UF | Water Institute
UNIVERSITY of FLORIDA

2024-2025 Annual Report

Who We Are

The Water Institute at the University of Florida was established in 2006 to advance scientific understanding and develop practical solutions for pressing water challenges in Florida and beyond. Drawing on the rich expertise of faculty from diverse disciplines, the Water Institute builds collaborative partnerships across UF and among a suite of public and private partners. We lead and support impactful, interdisciplinary research, innovative educational programs, and state-of-the-art expert assistance.

Photo by Tyler Jones

VISION

To be a global leader in developing innovative knowledge and solutions for a sustainable water future for thriving communities and healthy ecosystems.

MISSION

To convene a multi-stakeholder community that conducts interdisciplinary research, education, and outreach to understand and solve complex water challenges.

CORE VALUES

- Respect for People & Perspectives
- Excellence & Integrity
- Discovery & Innovation
- Collaboration Across Borders

GOALS

People: Increase the number and disciplines 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

Core Support Services

To advance its mission, the Water Institute provides five core services indicated throughout this report by the icons below.

Interdisciplinary Research Coordination
Leads and supports interdisciplinary teams in exploring, developing, and promoting water research.

Expert Assistance
Connects UF faculty expertise with external partners to address urgent water management challenges.

Convening
Facilitates cross-sector collaboration through events to share knowledge and drive innovative solutions.

Graduate Education Programs
Fosters, supports, and synergizes innovative interdisciplinary water-related graduate education through non-degree granting activities.

Stakeholder & End-User Engagement
Builds trusted partnerships with water managers, policymakers, and community stakeholders to identify shared priorities and co-produce research.

The Water Institute Team

Matt Cohen
Director

Paloma Carton de Grammont
Assistant Director

Darlene Velez
Research Coordinator

Sarah Marc
Communications & Event Specialist

Max Williams
Research Administration Liaison

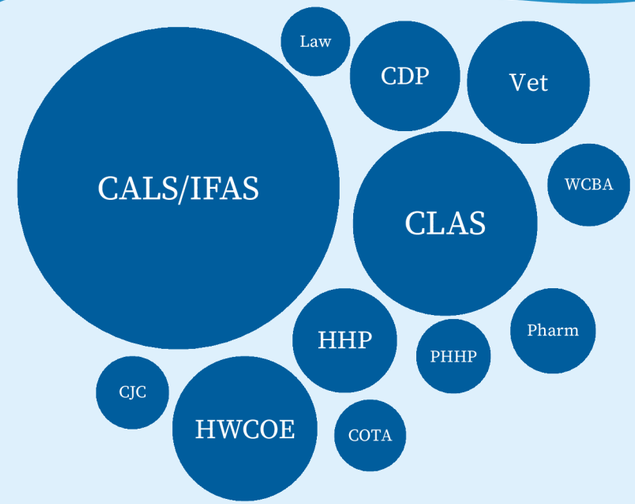
People

Affiliate Faculty

452 Affiliate Faculty

26 New Affiliations

80+ Departments & Centers



Faculty Advisory Committee

The FAC provides guidance to the Water Institute Director and staff on the development and implementation of programs, plans, and policies.

* denotes new member

College of Design, Construction and Planning

Jason von Meding	M.E. Rinker Sr. School of Construction Management

College of Liberal Arts and Sciences

Johana Engström	Geography
Katherine Serafin	Geography
Seonkyoo Yoon*	Geological Sciences

Herbert Wertheim College of Engineering

Katherine Deliz*	ESSIE
David Kaplan	ESSIE

Institute of Food and Agricultural Sciences

Mike Allen	Nature Coast Biological Station
Bridget Baker	Wildlife Ecology and Conservation
Christa Court	Food & Resource Economics
Dail Laughinghouse*	Agronomy (Ft. Lauderdale REC)
James Jawitz*	Soil, Water, and Ecosystem Sciences
Davie Kadyampakeni*	Soil, Water, and Ecosystem Sciences (Citrus REC)
Lisa Krimsky (Chair)	Florida Sea Grant, UF/IFAS Extension
Matt Whiles	Soil, Water, and Ecosystem Sciences

UF Bob Graham Center for Public Service

Rebecca Burton*

2024 Faculty Fellows

Recognizes recent contributions that significantly advance UF's interdisciplinary communities of water-related science and provides incentives for Fellows' continued contributions to the goals of the Water Institute.

