciences, engineering, law and humanities. The Water Institute adds value to the University of Florida through interdisciplinary proposal development, research coordination and collaboration, synthetic transdisciplinary studies and projects, stakeholder engagement, seminars and symposia. Highlights of 2021-2022 activities and accomplishments are included below.

Strategic Plan: Twenty-three Water Institute affiliated faculty and 14 external stakeholders worked with Water Institute staff and an external facilitator to develop a new 5-year [Water Institute Strategic Plan](#).

Research: Faculty affiliated with the Water Institute led active research projects totaling approximately \$150 million and received new sponsored research awards totaling approximately \$48.3 million. The Water Institute coordinated interdisciplinary faculty teams conducting 8 interdisciplinary projects (\$7.6M) including a 5-year [NSF-funded Research Coordination Network](#) (\$500K), a 4-year [NASA funded Earth Science Applications: Water Resources Project](#) (\$1.7M), and a 6-year [USDA NIFA funded Water Challenge for Agriculture project](#) (\$5M). The Water Institute supported 9 additional interdisciplinary projects (\$12.3M) and participated in the development of 3 new interdisciplinary proposals (\$2.25M).

Education: To date the [Water Institute Graduate Fellows \(WIGF\) program](#) has supported 31 Ph.D. students through 5 cohorts. Collectively the cohorts have produced 54 collaborative publications, 161 presentations, obtained 37 awards and secured \$9.7 million in sponsored research and travel grants. Due to a change in the way the Graduate School distributes Fellowships to Colleges, Deans were unable to fulfill their commitments to the 2021 WIGF cohort out of their allocations. Discussions are ongoing with the Dean of the Graduate School to fund the interdisciplinary Water Institute Graduate Fellows Program directly at the University level.

Outreach and Expert Assistance:

- The [8<sup>th</sup> University of Florida Water Institute Symposium](#) was held at the UF Reitz Union in Gainesville on February 22-23, 2022. The Symposium brought together 400 participants in person (many for the first time since the 2020 Symposium) to share the latest innovative science, technology, education, policy, and management advances.
- The Water Institute-led [Florida Water and Climate Alliance](#) hosted 7 webinars, rather than in person workshops, during the COVID 19 pandemic. The webinars were very successful at engaging new participants, causing active membership to jump from 160 to 810 individuals.

Diversity, Equity, and Inclusion: The Water Institute created a [Land and Water Acknowledgement](#), hosted a special session on *Tribal Communities and Water Issues* at the 8<sup>th</sup> UF Water Institute Symposium with participation of 4 members from the Native American community and launched the [UF Water Institute Symposium Student Diversity Scholarships](#) program which supported 11 students from historically excluded groups in higher education to attend the 2022 Symposium.

## 2 INTRODUCTION

Florida's burgeoning population, and the vulnerability of its water resources to climate and other human-induced environmental change, make the state a unique living laboratory in which to develop new knowledge and test solutions to global water problems. In recognition of the importance of water issues and the need to address them in an interdisciplinary manner, the University of Florida (UF) established a campus-wide, interdisciplinary Water Institute in 2006. Since its inception, the Water Institute has emerged as a leader in coordinating interdisciplinary research, education and outreach programs.

During 2021-2022 a new 5-year [Water Institute Strategic Plan](#) was developed to address emerging water challenges and opportunities over the next five years. A group of 23 Water Institute affiliated faculty and 14 external stakeholders worked with Water Institute staff and an external facilitator to develop the plan. The updated Water Institute, mission, core values, and goals are included below. The complete strategic plan, including names and affiliations of internal and external stakeholders who contributed to the strategic plan can be [found here](#).

### 2.1 Vision

To be a global leader in developing innovative knowledge and solutions for a sustainable and equitable water future.

### 2.2 Mission

To build a diverse community that conducts interdisciplinary research, education and outreach to understand and solve complex water challenges.

### 2.3 Values

- Diversity, Equity, & Inclusion
- Excellence & Integrity
- Discovery & Innovation
- Interdisciplinarity & Collaboration

### 2.4 Goals

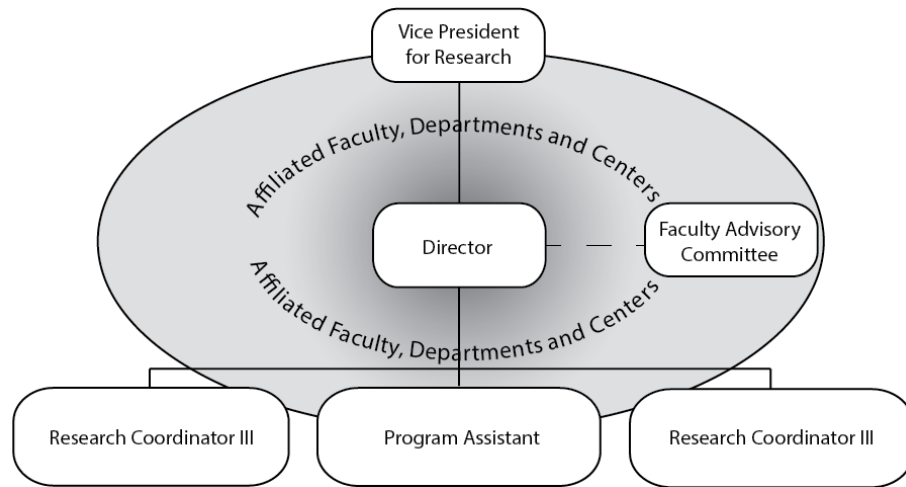
- **People:** Increase the number and diversity of faculty, staff, students and stakeholders engaged in Water Institute programs
- **Knowledge:** Bring together teams to produce high-impact interdisciplinary water research and education programs that address state, national and global water issues
- **Action:** Inform water-related decisions, actions and policy development through actionable research, expert assistance, stakeholder engagement and outreach

## 3 ORGANIZATION

The Water Institute is led by a full-time Director, Wendy Graham, who reports to the Vice President for Research (Figure 1). Two Research Coordinator IIIs, Paloma Carton de Grammont and Karen Schlatter, assist the Director with the development, execution, and evaluation of Water Institute programs. A Program Assistant, Christian Rodriguez, serves as office manager, event coordinator, and website manager.

