UNIVERSITY OF FLORIDA WATER INSTITUTE ANNUAL ACCOMPLISHMENT REPORT July 1, 2016- June 30, 2017

Table of Contents

| 1 | EX | ECUTIVE SUMMARY | . 2 |
|---|--------|---|-----|
| 2 | INT | FRODUCTION | . 3 |
| | 2.1 M | ission | . 3 |
| | 2.2 Vi | ision | . 3 |
| | 2.3 V | alues | . 3 |
| | 2.4 G | oals | . 4 |
| 3 | OR | GANIZATION | . 4 |
| 4 | AC | COMPLISHMENTS | . 6 |
| | 4.1 | Research | . 6 |
| | 4.2 | Investment of Water Institute Funds in Program Initiation | 10 |
| | 4.3 | Water Institute Distinguished Scholar Seminar Series | 10 |
| | 4.4 | Symposia and Conferences | 11 |
| | 4.5 | Graduate Education Programs | 11 |
| | 4.6 | Public Outreach and Communication Programs | 13 |

1 EXECUTIVE SUMMARY

The University of Florida Water Institute coordinates interdisciplinary research, education and outreach programs designed to develop and share new knowledge, and to develop and encourage implementation of new technology and policy solutions for water issues. Dedicated efforts have forged linkages among diverse groups of faculty and graduate students representing a breadth of water specialties from geophysical to biological to social sciences, engineering, law and humanities. The Water Institute is adding value to the University of Florida through research coordination and collaboration, synthetic cross-disciplinary studies and projects, joint proposal development, seminars and symposia. Illustrative examples of innovative research, education and outreach programs that have resulted from creation of the UF Water Institute are described below. More details can be found in the body of this report.

<u>Research Preeminence:</u> During 2016-2017, faculty affiliated with the Water Institute led active research projects totaling approximately \$168 million, and received new sponsored water-related research awards totaling approximately \$30 million. During this same time period the Water Institute Director and staff coordinated interdisciplinary faculty teams conducting 7 funded interdisciplinary projects (\$8M), supported 8 additional funded interdisciplinary projects (\$4.3M), and facilitated submission of 8 new interdisciplinary proposals (\$11.3M).

<u>Education Preeminence: The Water Institute Graduate Fellows (WIGF) program</u> supports facultygraduate teams to conduct interdisciplinary research in emerging areas of water science, including the social, natural, and engineering sciences. The Deans of the UF/IFAS College of Agricultural and Life Sciences, UF College of Liberal Arts and Sciences, and the Directors of the School of Natural Resources and Environment and 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 Carl S. Swisher Foundation and the Sherwood-Stokes Foundation to support field, laboratory and computer analyses by the student cohorts. The fourth cohort of Water Institute Graduate Fellows will begin in the Fall semester 2017.

<u>Outreach Preeminence</u>: The UF Water Institute engages actively with statewide, regional and national communities. Examples of outreach activities include:

- <u>Biennial Water Institute Symposia:</u> Biennial Water Institute Symposia bring together researchers, engineers, policy makers, water managers, industry representatives, lawyers, students and citizens to increase awareness of key water related issues, consider the challenges to water resources sustainability and explore solutions to the most pressing problems. A program committee is currently planning the 6th Water Institute Symposium that will be held at the UF Reitz Union in Gainesville on February 6th -7th, 2018.
- <u>Florida Water and Climate Alliance:</u> The Water Institute facilitates the Florida Water and Climate Alliance (<u>FloridaWCA</u>), a stakeholder-scientist partnership committed to increasing relevance of climate-science data and tools at relevant time and space scales to support decision-making in water resource management, planning and supply operations in Florida.
- <u>Partnership with UF/IFAS Extension</u>: The Water Institute partners with UF/IFAS Extension to support and expand water-related outreach efforts throughout the state.

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 May 2006. Since its inception, the Water Institute has emerged as a leader in coordinating interdisciplinary research, education and outreach programs.

Scientific, public and political awareness of water issues is growing, emphasizing the need for interdisciplinary research, education and outreach programs that are relevant across local, national and global scales. Understanding complex water issues in a holistic manner and exploring integrated solutions to managing problems requires sustained high-level effort. It calls for bold action to obtain, integrate and share new data; design and conduct comprehensive experiments to further basic understanding; and develop new simulation tools to allow scientists, managers, citizens and policy makers to explore alternative scenarios of the impacts of climate change, population growth, land-use change, and water management and policy alternatives.