Dr. Haimanote Bayabil
Associate Professor
Agricultural and Biological Engineering
Tropical Research and Education Center

Dr. Katherine Serafin
Assistant Professor
Geography

Ambassadors 2024-2025

Our ambassadors enrich UF's graduate student community by organizing events, supporting the Water Institute Symposium, and fostering cross-campus engagement.

Alexis Jackson
Engineering School of Sustainable Infrastructure & Environment

Gabrielle Quadrado
Geography

Projects

During 2024-2025, affiliate faculty with the Water Institute led active research projects totaling more than $164 million and received new sponsored research awards totaling approximately $40 million.

* denotes a new Water Institute project

*(FADOS) Investigating Dissolved Oxygen in the Upper Floridan Aquifer

The project explores dissolved oxygen in the Floridan aquifer and springs. Building on evidence that oxygen is the key regulator of springs health, and observations that oxygen in the aquifer varies in time and space, this three-year project explores the geological, chemical, and biological drivers of variation. By synthesizing existing well and spring data, developing models to understand and predict that variation, and designing citizen science sampling protocols to enhance monitoring, we will inform management actions relevant to protecting the aquifer and restoring Florida's iconic springs. To date, we have assembled a comprehensive database of water quality in springs and wells, developed a conceptual reduced complexity model with preliminary governing equations, and hosted a kickoff workshop with the advisory committee to gather guidance and feedback on data sources used, the data curation process, and the proposed modeling approach.

*Continental Scale Determinants of Spatial and Temporal Patterns of Water Quality

As part of an NSF-funded project assembling and analyzing water quality across the US, the Water Institute co-hosted a five-day workshop that brought together researchers from across the world to explore how and why water quality varies in space and time—and learn to predict those patterns through river networks and at continental scales. Interdisciplinary, student-led teams are using novel methods to analyze newly compiled national datasets spanning 50 years to investigate the roles of geology, climate, network structure, and sampling design. The workshop catalyzed a global, cross-disciplinary research network and laid the foundation for a series of forthcoming publications aimed at improving large-scale understanding and monitoring of water quality.

*(CHEERS) Conservation Hub for Economic Empowerment of Rural Stakeholders

CHEERS aims to transform underused winter farmland in the Southeast U.S. into climate-smart systems that support both agriculture and the environment. By introducing value-added winter crops, the project seeks to boost income, protect soil and water, support pollinators, sequester carbon, and reduce nutrient runoff. It brings together farmers, Extension agents, industry, agencies, and researchers to co-create solutions and decision tools. The Water Institute supports team integration and collaboration through facilitated meetings. In June, the project held its in-person kickoff meeting with the full project team, advisory board, and Farmer Team Leaders.

Funding Source: Florida Department of Environmental Protection ($677,000)

PI: Matt Cohen, UF Water Institute
WI Affiliate Faculty/Staff: B. Christner, J. Jawitz, J. Martin, D. Velez

Partners: UF CLAS, UF IFAS, UF SWES
Advisors: Alachua County, AquiferWatch, FDEP, FDOH, FGS, NWFWMD, SJRWMD, SRWMD, SWFWMD, Volusia County

Funding Source: National Science Foundation and Carl S. Swisher Endowment ($450,000)

PI: Jim Jawitz, UF Soil, Water, and Ecosystem Sciences
WI Affiliate Faculty/Staff: M. Cohen

Partners: UF SFFGS, UF SNRE, UF SWES

Funding Source: USDA NIFA ($9,990,000)