Figure 1:

Organizational Chart for University of Florida Water Institute  
January 1st, 2022



Individual UF faculty affiliation with the Water Institute is through voluntary registration in an [online database](#). All registered faculty are considered [Water Institute Affiliate Faculty](#) and are eligible to vote on Water Institute governance issues. Affiliate Faculty members retain their positions in their tenure departments where all administrative and performance review functions are carried out. Currently there are 375 University of Florida faculty members from more than 65 departments and centers affiliated with the Water Institute. Table 1 provides a summary of Water Institute affiliate faculty membership by College and other Academic Units.

**Table 1: Summary of Faculty Membership by College and other Academic Units**

College or Academic Unit	Total No
IFAS	241
College of Liberal Arts and Sciences	53
College of Engineering	32
College of Design, Construction and Planning	9
College of Veterinary Medicine	9
College of Health and Human Performance	6
Center for Latin American Studies	4
College of Law	4
College of Public Health and Professions	4
Warrington College of Business Administration	2
Water Institute	2
Center for Women Studies	1
College of Journalism and Communications	1
College of Pharmacy	1
Florida Center for Solid and Hazardous Waste Management	1
Florida Museum of Natural History	1
International Center	1
Marston Science Library	1

One Health Center of Excellence	1
College of the Arts	1
<b>Grand Total</b>	<b>375</b>

An internal [Faculty Advisory Committee](#) (FAC) for the Water Institute consists of 15 members of the Water Institute Affiliate Faculty. Ten members of the FAC are elected by the Water Institute Affiliate Faculty on staggered 3-year terms. Five members are appointed by the Water Institute Director to ensure representation and equitable participation among disciplines, demographics, and location. Table 2 shows the 2021-2022 membership of the Water Institute Faculty Advisory Committee.

**Table 2. 2021-2022 Water Institute Faculty Advisory Committee**

<b>Name</b>	<b>Term</b>	<b>Department</b>	<b>College</b>
<b>Micheal Allen*</b>	2020-2023	Forest, Fisheries, and Geomatics Sciences, Nature Coast Biological Station	Agricultural and Life Sciences
<b>Christine Angelini</b>	2021-2024	Environmental Engineering Sciences	Engineering
<b>Mary Jane Angelo</b>	2019-2022	Environmental and Land Use Law	Law
<b>Wendy-Lin Bartels</b>	2020-2023	Forest, Fisheries, and Geomatics Sciences	Agricultural and Life Sciences
<b>Mark Brenner**</b>	2021-2024	Geological Sciences	Liberal Arts and Sciences
<b>Matt Cohen</b>	2021-2024	Forest, Fisheries, and Geomatics Sciences	Agricultural and Life Sciences
<b>Nancy Denslow</b>	2020-2023	Center for Environmental and Human Toxicology	Veterinary Medicine
<b>David Kaplan</b>	2019-2022	Environmental Engineering Sciences	Engineering
<b>Dail Laughinghouse</b>	2021-2024	Agronomy. Fort Lauderdale Research and Education Center	Agricultural and Life Sciences
<b>Mary Lusk</b>	2021-2024	Soil, Water, and Ecosystem Sciences. Gulf Coast Research & Education Center	Agricultural and Life Sciences
<b>Ramesh Reddy</b>	2019-2022	Soil, Water, and Ecosystem Sciences	Agricultural and Life Sciences
<b>Tara Sabo-Attwood</b>	2020-2023	Environmental and Global Health	Public Health and Health Professions
<b>Tara Wade</b>	2019-2022	Southwest Florida Research and Education Center Immokalee	Agricultural and Life Sciences
<b>Matt Whiles***</b>	2020-2023	Soil, Water, and Ecosystem Sciences	Agricultural and Life Sciences

\* Chair      \*\*Past Chair      \*\*\* Chair-Elect

## 4 ACCOMPLISHMENTS

### 4.1 Research

During 2021-2022, faculty affiliated with the Water Institute led active research projects totaling approximately \$150 million and received new sponsored research awards totaling approximately \$48.3 million. During this time, the Water Institute coordinated interdisciplinary faculty teams conducting 8 interdisciplinary projects (~\$7.6M), supported 9 additional interdisciplinary projects (\$12.3M) and participated in the submission of three new interdisciplinary proposals (\$2.25M). See Table 3 below for details.

Highlights in 2021-2022 included completing the 2<sup>nd</sup> year of a 3-year National Academy of Sciences, Engineering and Medicine Gulf of Mexico Program project (\$1.1M), completing the 3<sup>rd</sup> year of a 5-year NSF-funded Research Coordination Network (\$500K), completing the 3<sup>rd</sup> year of a 4-year NASA funded Earth Science Applications: Water Resources Project (\$1.7M), and completing the 5<sup>th</sup> year of a 6-year USDA NIFA funded Water Challenge for Agriculture project (\$5M). Collectively these projects currently fund 14 graduate students, 5 post-docs and 3 Assistant Research Scientists. Twelve graduate students funded by these projects have completed their programs and 3 former post-docs have taken faculty positions at other Universities.

