

UF WATER INSTITUTE ANNUAL ACCOMPLISHMENT REPORT: JUNE 2013

1.0 Introduction

The UF Water Institute coordinates interdisciplinary research, education and outreach programs designed to develop and share new knowledge, and to develop and encourage the implementation of new technology and policy solutions for water issues. These programs cultivate partnerships between and among Water Institute faculty, students and external stakeholders; identify and prioritize critical water issues requiring interdisciplinary expertise; and provide expertise and support for addressing these issues. The Water Institute staff facilitates interactions among interdisciplinary teams; decreases transaction costs associated with interdisciplinary proposal writing and project execution; plans and executes Water Institute meetings, workshops, seminars, and symposia; and maintains a comprehensive [Water Institute website](#) with a searchable faculty expertise, awards, and publication database.

Since its inception in 2006, the Water Institute has brought together interdisciplinary faculty and graduate student teams to develop proposals to external agencies worth over \$90 Million. These efforts have created new collaborative linkages among UF faculty, as well as agencies and institutions across the country and have resulted in Water Institute Coordinated and Water Institute Assisted Projects totaling more than \$10 million. A summary of programs and accomplishments for 2012-2013 is included below.

2.0 Major Accomplishments: 2012-2013

Research: Water Institute research is organized under four thrust areas: Water, Landuse, and Ecosystems; Water and Climate; Water Resources Sustainability; and Water and Society. Within these thrust areas funded research foci include improving the science foundation for the protection of spring ecosystems; planning for a resilient water supply in a changing climate; and understanding and predicting impacts of alternative land uses on water quality, with an emphasis on nutrients. Research emerging from these research projects is transferred to practice via Water Institute facilitated scientist-stakeholder working groups such as the [Florida Water and Climate Alliance](#) (FloridaWCA) and the [Center for Excellence in Watershed Management](#) (CEWM).

During 2012-2013 active funded Water Institute Coordinated and Water Institute Assisted Projects totaled \$3.43 million, and new proposals totaling \$6.55 million were submitted for external funding (see Tables 1-3 below). In addition to these projects, Water Institute faculty members individually managed over \$113 million in other externally funded projects during 2012-2013. For complete information search the [Water Institute research database](#).

Table 1. Water, Land Use and Ecosystems: 2012-2103 Water Institute Coordinated and Assisted Projects and Proposals

Focus	Project Title	Principal Investigator	Funding Agency	Dates	Amount	Status
Springs Ecosystems	Collaborative Research: Controls on Delivery and Fate of Water, Nitrogen and Calcium in a Spring-Fed Karst River	Graham, Wendy	NSF	Mar 2009- Mar 2013	\$325K	Funded
Springs Ecosystems	Collaborative Research: High Resolution Sensor Networks for Quantifying and Predicting Surface Water/ Groundwater Mixing and Nutrient Delivery in the Santa Fe River	Graham, Wendy	NSF	Aug 2009- Aug 2012	\$457K	Funded

Springs Ecosystems	Reversals of karst springs: Implications for water budgets, water quality, and speleogenesis	Martin, Jonathan	NSF	Aug 2009-Aug 2013	\$385K	Funded
Springs Ecosystems	Determining the Age of Ichetucknee Springs Water	Martin, Jonathan	Three Rivers Foundation	May 2009-Mar 2014	\$30K	Funded
Coastal Zones	Integrated Modeling of the Impact of Freshwater Flow on the Salinity inside Apalachicola Bay	Sheng, Peter	US Dept of the Interior Fish and Wildlife Service	May 2010-Aug 2014	\$147K	Funded
Springs Ecosystems	The Santa Fe River Basin Critical Zone Observatory: Exploring linkages between geology, hydrology, ecosystems and humans in a carbonate terrain	Graham, Wendy	NSF	Jan 2014-Jan 2019	\$5 Million	Pending
Springs Ecosystems	Residence Times and Carbonate Dissolution: Mutual causality in eogenetic karst aquifers	Cohen, Matthew	NSF	May 2013-May 2016	\$798K	Not Funded

Table 2. Water and Climate: 2012-2103 Water Institute Coordinated and Assisted Projects and Proposals