PI: Jose Dubeux, UF Agronomy
WI Affiliate Faculty/Staff: A. Albertin, P. Carton de Grammont, C. Fraisse, S. Hundemer, C. Mackowiak, H. Singh, I. Small, W. Weng, C. Zhao, D. Velez

Partners: American Farmland Trust, Auburn, Bridgewater, Clemson, FAMU, FVSU, Solutions from the Land, Tuskegee, UGA, USDA-ARS

Funding Source: US Corps of Engineers ($2,485,935)

PI: Mauricio Arias, USF Civil and Environmental Engineering
WI Affiliate Faculty/Staff: P. Carton de Grammont, D. Kaplan, L. Krimsky, E. Morrison, E. Phlips, D. Velez

Partners: SFWMD, UF CCS, UF IFAS, USF
End-users/Stakeholders: FDEP, SFWMD, USACE

Funding Source: National Science Foundation ($2,211,570)

PI: Jon Martin, UF Geological Sciences
WI Affiliate Faculty/Staff: C. Barnett, B. Christner, M. Cohen, J. Jawitz, E. Martin, S. McDaniel, A. Valle-Levinson

Partners: Arctic Circle Business, Asiaq, Geological Survey or Denmark and Greenland, Polar Field Services, Inc, Rutgers, UCPH, University of Greenland, UMD

Funding Source: Tampa Bay Water ($12,500)

PI: Matt Cohen, UF Water Institute
WI Affiliate Faculty/Staff: T. Irani, J. Judge, R. Telg, D. Velez

Partners: FDEP, FSU, SFWMD, SJRWMD, Tampa Bay Water, UF CRS, UF FYCS, UF PIE Center, USF

(SLEW) Integrating Modeling Tools and Observations for Prediction and Management of Harmful Algal Blooms in the St. Lucie Estuary and Watershed

The project aims to develop a new, state-of-the-art decision system that allows water management districts to better predict and manage harmful algal blooms. To ensure that the project outcomes and products are trusted and useful, decision support tool end-users, tool developers, and project team members are engaging in a co-development process led by the Water Institute and UF/IFAS. A facilitated virtual workshop was held in November 2024, and in place of a second spring workshop, a usability survey will be distributed in early Fall 2025 to gather feedback on the tool's functionality and user experience. Through ongoing working group meetings, the team has identified key knowledge gaps, aligned project capabilities with end-user needs, and iteratively integrated both user and scientific input into the tool's development.

(SILA) Significance of Ice-loss to Landscapes in the Arctic

The SILA project explores how landscapes and ecosystems have changed since the Last Glacial Maximum, about 20,000 years ago, to better understand how Arctic environments may evolve as the region warms. Launched through the Water Institute Graduate Fellows Program, SILA unites experts in ecology, hydrology, botany, microbiology, geology, and chemistry. Its Environmental Civics initiative also promotes public engagement and community connection. Nearing completion, the project has conducted two field deployments to Greenland, graduated three students, and produced more than ten papers and more than a dozen international presentations.

(FloridaWCA) Florida Water and Climate Alliance

Coordinated by the Water Institute, the FloridaWCA is a stakeholder–scientist network dedicated to enhancing the usability of climate science for water resource planning, management, and operations in Florida. The network's impact is supported through workshops, webinars, publications, outreach, proposal development, project coordination, and an active website.

In 2024–2025, FloridaWCA hosted three virtual webinars, each drawing over 100 participants from utilities, government agencies, water management districts, academia, private industry, and NGOs. The Alliance also co-hosted its first hybrid webinar and in-person workshop since the COVID pandemic, partnering with the Florida Flood Hub. More than 120 participants joined the webinar virtually, while 39 attended the in-person session focused on identifying Florida Flood Hub data products most valuable to end-users.

Proposal Development

The Water Institute coordinates proposal development for interdisciplinary, cross-campus teams with stakeholder engagement components. This year, we supported five proposals.