**Table 3. 2021-2022 Active Water Institute Projects and Grant Proposals Submitted**

Principal Investigator	Dates	Title	Amount	Co-PIs	Agency	Status
<b>Water Institute Coordinated Projects</b>						
Graham, Wendy, WI	6/2015-12/2022	<a href="#">Coordination of Collaborative Stakeholder-scientist Partnership: Florida Water and Climate Alliance</a>	\$87,500	Irani, T., Martinez, C., Schlatter, K., plus faculty from FSU	Tampa Bay Water Authority	Funded
Kaplan, D., ESSIE	3/2016-12/2022	Florida Water Resources Center Ph. D. Student Fellowships	\$98,224	W. Graham	USGS 104(b)	Funded
Graham, Wendy, WI	10/2016-9/2023	<a href="#">Department of the Interior Southeast Climate Adaptation Science Center Consortium</a>	\$96,800	Schlatter, K., plus faculty from NCSU, Duke U, Auburn U, and U Tenn	North Carolina State University/USGS	Funded
Graham, Wendy, WI	7/2017-6/2023	<a href="#">Agricultural Water Security through Sustainable Use of the Floridan Aquifer: An Integrated Assessment of Economic and Environmental Impacts</a>	\$4,918,926	Adams, D., Bartels, W., Court, C., Dukes, M., Kaplan, D., Lai, J., Monroe, M., plus faculty from Auburn U, Albany State U and UGA	USDA-NIFA	Funded

Martin, Jonathan, GLY	6/2019-5/2023	<a href="#">Carbonate Critical Zone Research Coordination Network</a>	\$499,121	Graham, W., Carton de Grammont, P., plus faculty from Oregon State U, U Arkansas, Temple U, Penn State U and Duke U	NSF	Funded
Martinez, Christopher, ABE	7/2019-6/2023	<a href="#">Integrating NASA Earth Systems Data into Decision-Making Tools of Member Utilities of the Florida Water and Climate Alliance</a>	\$1,613,754	Irani, T., Judge, J., Schlatter, K., plus faculty from FSU, and personnel from Tampa Bay Water and Peace River Manasota Regional Water Supply Authority	NASA	Funded
Graham, Wendy, WI	9/2020-3/2024	<a href="#">Evaluating Potential Risks of Climate Change on Surface Water Quality in the Hillsborough and Alafia River Watersheds</a>	\$176,971	Reisinger, AJ	Tampa Bay Water Authority	Funded
Graham, Wendy, WI	2/2022-1/2023	Florida Wildlife Corridor Water Resource Benefit Assessment	\$104,403	Braswell, A., Brenner, M., Cohen, M., Deitch, M., Schlatter, K., plus faculty from FIU.	Archbold Expeditions	Funded
<b>Water Institute Supported Projects</b>						
Loiselle, Bette A., CLATAM	8/2016-7/2021	CNH-RCN: Amazon Dams Network: Advancing Integrative Research and Adaptive Management of Social-ecological Systems Transformed by Hydroelectric Dams	\$499,687	Athayde, S., Bohlman, S., Kaplan, D.	National Science Foundation	Funded
Southworth, Jane GEO	8/2016-8/2022	CNH: Emerging Land Transactions in Ethiopia and their Impacts on Food and Energy Security	\$364,164	Agrawal, A., Brown, D.	National Science Foundation (subaward from U Michigan)	Funded
Muneepeerakul, Rachata ABE	2017-2022	Towards a Multi-Scale Theory on Coupled Human Mobility and Environmental Change	\$5,135,704	Muñoz-C., Rafael Johnson, J.	US Dept of Defense Multidisciplinary Research Program of the University Research Initiative	Funded

Martin, Jonathan, GLY	5/2018-4/2023	Collaborative Research: How Does Groundwater Inundation of Carbonate Island Interiors from Sea Level Rise Impact Surface Water-aquifer Interactions and Evaporative Losses?	\$192,051	Mayer, A. (Michigan Technological University), Gulley, J. (University of South Florida)	National Science Foundation	Funded
Allen, Micheal, FFGS	2020-2023	Ecological and Economic Impacts of Land-Use and Climate Change on Coastal Food Webs and Fisheries	\$1,107,499	Court, C., Chagaris, D., Graham, W., Grogan, K., Kaplan, D, Scheffers, B., Telg, R., Xiang, B.,	National Academy of Sciences, Engineering and Medicine Gulf of Mexico Program	Funded
Martin, Jonathan, GLY	2020-2024	Significance of Ice-loss to Landscapes in the Arctic: SILA	\$2,211,570	Barnett, C., Christner, B., Cohen, M., Jawitz, J, Martin, E., McDaniel, S.	National Science Foundation	Funded
Brett Scheffers, WEC	2021-2023	An Assessment of Invasive Species Range Shifts in the Southeast USA and Actions to Manage Them	\$382,434	Fletcher, R. Romagosa, C, Hallet M, and personnel from USGS, FFWC, USFWS.	US Geological Survey	Funded
David Kaplan, ESSIE	9/2021-9/2023	Coupling lake, watershed, and estuarine models to better understand the role of engineered freshwater discharges in driving the severity, location, and timing of harmful algal blooms.	\$2,278,153	Olabarieta, M., Morrison, E., Phlips, E., Schlatter, K. plus faculty from FSU and NCSU	US Army Corps of Engineers, ERDC	Funded
Christine Angelini, ESSIE: CCS	1/2022-6/2022	Expert Guidance on FDEP's Septic Vulnerability Assessment Model and Pilot-Testing Recommended Improvements	\$153,202	Albertin, A., Carton de Grammont, P., Lusk, M., Zhuang, Y., Graham, W., Reisinger, AJ, Kaplan, D. plus faculty from FSU	Florida Department of Environmental Protection	Funded
<b>Interdisciplinary Proposals Submitted for Funding</b>						
David Kaplan, ESSIE	6/2022-6/2024	Modeling in Support of ACT "Surface to Springs Project"	\$108,285	Graham, W.	Alachua Conservation Trust	Pending
Kirk Hatfield, ESSIE	9/2022-10/2023	Florida Water Resources Research Act Program Annual Base Grants FY2022	\$133,770	Kaplan, D., Graham, W.	U.S. Geological Survey	Pending