Focus	Project Title	Project Investigator	Funding Agency	Dates	Amount	Status
Water Supply (Florida WCA)	Evaluating the use of Global reanalysis data, GCM retrospective predictions and GCM future projections for Public Water Supply Planning	Graham, Wendy	Tampa Bay Water	Apr 2007-Dec 2013	\$225K	Funded
Water Supply (Florida WCA)	Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning	Graham, Wendy	NOAA	Aug 2011-Aug 2014	\$300K	Funded
Water Supply (Florida WCA)	Use of seasonal climate forecasts to minimize short-term operational risks for water supply and ecosystem restoration	Graham, Wendy	NOAA	Aug 2012-Aug 2014	\$150K	Funded
Water Supply (Florida WCA)	Needs, Uses, Perceptions, and Attitudes towards Weather and Climate Forecast Information by Water Resource Managers in the Southeastern United States.	Martinez, Christopher	NOAA	Aug 2010-Aug 2013	\$94K	Funded
Land Use-Land Cover	Understanding and Predicting the Impact of Climate Variability and Climate Change on Land Use and Land Cover Change via Socio-Economic Institutions in Southern Africa	Southworth, Jane	NASA	May 2009-May 2013	\$788K	Funded
Water Supply	The Utility of Indices of Drought for Water Management in the	Martinez, Christopher	NOAA	Aug 2013-Aug 2015	\$200K	Pending

(Florida WCA)	Southeastern USA: What Type and Scale are Most Relevant to End-Users?					
Water Supply (Florida WCA)	Improving Hydrologic Drought Information in the Apalachicola-Chattahoochee-Flint Basin	Martinez, Christopher	NOAA	Aug 2012-Aug 2014	\$291K	Not Funded

Table 3. Water Resource Sustainability: 2012-2103 Water Institute Coordinated and Assisted Projects and Proposals

Focus	Project Title	Project Investigator	Funding Agency	Dates	Amount	Status
Water Quality-Nutrients (CEWM)	Watershed Management in the Face of EPA's New Numeric Nutrient Criteria	Graham, Wendy	USGS-FWRI	May 2011-Oct 2013	\$42K	Funded
Water Quality-Nutrients (CEWM)	TriCounty Agricultural Area Water Quality Data Review and Information Sharing Program	Clark, Mark	FDACS	Oct 2011-Jun 2012	\$58K	Funded
Water Supply/Water Quality-Nutrients	U.S.-Costa Rican Workshop: Interdisciplinary workgroup on water sustainability in the Tempisque Basin; Palo Verde NP, Costa Rica.	Munoz-Carpena, Rafael	NSF	Oct 2011-Oct 2013	\$58K	Funded
Water Supply/Water Quality	Water users' attitudes, perceptions and behaviors regarding water supply and water quality	Borisova, Tatiana	Texas A&M Univ	Feb 2009-Aug 2013	\$37K	Funded
Water Supply	Conserve Florida Water Conservation Clearinghouse	Heaney, James	FDEP	Jul 2011-July 2013	\$325	Funded
Water Quality-Nutrients (CEWM)	A Pilot Program for Improving BMAP Success through County Extension Agent Training and Evaluation	Borisova, T.	EPA	Jan 2014-Jul 2015	\$82K	Pending
Water Supply/Water Quality-Nutrients	CNH-EX: Coupling conflicting response times of human decisions and natural systems in a dysfunctional Pacific MesoAmerica basin	Munoz-Carpena, Rafael	NSF	Sep 2013-Sep 2015	\$250K	Not Funded

Graduate Education: [The Water Institute Graduate Fellows \(WIGF\) program](#) supports interdisciplinary faculty-graduate fellow teams to conduct integrative research in emerging areas of water science, including the social, natural, and engineering sciences. The Deans of the UF College of Agricultural and Life Sciences, College of Liberal Arts and Sciences, School of Natural Resources and Environment, and the Director of the Engineering School of Sustainable Infrastructure and the Environment have committed UF Graduate School Fellowships for biennial cohorts of 6 Ph.D. students to participate in this program. The Water Institute leverages this UF investment using gifts provided by the Swisher Foundation and the Sherwood-Stokes Foundation to support field, laboratory and computer analyses by the student cohorts. In addition Water Institute staff members coordinate integrative activities to support the cohorts' development into a cohesive interdisciplinary cadre of professional researchers.

The inaugural WIGF cohort is led by Dr. Mark Brown from Environmental Engineering Sciences. This six Ph. D. student cohort began their program in Fall 2011 and is focused on developing the new

knowledge, and creative engineering, management and policy solutions needed to establish and achieve numeric nutrient criteria for Florida's waters. The 2013 WIGF cohort is led by Dr. Jon Martin from Geological Sciences. A six Ph. D. student cohort has been recruited and will begin their program in Fall 2013. The 2013 cohort will focus on improving the understanding of potential impacts of sea level change on coastal aquifers, water resources, and ecosystems.

In addition to coordinating the WIGF program, the UF Water Institute also provides administrative services to the Hydrologic Sciences Academic Cluster, an interdisciplinary program designed to broaden the skills of science and engineering students who are interested in all aspects of water. Currently 58 faculty members and 34 graduate students from 9 departments and 3 colleges participate in the HSAC. Water Institute support services include coordinating HSAC faculty meetings, managing student applications to the program, maintaining an on-line database for the HSAC student, faculty and meeting records, and maintaining the [HSAC website](#). In addition The UF Water Institute Director serves as a permanent voting member on the Hydrologic Sciences Academic Cluster Faculty Coordinating Committee.