Bridging the Gap: Integrating Water Resource Management and Ecosystem Science for Climate Adaptation in Florida

Funding Source: SECASC - USGS ($45,765)
Status: Funded

PI: Matt Cohen, UF Water Institute
WI Affiliate Faculty/Staff: M. Allen, P. Carton de Grammont, D. Velez

Partners: FloridaWCA, Tampa Bay Water, UF/IFAS NCBS, USGS Caribbean-Florida Water Science Center

This project will address Florida's water and ecosystem challenges—worsened by climate change and development—by bringing together scientists and resource managers to co-develop climate-informed strategies. Building on the FloridaWCA, it will use structured engagement to identify knowledge gaps, align priorities, and create a coordinated research roadmap, leading to a shared agenda and a stronger practitioner network.

Transforming Waste into Wealth: Balancing Risks and Rewards of Applying Biosolids to Crop and Forestry Systems

Funding Source: USDA - SAS ($5,000,000)
Status: In preparation (currently USDA RFP's are in review)

PI: Kotryna Klizentyte, UF/IFAS School of Forest, Fisheries and Geomatic Sciences
WI Affiliate Faculty/Staff: A. Albertin, J. Bisesi, P. Carton de Grammont, K. Crippen, K. Deliz Quiñones, D. Kadyampakeni, M. Lusk, A. Reisinger, A. Zimmerman, Y. Zhuang

Partners: UGA

This project will explore how biosolids from treated municipal wastewater can support a circular bioeconomy in Florida's crop and forestry sectors. It will assess advanced treatments to reduce contaminants like PFAS and metals while preserving nutrient value. Combined with risk assessments and economic analysis, the project will engage stakeholders to identify sustainable, publicly accepted management strategies. Extension programming to support behavioral change and education research to enhance workforce development are also included.

Understanding Ecohydrological Controls on Flood Scaling with Precipitation Extremes in the Southeastern US

Funding Source: NASA ($1,170,000)
Status: In review

PI: Nasser Najibi, UF Agricultural and Biological Engineering
WI Affiliate Faculty/Staff: M. Cohen, J. Judge

Partners: UF ABE, UF CRS

This project will explore the role of land cover and ecosystem structure on flood generation in coastal plain watersheds. It couples remote sensing and AI-driven data synthesis to develop management-relevant links between ecosystem structural attributes (e.g., forest density, cover) and flood timing and magnitude.

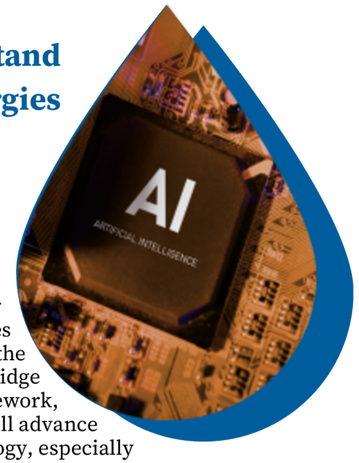
Measuring and Modeling Wetland Gas Fluxes and Microbial Response to Disturbance

Funding Source: DOE ($1,000,000)
Status: In review

PI: Elise Morrison, UF Environmental Engineering Sciences
WI Affiliate Faculty/Staff: M. Cohen

Partners: NC State University, Oak Ridge National Lab, UF ESSIE

The overarching research question driving this work is: what is the role of disturbance (drought and floods) in regulating the occurrence of hotspots and hot moments in wetlands across a heterogeneous landscape? The overarching objective of this research is to identify how microbial groups, such as methanogens and methanotrophs, respond to drought and floods in a heterogeneous wetlandscape by combining empirical measurements of microbial community composition and function with soil gas fluxes/stable isotopes and models of soil microsites and microbial functional guilds, with subsequent scaling from the micro- to macroscale.