USGS	7/2022-6/2023	Statewide Regional Climate Projections	\$2,000,000	Graham, W., K. Schlatter, plus SFWMD, Florida Flood Hub (USF), USGS, FSU, U of Miami	Florida Department of Environmental Protection	Pending
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#### 4.2 Water Institute Faculty Fellows Program

The UF Water Institute Faculty Fellows Program recognizes UF faculty who are making outstanding contributions to interdisciplinary research, extension, and education water programs. The purpose of the award is to recognize recent contributions that significantly advance UF's interdisciplinary communities of water-related science and provide incentives for Fellows' continued contributions to the goals of the Water Institute. Faculty Fellows receive a salary supplement for a duration of three years. Faculty Fellows elected to date are included in Table 4.

**Table 4: Water Institute Faculty Fellows**

Year	Faculty Fellow
2013	<a href="#">Dr. Matthew Cohen</a> , Forest, Fisheries and Geomatics Sciences, UF/IFAS. <a href="#">Dr. Rafael Muñoz-Carpena</a> , Agricultural and Biological Engineering, UF/IFAS.
2014	<a href="#">Dr. Jonathan Martin</a> , Geological Sciences, CLAS. <a href="#">Dr. James Jawitz</a> , Soil, Water and Ecosystem Sciences, UF/IFAS.
2015	<a href="#">Dr. Mark Clark</a> , Soil, Water and Ecosystem Sciences, UF/IFAS. <a href="#">Dr. Michael Dukes</a> , Agricultural and Biological Engineering, UF/IFAS.
2016	<a href="#">Dr. Kati Migliaccio</a> , Agricultural and Biological Engineering, UF/IFAS. <a href="#">Dr. Arnoldo Valle-Levinson</a> , Civil and Coastal Engineering, College of Engineering.
2017	<a href="#">Dr. Sanjay Shukla</a> , Agricultural and Biological Engineering, UF/IFAS. <a href="#">Dr. David Kaplan</a> , Environmental Engineering Sciences, College of Engineering.
2018	<a href="#">Dr. Mark Brenner</a> , Geological Sciences, CLAS. <a href="#">Dr. Todd Osborne</a> , Soil, Water and Ecosystem Sciences, Whitney Laboratory, UF/IFAS.
2019	<a href="#">Dr. Christine Angelini</a> , Environmental Engineering Sciences, College of Engineering. <a href="#">Dr. Davie Kadyampakeni</a> , Soil, Water and Ecosystem Sciences, Citrus Water and Nutrient Management, UF/IFAS.
2020	<a href="#">Dr. Nancy Denslow</a> , Physiological Sciences, College of Veterinary Medicine. <a href="#">Dr. A.J. Reisinger</a> , Soil, Water and Ecosystem Sciences, UF/IFAS.
2021	<a href="#">Dr. Lisa Krinsky</a> , Indian River Research and Education Center and Florida Sea Grant, UF/IFAS <a href="#">Dr. Jiangxiao Qiu</a> , Forest, Fisheries, and Geomatics Science. Fort Lauderdale Research and Education Center, UF/IFAS.

### 4.3 Water Institute Distinguished Scholar Seminar Series

The Water Institute Distinguished Scholar Seminar Series invites high-profile scholars to conduct a seminar of interest to a broad audience. When possible, they also meet with the Water Institute Faculty Advisory Committee to discuss strategic planning and partnering opportunities and with interested Water Institute faculty and graduate students to discuss specific research and education issues. During 2021-2022, four speakers were hosted online (see Table 5). For a listing of previous speakers see <https://waterinstitute.ufl.edu/past-distinguished-scholar-seminars/>.