Extension: In July 2012 the UF Water Institute began working with UF/IFAS Extension to support its efforts to formulate a statewide plan for Water Programs. As a part of this process Water Institute staff planned and executed a [Water Summit](#) designed to engage county and state faculty in the development of an implementation plan for the UF/IFAS Extension Water Initiative. A two-day Water Summit, held in December 2012, engaged over 70 county and state faculty members and formed action teams that are currently developing plans of action and funding focused around each of three priority areas: Water Conservation, Water Quality, and Public Awareness of Water Issues.

The UF Water Institute participates the UF-IFAS Extension Public Awareness of Water Issues priority area through programs within its [Center of Excellence for Watershed Management](#) (CEWM). CEWM was formally established within the UF Water Institute under a 2011 Memorandum of Understanding with the Environmental Protection Agency and the Florida Department of Environmental Protection. Within CEWM faculty members, researchers, staff, and students work with stakeholders to identify watershed-based problems and develop extension education, practical research products, and locally sustainable solutions to address these problems. A UF/IFAS Extension Watershed Steward Program is currently being developed with direct assistance from CEWM. The goal of this program is to develop a citizen volunteer corps that will educate communities and implement water improvement projects in their local areas while maintaining a relationship and ongoing training with UF/IFAS extension faculty. Other water extension programs including Water Schools for agricultural stakeholders and Water Schools for decision-makers will also be created with assistance from CEWM.

Biennial Water Institute Symposium: UF Water Institute Symposia bring together researchers, engineers, policy makers, water managers, industry representatives, lawyers, students and citizens to consider the challenges to water resources sustainability; explore solutions for pressing issues; and provide broad-based recommendations for research, education, technology and policies to ensure water resources sustainability for Florida and beyond. A program committee is currently planning the 4th Water Institute Symposium that will be held at the UF Reitz Union in Gainesville on February 11th -12th, 2014.

Distinguished Scholar Seminar Series: The Water Institute Distinguished Scholar Seminar Series continues to invite high profile scholars to UF to conduct a Water Institute seminar of interest to a broad audience; meet with the Water Institute Faculty Advisory Committee to discuss strategic planning and partnering opportunities; and meet with interested Water Institute faculty and graduate students to discuss specific research/education issues. Seven Distinguished Scholar Seminars were hosted during 2012-2013. For a complete listing of speakers, who represent leading experts in the fields of engineering, biophysical sciences, social sciences and law see <http://waterinstitute.ufl.edu/seminars/seminars.asp>.

Water Institute Faculty Fellows Program: In 2013 the Water Institute created a new Faculty Fellow awards program to recognize UF faculty who are making outstanding research, extension, or education contributions to the Water Institute. The purpose of the award is to recognize recent contributions that contribute significantly to UF's interdisciplinary communities of science in water and to provide incentives for Fellows' continued contributions to the goals of the Water Institute. Faculty Fellows will receive a salary supplement of \$2,000 per year for a duration of three years. Funds used for the salary supplement are earned from retained indirect costs from external grant awards funded through the Institute. Fellow nominations for the 2013 class are currently under review and winners will be announced shortly.

3.0 Major Water Institute goals for next year

- Organize and execute a well-attended well-sponsored 2014 Water Institute Symposium that generates net positive revenue for the Water Institute.
- Continue to bring in internationally known water experts to a well-attended Distinguished Scholar Seminar Series
- Maintain an up-to-date website that showcases Water Institute faculty programs and publications
- Manage and continue to build a portfolio of moderate-sized interdisciplinary Water Institute research projects
- Obtain at least one large multi-million dollar interdisciplinary grant from national/international funding agency
- Build and strengthen the Water Institute Graduate Fellows Program
- Develop and pilot a Watershed Stewards Program in partnership with UF/IFAS Extension

4.0 Assistance the VP for Research can provide to help the Water Institute in meeting these goals

- Assist with funding for Water Institute staff salaries
- Provide access to professional proposal writing/editing expertise
- Assist with Water Institute promotion, marketing and public relations
- Assist with pursuit of endowments
- Assist with pursuit of state legislative budget requests and targeted federal funding

5.0 Director's vision for the Water Institute for the next year

The Water Institute will continue to enhance its reputation

- On campus as an inclusive, intellectually-exciting, interdisciplinary organization that adds value to UF through its campus-wide research, education and extension programs
- Within the state as a focal point for water-related research expertise and unbiased peer review services
- Within the nation as a leading interdisciplinary water-related research and education institute renowned for identifying, understanding and providing innovations that address state, national, and global water problems.