Hybrid AI-Geophysics Cross-Scale Integration to Understand Carbon – Water Ecosystem Service Tradeoffs and Synergies

Funding Source: NSF ($1,000,000)
Status: In preparation

PI: Jiangxiao Qiu, UF/ IFAS School of Forest, Fisheries and Geomatic Sciences
WI Affiliate Faculty/Staff: M. Cohen, C. Zhao

Partners: UF CISE, UF ECE, UF IFAS

The overarching goal of this proposal is to quantify and predict how carbon and water functions, and the associated ecosystem services they underpin, create tradeoffs and synergies that vary across spatial and temporal scales. AI-driven data and model integration has the potential to extract, interpolate, and extrapolate spatial-temporal features automatically, bridge processed-based understanding of data-driven insights in a unified multi-scale modeling framework, and improve the predictive ability of modeling. This AI-enhanced integration and synthesis will advance predictive capabilities in geosciences while also pushing the frontiers of AI methodology, especially regarding interpretability, uncertainty estimation, and physics-informed machine learning.

Advisory Roles and Service

Water Institute personnel contribute their expertise through advisory roles and service on key water-related initiatives across Florida and beyond:

- National Academy of Sciences Independent Scientific Review of Everglades Restoration | Matt Cohen – Committee Member
- Public Issues Education (PIE) Center | Matt Cohen – Scientific and Extension Advisory Council
- Florida Forest Service | Matt Cohen - Best Management Practices Statewide Technical Advisory Committee
- Big Bend Estuary Restoration Team | Darlene Velez – Steering Committee
- Suwannee River Partnership | Darlene Velez – Steering Committee
- Nutrients and Red Tide in Florida: State of the Science Symposium | Darlene Velez – Facilitation Support
- UF Center for Remote Sensing | Paloma Carton de Grammont – Advisory Board

Graduate Education Programs

Water Graduate Scholars Program

This program supports faculty-graduate student teams in conducting innovative, interdisciplinary research across social, natural, and engineering water science. It equips students with broad, cross-cutting skills to tackle complex water challenges, fosters inclusive collaborative research environments, and builds lasting partnerships aimed at securing external research funding.

BREWS: Beneficial Reuse of Wastewater and Solids: Overcoming Barriers and Identifying Opportunities

The current cohort is addressing wastewater disposal and reuse challenges through an integrative lens. The team brings together expertise in aquatic ecology, soil science, hydrology, geochemistry, contaminant chemistry, public health, toxicology, resource economics, and STEM education. Over the past year, the cohort has convened regularly to examine the scientific, regulatory, and societal aspects of water and biosolids reuse, fostering interdisciplinary student research proposals and laying the foundation for faculty-led funding initiatives.

BREWS
BENEFICIAL REUSE OF WASTEWATER AND SOLIDS

Logo by Oluwatuyi Tunde Samuel

Hydrologic Sciences Academic Concentration (HSAC)

An interdisciplinary academic program designed to broaden the skills of students to address water-related challenges.

- **35** Enrolled Students
- **8** Academic Units
- **3** Participating Colleges
- **229** Graduated Students

To align with UF's evolving academic program requirements, the Water Institute is collaborating with the School of Natural Resources and Environment to transition the concentration into a formal graduate certificate. In parallel, the Institute is developing a **new certificate in Water Policy** to train students and professionals to address the complex legal, institutional, and governance challenges surrounding water management. An ad hoc committee is currently designing the program, with plans to launch in 2026.

Student Awards

18 Awards
Over $11K Disbursed

The Water Institute supports and celebrates students who are advancing interdisciplinary water research. Through travel, research, and dissertation awards, the Institute provides funding, mentoring, and professional development opportunities that promote inclusive excellence and elevate UF's impact in the water sciences.

Student Travel Awards

Fourteen graduate students from nine departments received Travel Awards to present their research at national and international conferences, strengthening UF's presence in global water research communities.