**Table 5. 2021-2022 Distinguished Scholar Seminar Speakers**

Date	Distinguished Scholar Seminar Speaker
September 28, 2021	<a href="#">Dr. Ariel Shogren</a> , Assistant Professor, Department of Biological Sciences, University of Alabama
January 25, 2022	<a href="#">Dr. Lisa Krinsky</a> , Regional Specialized Agent, Florida Sea Grant, Indian River Research and Education Center, University of Florida
March 15, 2022	<a href="#">Dr. Jiangxiao Qiu</a> , Assistant Professor, School of Forest, Fisheries & Geomatics Sciences, Ft Lauderdale Research and Education Center, University of Florida
April 14, 2022	<a href="#">Dr. Farhana Sultana</a> , Assistant Professor, Department of Geography and the Environment at the Maxwell School of Citizenship and Public Affairs at Syracuse University

### 4.4 Biennial Symposia

The UF Water Institute partnered with Duke Energy to host the 8th biennial UF Water Institute Symposium on February 22-23, 2022. The Symposium brought together scientists, practitioners, policy experts and more to explore complex water issues and solutions from diverse perspectives. Over 400 participants gathered in person (many for the first time since the 2020 Symposium) to share the latest innovative science, technology, education, policy, and management advances. The Keynote Presentation was provided by Dr. Margaret Palmer, Distinguished University Professor at the University of Maryland, College of Park and Director of the National Socio-Environmental Synthesis Center. Over 230 contributed oral and poster presentations provided diverse perspectives and the latest research and technologies on Florida’s water issues. The Symposium’s Final Plenary Session, entitled Climate Resilience in a Ground Zero State, provided a venue for leading scientists, engineers, water managers and policy makers representing agriculture, the environment, water management, and academic interests to discuss what climate resilience means for Florida’s water sector. The Symposium included a graduate student poster competition during which graduate students competed for four \$1,000 awards to attend a professional conference to present their research.

For the first time, the Symposium had a special session focusing on water challenges facing Native American communities, with guest speakers from the Navajo Nation, the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida and the Seneca Cayuga Nation of Oklahoma. In addition, this year a Student Diversity Scholarships program was launched to increase representation of students from historically excluded groups in higher education at the Water

Institute Symposium. The scholarships supported eleven students, one of whom was a winner of the student poster competition. The Water Institute continues to partner with UF/IFAS to support the participation of Extension Agents in the Symposium through 12 scholarships. Extension agents are key to the success of the Symposium as they bring the perspective and needs of local stakeholders. A collaboration with the UF Thompson Earth Systems Institute also continued this year through the participation of their [Environmental Leader Fellows](#), who are undergraduate students from diverse majors and backgrounds that gathered questions for the closing panel and had their first academic meeting experience.

Further details regarding the Symposium program, presentations, poster award winners and attendees can be found at the Water Institute [Symposium website](#).

#### **4.5 Graduate Education Programs**

A Water Institute priority is to foster, support, and synergize innovative interdisciplinary water-related graduate education. Although the Water Institute is not a degree granting entity, its research and education activities contribute substantially to graduate education at the University.

The [Water Institute Graduate Fellows \(WIGF\) Program](#) (1) supports faculty-graduate teams to conduct innovative interdisciplinary research in emerging areas of water science, including the social, natural, and engineering sciences, (2) promotes the establishment of diverse and inclusive research teams and long-lasting research connections and (3) provides students with a comprehensive understanding of the multidimensional challenges to sustaining water resources and equips them with a broad range of interdisciplinary skills. Historically, the Deans of the UF/IFAS College of Agricultural and Life Sciences, UF College of Liberal Arts and Sciences, and the Director of the School of Natural Resources and Environment have committed funding for biennial cohorts of 5 Ph.D. students in support of this program. In addition, participating faculty bring additional students to the WIGF cohorts using other acquired grant funds. The Water Institute leverages the UF investment in the WIGF program using gifts provided by the Carl S. Swisher Foundation and the Sherwood L. Stokes Foundation. These funds support field, laboratory, and computer analyses by the faculty/student cohort as well as other integrative activities. To date, the WIGF Program has supported 31 Ph.D. students through 5 cohorts. Students and faculty that are participating in active WIGF cohorts are included in Table 6.

Unfortunately, a budgetary shortfall changed the way the Graduate School distributed Graduate School Fellowships to Colleges for the 2021 academic year. As a result, the Deans and Directors of CLAS, CALS, and SNRE were unable to fulfill their commitment to the 2021 WIGF cohort and student recruitment was suspended in December 2020. Dr. Nicole Stedman, the new Dean of the Graduate School, was approached with a proposal to fund the interdisciplinary Water Institute Graduate Fellows Program directly from the University level. At an April 2022 meeting Dean Stedman indicated that she was open to this idea and would be willing to approach the Provost and the VP for Research to support the program in conjunction with her office.

**Table 6. Active Water Institute Graduate Fellows and Advisors**

Fellow	Faculty Advisor	Department	Date Graduated
<b><u>WIGF Cohort 2017:</u></b>			
<b>Inducing Resilience for Water-Subsidized Systems</b>			
Barchiesi, Stefano	Angelini, Christine	Natural Resources and Environment	Fall 2021
Huguenin, Caroline	Waylen, Peter	Geography	Anticipated Summer 2022
Medina Ramirez, Oswaldo	Johnson, Jeffrey	Anthropology	Anticipated Summer 2022
Pazmiño-Hernandez, Marco	Muñoz-Carpena, Rafael	Agricultural and Biological Engineering	
Vazquez, Kati	Muneepeerakul, Rachata	Agricultural and Biological Engineering	Summer 2022
<b><u>WIGF Cohort 2019:</u></b>			
<b>High Latitude Hydrology: Water in a Changing World</b>			
Black, Megan	Martin, Jon; Martin Ellen & Hatfield, R.	Geological Sciences	Anticipated Summer 2023
Ezukanma, Izuchukwu	McDaniel, Stuart	Biology	Anticipated Summer 2023
Faber, Quincy	Christner, Brent	Microbiology and Cell Sciences	Anticipated Summer 2023
Gastelu, Fernanda	Valle-Levinson, Arnoldo	Engineering School of Sustainable Infrastructure & Environment	Anticipated Summer 2023
Munroe, Michael	Hmielowski, Jay; Barnett Cynthia	Journalism and Communications	Anticipated Summer 2023
Lee, Jaehyeon	Jawitz, Jim	Soil and Water Sciences	Anticipated Summer 2023
Shin, Yuseung	Cohen, Matt	Natural Resources and Environment	Anticipated Summer 2023
<b><u>WIGF Cohort 202?</u></b>			
<b>Beneficial Reuse of Wastewater (Brew): Overcoming Barriers and Identifying Opportunities</b>			
TBD	Lusk, Mary	Soil and Water Sciences	
TBD	Kadyampakeni, Davie	Soil and Water Sciences	
TBD	Ash, Kevin	Geography	
TBD	Reisinger, Alexander J.	Natural Resources and Environment	
TBD	Zimmerman, Andrew R	Geological Sciences	
TBD	Jones, Jennifer	Family, Youth, and Community Sciences	
TBD	Gao, Bin	Agricultural and Biological Engineering	

**Highlights of active WIGF cohorts:** The 2017 WIGF cohort, which focuses on understanding the resilience of water subsidized systems, established a strong working relationship with the Ramsar Regional Center for Training and Research for the Western Hemisphere (CREHO). This led to [a collaborative agreement](#) between CREHO and UF, and consequently, new opportunities for collaboration with Water Institute Affiliated Faculty outside the WIGF Cohort have arisen. For instance, faculty from the Center for Latin American Studies and ESSIE are now working on a joint project “Guaranteeing Water Security in the Montane Forests and Wetlands of the Santa María River in Panama” funded by CREHO and the Panamanian National Secretariat of Science, Technology, and Innovation (SENACYT). To date, the 2017 WIGF Cohort has obtained over \$5M in external funding via collective and individual research and travel grants, produced 10 collaborative publications, given 35 presentations and received 22 awards.

The 2019 WIGF cohort, which focuses on High Latitude Hydrology: Water in a Changing World, received a \$2.2M award from the NSF Arctic System Science Program which supports the research of WIGF Fellows along with an additional 4 graduate students and 4 undergraduate students. The project “[Significance of Ice-Loss to Landscapes in the Arctic](#)” had its first deployment to Greenland in summer 2022 after two years of travel restrictions due to COVID 19. To date, the 2019 WIGF Cohort has produced nine collaborative publications, given 17 conference presentations and received three awards. A key aspect of this cohort is their engagement on environmental civic activities. This year the cohort developed pre-K through 5th grade educational programs to introduce Florida youth to arctic science (see Outreach section).

The proposed 2021 WIGF cohort will provide interdisciplinary graduate training focused on integrating research on reclaimed water use to promote solutions to global water scarcity that incorporate the needs of agriculture, environmental protection, and societal risk perception and preferences. Students will develop disciplinary expertise in horticultural sciences, soil biogeochemistry, bioengineering and human geography, and will also be trained in ethical conduct of research, conflict management, grant writing, and science communication (via traditional and social media). Due to the lack of graduate student fellowships available for Fall 2021, student recruitment has been delayed. The WIGF faculty team submitted a proposal to USDA in June 2021 to support the research proposed for the 2021 cohort. The proposal was not selected for this round of funding, but the group is continuing to seek funding to recruit students in Fall 2023.

In addition to the WIGF program, the UF Water Institute coordinates [the Hydrologic Sciences Academic Cluster \(HSAC\)](#), an interdisciplinary program designed to broaden the skills of science and engineering students interested in all aspects of water. As of Spring 2022, 216 students have graduated with this concentration and there are currently 32 active students pursuing the concentration. As indicated above, [Water Institute Coordinated Research Projects](#) support many additional graduate students pursuing M.S. and Ph.D. degrees in water-related fields.

#### **4.6 Partnership Building and Stakeholder Engagement**

The Water Institute develops strong inclusive partnerships with diverse external stakeholders and UF faculty to increase dialogue between scientists and stakeholders, identify and develop priorities for interdisciplinary research, and facilitate actionable research for water management and policy.

**[The Florida Water and Climate Alliance](#)** (FloridaWCA): The UF Water Institute coordinates the FloridaWCA, a stakeholder-scientist partnership committed to increasing the relevance of climate-science data and tools to support decision-making in water resource management, planning and supply operations in Florida. FloridaWCA collaborators and funders include NASA, NOAA, the Southeast Climate Adaptation Science Center, six major public water supply utilities, four Florida water management districts, local government representatives and several academic institutions. Workshops and webinars, publications, outreach materials, proposal development and an active website contribute to the impact of the network. Over the past two years, during the COVID 19 pandemic, FloridaWCA held seven webinars which were extremely successful at engaging new participants, with active membership jumping from 160 to 810 individuals. Table 7 includes links to webinar recordings in the webinar title.