Agricultural and Biological Engineering
Adam Fuerst (ASABE 2025)
Neelnayana Kalita (CSBE|ASABE 2025)
Dogil Lee (AGU 2024)

Architecture
Ana Tricarico Orosco (EDRA 56)

Environmental and Global Health
Jessica Donaldson (SETAC 2024)
Emily Kintzele (GEER 2025)

School of Natural Resources and Environment
Taryn Chaya (SWS 2024)

Soil, Water, and Ecosystem Sciences
Seyed Biazar Seighalani (AGU 2025)
Shuo Chen (SFS 2025)
Zoe Spielman (ASA, CSSA, SSSA 2024)

Geography
Natalia Dambe (AAG 2025)

Environmental Engineering Sciences
Fabiola Rodriguez Rodriguez (COLAEIQ 2025)
Megan Sanford (AGU 2024)

Forest, Fisheries, and Geomatics Sciences
Baylor Lynch (SFS 2025)

Graduate Student Research Awards

Enable students to explore research beyond the confines of their existing funding, fostering new capacity and collaborations.

K.O. Osimir
Microbiology and Cell Science
Advisor: Dr. Brent C. Christner
Nitrogen Transformations in mineral-hosted biofilms of the Karstic Upper Floridan Aquifer

Judyson de Matos Oliveira
Horticultural Sciences
Advisor: Dr. Lincoln Zotarelli
Optimizing Site-Specific Irrigation Recommendations with Soil Water Retention Models Based on Particle-Size Distribution

Dissertation Awards

Elevate the national visibility of the water-related research conducted by at UF by recognizing outstanding water-related Ph.D. dissertations and nominating them for the Universities Council on Water Resources (UCOWR) Ph.D. Dissertation Awards.

Dr. Audrey Looby
School of Forest, Fisheries, and Geomatics Sciences
Advisor: Dr. Michael Allen
The Ecological Importance, Management Applications, and Outreach Potential of Underwater Sounds

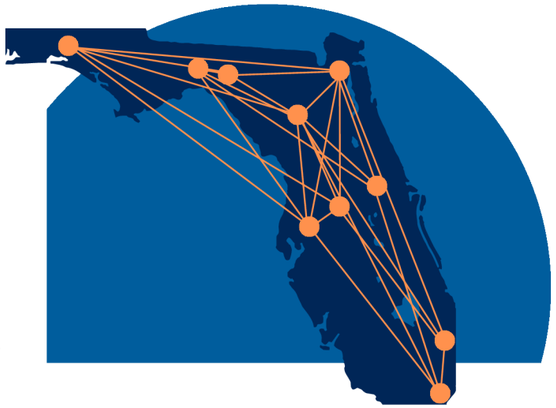
Dr. Yuseung Shin*
School of Natural Resources and Environment
Advisor: Dr. Matt Cohen
Temporal Structure and Nutrient Controls of River Metabolism

*Member of the 2019 Water Institute Graduate Fellows cohort.

Events

OverFLoW Webinar Series

To strengthen statewide collaboration around water challenges, the Water Institute organized a monthly webinar series uniting ten public universities from the State University System of Florida. Each session featured a presentation from a participating university, showcasing water-related programs and areas of expertise. Following these presentations, the Water Institute led interactive networking sessions that encouraged attendees to explore shared interests and cultivate a more connected statewide water community. In response to growing demand for unified, cross-regional solutions, the Institute also created a digital hub with webinar archives, presentation materials, and a searchable expert directory to support continued engagement.



Biennial Symposium

The Water Institute, in partnership with Duke Energy and the IFAS Office of Conferences and Institutes, is organizing the 10th Biennial UF Water Institute Symposium. For the first time, the event will span three days, offering expanded opportunities to explore complex water issues from diverse perspectives. The 2026 Symposium will highlight innovative advances in science, technology, art, education, communication, policy, and management. A program committee—including representatives from academia, industry, nonprofits, and local, state, and federal agencies—has been convened to guide planning.