**Table 7. Florida Water and Climate Alliance Webinars**

<b>Webinar Date</b>	<b>Title</b>	<b>Number of Participants</b>
07/22/2020	<a href="#">Water, Climate, &amp; COVID-19</a>	106
09/25/2020	<a href="#">Utility Resilience and Risk to Climate Change Impacts</a>	120
11/13/2020	<a href="#">Water Quality &amp; Climate Change Issues</a>	112
04/07/2021	<a href="#">2020 Hurricane Season Impacts on Water Management in Florida</a>	137
09/20/2021	<a href="#">Climate Change Impacts on Wastewater and Stormwater Management</a>	191
01/18/2022	<a href="#">Perspectives on Saltwater Intrusion</a>	211
04/15/2022	<a href="#">Integrating Seasonal Forecasts into Utility Operations</a>	95

The group has submitted 13 proposals to state, regional and national organizations (FDEP, WERF, WRF, NOAA, NASA, EPA, NSF and local utilities and water management districts) ranging in value from \$5,000 to \$2 million. Two active research projects resulting from this partnership include:

- [Integrating NASA Earth Systems Data into Decision-Making Tools of Member Utilities of the Florida Water and Climate Alliance](#) (funded by NASA), customizes seasonal climate forecasts and monitoring tools using NASA products to forecast seasonal rainfall for peninsular Florida. Stakeholder utilities will integrate the forecast products into their decision-making regarding water resource allocations among desalination, groundwater, streamflow, surface reservoir, and aquifer storage and recovery facility sources.
- [Evaluating Potential Risks of Climate Change on Surface Water Quality in the Hillsborough and Alafia River Watersheds](#) (Funded by Tampa Bay Water) will develop a framework to assess potential risks of climate change on surface water quality in the Hillsborough and Alafia River watersheds which constitute Tampa Bay Water’s surface water supply.

[\*\*Southeast Climate Adaptation Science Center\*\*](#) (SECASC): The UF Water Institute is a consortium member of SECASC, a network funded by USGS that is focused on bringing together researchers and natural/cultural resource managers to develop information and tools needed for climate change adaptation. The Water Institute participates and expands the reach of several multi-institutional working groups by engaging UF faculty members and students to develop collaborative projects with external partners. A recent project resulting from such efforts includes the [\*\*Southeast Regional Invasive Species and Climate Change Management Network \(SE RISCC\)\*\*](#), funded by USGS and led by Drs. Brett Scheffers and Deah Lieurance from UF.

In addition, to date, four UF students have participated in the annual SE CASC Field Intensive experience, which provides students with an introduction to climate adaptation, stakeholder engagement and communication through hands-on learning experiences. This past year, two graduate students also received SE CASC funding for research and conference travel related to climate change impacts on species distributions.

[\*\*The Floridan Aquifer Collaborative Engagement for Sustainability \(FACETS\)\*\*](#) Project engages a team of interdisciplinary researchers, agricultural producers, foresters, and government agency personnel and non-governmental organizations in Florida and Georgia to co-produce and explore the ability of alternative socio-ecological scenarios to sustain local agricultural/silvicultural economies and protect the Floridan aquifer. The project includes 32 faculty/professional members, 8 graduate students, 1 undergraduate student, 5 post-docs, 2 research scientists and 2 research coordinators from University of Florida, University of Georgia, Albany State University and Auburn University as well as more than 30 individuals from stakeholder organizations. To date, the project has produced 17 peer-review publications, 12 graduate student dissertations and 5 Extension products.

[\*\*The Carbonate Critical Zone Research Coordination Network\*\*](#) aims to further transdisciplinary and collaborative science to increase the understanding of carbonate-rich Critical Zones, and strives to foster a diverse, inclusive, equitable and accessible community of scientists, students, and professionals. The network hosts workshops and webinars, offers data tools and training, and coordinates working groups. Partners include the Karst Water Institute (KWI), USGS Karst Interest Group, National Cave and Research Institute and the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI). Accomplishments in 2021-2022 include:

- Organization of 2022 Geological Society of America (GSA) Annual Meeting Topical Session and an ad hoc meeting and training session in collaborating with Python.
- Florida Field Workshop at the University of Florida: This three-day Workshop was attended by 39 participants from 25 institutions and aimed to enhance networking opportunities among the RCN participants; provide an opportunity for the five working groups to advance their goals of developing review papers and compile and analyze legacy datasets; and to develop and improve activities that will foster diversity and inclusion in the network and the Critical Zone Science community.
- Submission of a proposal to the National Diversity in STEM Conference organized by SACNAS (Society for Advancement of Chicanos/Hispanics and Native Americans in

Science) for a topical session and a field trip that would focus on the carbonate critical zone.

**FDEP’s Septic Vulnerability Assessment Project:** The Water Institute is collaborating with the UF Center for Coastal Solutions, UF Institute for Food and Agricultural Sciences, and Florida State University on the FDEP funded project “Synthesizing Detailed Expert Guidance on FDEP’s Septic Vulnerability Assessment Model and Pilot-Testing Recommended Improvements”. The project aims to gather/synthesize expert input to improve the value of FDEP’s tool in assessing the likelihood of septic tank pollution of surface waters and to conduct a preliminary evaluation of an updated assessment approach. The Water Institute led the design and implementation of a two-day expert workshop attended by 25 participants from state and local agencies, private consultants, and septic installers, as well as 16 team members.

#### **4.7 Public Outreach and Communication Programs**

The UF Water Institute engages actively with statewide, regional, national and international communities. In 2021-2022 these activities included:

**Youth Outreach:** Fellows and Faculty of the WIGF 2019 cohort developed pre-K through 5th grade educational programs to introduce Florida youth to arctic science. Activities involved sharing real arctic ice and lessons on melting ice and rising seas. The Fellows developed a 3-D topographic model of their research site to show young people how glacial watersheds work. After developing youth materials in workshops with educators, the Fellows volunteered over the course of the year in after-school Science Clubs in areas of the local community that are dealing with major inequity gaps in income and educational opportunities. The 2019 WIGF Cohort also participated in the Florida Museum of Natural History - Geology Department Open House: “Can You Dig It?”, with presentations of Greenland Ice Sheet, Sea Level and Arctic Animal Habitat exhibits.

**Water Institute 15-year anniversary communications campaign:** In commemoration of the Water Institute 15<sup>th</sup> anniversary, a [series of fact sheets](#) were developed to showcase the accomplishments of the Institute’s key initiatives for internal and external audiences.

**Water Related Job Postings webpage:** The Water Institute hosts an up-to-date jobs board for water-related positions provided by Affiliate Faculty and organizations in support of its students and postdoctoral associates.

**Online presence:** The Water Institute website (<https://waterinstitute.ufl.edu/>) serves as the major outlet to communicate research, education, and outreach activities. The Water Institute also manages the websites for the USDA NIFA funded project FACETS (<http://floridanwater.org/>), The NSF Funded Carbonate Critical Zone Research Coordination Network (<https://carbonatecriticalzone.research.ufl.edu/>), the SILA Project (<https://sila.research.ufl.edu/>), the Florida Water and Climate Alliance (<http://www.floridawca.org/>) and the Hydrologic Sciences Academic Concentration (HSAC) program (<https://hydrology.ufl.edu/>).



Twitter is used as means to communicate the Water Institute's events, spotlights and news, and to feature water-related research, extension, and outreach conducted by affiliated faculty, staff, students and colleagues. To date, the Water Institute Twitter account (@ufwater) has 1,814 followers (247 more than last year).

#### **4.8 Water Institute Diversity, Equity, and Inclusion Initiative**

The Water Institute Inclusion, Diversity, Equity, and Accessibility (IDEA) Action Plan provides strategies to increase representation and equitable and accessible participation in Water Institute programs, projects, and events (including research, education, extension, and other outreach programming), as well as ways to engage in research that benefit underrepresented and/or marginalized groups. Water Institute is advancing the IDEA Action Plan through the following: revising its calls for proposals and guidelines to incorporate inclusive criteria; actively inviting presenters and supporting the attendance of participants from historically underrepresented groups; working towards making activities and events more accessible to all audiences; and tracking demographic information to better measure achievements. The Water Institute actively participate in the IFAS Diversity and Inclusion Advisory Group and has made synergies with other academic units to achieve its goals.

Targeted DEI efforts this year include:

- Hosted Distinguished Scholar Seminar: [Drowned out: Water, Climate, and Justice](#) (Co-Sponsored by UF Geography) by Dr. Farhana Sultana, Associate Professor, Department of Geography and the Environment at the Maxwell School of Citizenship and Public Affairs at Syracuse University
- Developed a [Land and Water Acknowledgement](#) for the 8th UF Water Institute Symposium with the advice of Amelia Winger-Bearskin (Banks Family Preeminence Endowed Chair and Associate Professor at UF's Digital Worlds Institute). Amelia is Haudenosaunee (Iroquois) of the Seneca-Cayuga Nation of Oklahoma and inventor of Honor Native Sky, a project for the U.S. Department of Arts and Culture: [Honor Native Land Initiative](#).
- Hosted the special session *Tribal Communities and Water Issues* at the 8<sup>th</sup> UF Water Institute Symposium. The session aimed to bring attention to some of the water challenges facing Native American communities and convey how solutions to these water challenges benefit from Indigenous perspectives and place-based knowledge. The participation of six participants representing the Navajo Nation, the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida and the Seneca-Cayuga Nation of Oklahoma was co-sponsored by the IFAS VP Office & IFAS Research Office.
- Created the [2022 UF Water Institute Symposium Student Diversity Scholarships](#) to increase representation of students from historically excluded groups in higher education at the Water Institute Symposium. With support from UF/IFAS College of Agricultural and Life Sciences, UF/IFAS Research Office, and generous donations to the Water Institute 2021 Gator Nation Giving Day campaign, 11 students were sponsored to participate in the Symposium: 7 first generation, 7 Hispanic, 3 Black or African American, one Native Hawaiian or Other Pacific Islander and one American Indian or Alaska Native.

## **5 WATER INSTITUTE STRATEGIC GOALS (2022-2026)**

- Implement, evaluate and update the Water Institute Inclusion Diversity Equity and Accessibility (IDEA) Action Plan
- Provide engagement and mentoring opportunities for undergraduate, graduate students and post-doctoral associates, with special programs for underrepresented groups
- Nominate Water Institute affiliate faculty, students and staff who make outstanding contributions to water-related research, extension or education for state, national and international awards
- Strengthen the Water Institute Graduate Fellows program by securing continued support from the UF Graduate School and increased funding from external sources
- Host state, national and international events and working groups that promote networking opportunities, coproduction of knowledge, stakeholder engagement and visibility for the Water Institute community
- Enhance external collaboration by leveraging Fulbright and other visiting scholar programs to bring national and international experts to participate in Water Institute programs
- Form and nurture interdisciplinary teams to write proposals, conduct research projects, produce synthesis papers, and develop new courses/curricula in emerging, high-priority areas
- Coordinate and facilitate efforts to disseminate new knowledge and data-driven solutions to water users, water managers and policy makers
- Increase the visibility and impact of the Water Institute and its affiliate faculty, staff and students by promoting its water-related research, extension and education contributions and related programs via innovative communication strategies

### **Anticipated challenges and needs**

- Assistance with obtaining University-level funding for the Water Institute Graduate Fellows Program
- Assistance with Water Institute promotion, marketing and public relations
- Assistance with IT services
- Assistance with pursuit of endowments
- Assistance with pursuit of state legislative budget requests and targeted federal funding
- Operating funds to support Water Institute staff salaries and program expenses.