Distinguished Scholar Seminar Series

This seminar series features leading scholars and practitioners in water science and management. This year the featured speakers were the 2024 Faculty Fellows:

- Dr. Haimanote Bayabil – *Advancing Soil and Water Management: Monitoring, Modeling, and Adaptation Strategies in a Changing Climate* (webinar)
- Dr. Katherine Serafin – *When Forces Collide: Building Resilience to Compound Flooding Hazards* (keynote speaker at the Student Showcase)

Lunch by the Water Seminar Series

Concluding in Fall 2024, these seminars provided a monthly platform for graduate students to present their research to a diverse audience of water scientists. Each session featured two student speakers and drew participation from students and faculty alike, fostering interdisciplinary dialogue and strengthening connections across UF's water research community.

Student Showcase

Debuting in Spring 2025, the Water Institute Spring Showcase brought together students, faculty, and staff for a full day of professional development, networking, and water-focused research presentations. The event featured a leadership workshop led by Associate Provost and Dean of the Graduate School Dr. Nicole Stedman, a networking lunch hosted by the Water Institute Ambassadors, oral presentations by seven Research and Travel Award recipients showcasing innovative, interdisciplinary work, and a keynote address by 2024 Water Institute Early Career Faculty Fellow Dr. Katherine Serafin, held in partnership with the Geography Department's Colloquium series.

Communications & Digital Engagement

The Water Institute leverages a variety of communication platforms and digital tools to share research, foster interdisciplinary dialogue, and engage diverse audiences. Through podcasts, websites, and online resources, the Institute amplifies the reach and impact of its work, making water science accessible and relevant to communities across Florida and beyond.

@ufwater	/uf-water-institute	@ufwater	@ufwaterinstitute
1,867	774	165	615

waterinstitute.ufl.edu/

9K Active Users Past Year on Website

25K Views Past Year on Website

FRED Podcasts

The Water Institute co-hosted the second season of the award-winning UF/IFAS Food and Resource Economics Department podcast, F.R.E. Lunch, the Economics of Fresh Water. It featured interdisciplinary conversations between water scientists and economists with each episode including interactive materials to inspire classroom and community dialogue.

The Droplet

A weekly digest featuring spotlights, announcements, and opportunities.

Average Open Rate: 47.7%
Average # Subscribers: 640

2025-2030 Strategic Planning

The Water Institute undertook a comprehensive and inclusive process to develop its 2025-2030 strategic plan. This effort engaged both internal and external stakeholders through surveys, listening sessions, and a collaborative workshop.

Step 1: Stakeholder Survey
Understanding Needs and Priorities

Assess perceptions of the Water Institute's mission and programs; identify Florida's most pressing water challenges and research priorities; and understand stakeholder engagement needs and preferences.

257 External Participants

From federal, state, and local government agencies, industry, utilities, water management districts, and NGOs

132 Internal Participants

From UF faculty, students, administrators, and alumni

Step 2: Virtual Listening Session
Building Shared Understanding

Foster a shared understanding of the Water Institute's purpose and explore how its activities can better align with external stakeholder needs and interests.

23 External Stakeholder Representatives

From federal, state, and local government agencies, industry, utilities, water management districts, NGOS, and SUS representatives

Step 3: In-Person Workshop
Co-Creating a Vision for Success

Define what success looks like across the Water Institute's mission areas and audiences; identify strategic priorities for the next five years; and strengthen relationships among participants.

22 Internal Stakeholder Representatives

From FAC members, Faculty Fellow representatives, key collaborators, and UF administration

Step 4: Strategy Session
Synthesizing Insights and Defining Next Steps

Confirm shared goals and definition of success; develop a rubric for strategic decision-making; prioritize near-term strategies; and draft next steps for the strategic plan.

Participation from Water Institute Team

The final strategic plan report is currently in development and is expected to be presented to the Faculty Advisory Committee for adoption in early Fall 2025.

Thank You Funding Partners

DUKE ENERGY
Carl S. Swisher FOUNDATION
Sherwood L. Stokes Environmental & Water Quality Fund
UF UNIVERSITY of FLORIDA
UF Research UNIVERSITY of FLORIDA
UF College of Liberal Arts & Sciences UNIVERSITY of FLORIDA
UF IFAS UNIVERSITY of FLORIDA