2.1 Mission

The Water Institute brings together talent from throughout the University and builds internal and external partnerships to address urgent water research challenges; implement innovative interdisciplinary academic programs to train excellent students; and provide state-of-the-art expert assistance and educational programs for external stakeholders.

2.2 Vision

Interdisciplinary Water Institute teams comprised of leading water researchers, educators and students develop new scientific breakthroughs; design creative engineering, policy and legal solutions; and pioneer innovative educational programs that are renowned for addressing state, national, and global water problems.

2.3 Values

<u>Excellence</u>: The Water Institute is committed to provide excellent interdisciplinary water-related research, education and outreach programs that are recognized for their preeminence in Florida, the nation and the world.

<u>Partnerships:</u> The Water Institute recognizes the importance of developing strong inclusive partnerships among Water Institute Affiliate Faculty and with external stakeholders to identify and prioritize critical water issues requiring interdisciplinary study.

<u>Expertise</u>: The Water Institute is committed to developing the basic knowledge, practical experience, and infrastructure required to respond to emerging water issues affecting a broad suite of stakeholders.

<u>Respect:</u> The Water Institute provides services that acknowledge, respect and promote the expertise of all Water Institute Affiliate Faculty, and embrace the personal values, cultures, and

socioeconomic context of its diverse stakeholders, both internal and external to the University of Florida.

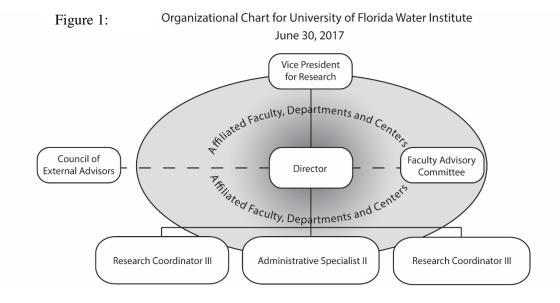
2.4 Goals

The Water Institute strives to achieve preeminence through successful research, education and outreach programs that:

- Improve basic knowledge of physical, chemical, and biological processes in surface and groundwater systems.
- Enhance understanding of interactions and interrelationships among humans (attitudes, behaviors and activities) and aquatic ecosystems.
- Develop improved methodologies for water management and policy including quantity, quality and ecosystem services based on a foundation of science, engineering, management and law.

3 ORGANIZATION

The Water Institute is led by a full-time Director who reports to the Vice President for Research (Figure 1). Two Research Coordinator IIIs assist the Director in development, execution and evaluation of Water Institute programs. An Administrative Specialist II serves as office accountant, office manager, and website/database developer.



Individual UF faculty affiliation with the Water Institute is through voluntary registration in an online database. All registered faculty are considered <u>Water Institute Affiliate Faculty</u> and are eligible to vote on Water Institute governance issues. All Affiliate Faculty members retain their positions in their tenure departments where all administrative and performance review functions are carried out. Currently there are over 300 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.

| College | Total No. |
|---|-----------|
| IFAS | 202 |
| College of Liberal Arts and Sciences | 38 |
| College of Engineering | 25 |
| College of Design, Construction and Planning | 7 |
| Center for Latin American Studies | 5 |
| College of Law | 4 |
| Warrington College of Business Administration | 4 |
| College of Health and Human Performance | 4 |
| Florida Museum of Natural History | 1 |
| Pharmacy - Medicinal Chemistry | 1 |
| College of Public Health and Health Professions | 3 |
| Florida Sea Grant | 1 |
| International Center | 1 |
| Marston Science Library | 1 |
| College of Veterinary Medicine | 8 |
| Total | 305 |

Table 1: Summary of Faculty Membership by College

The <u>UF Water Institute Faculty Fellow</u> awards program recognizes 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 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. Faculty Fellows elected to date are included in Table 2.

| Year | Faculty Fellow |
|------|---|
| 2013 | Dr. Matthew Cohen, Forest Resources and Conservation, UF/IFAS |
| 2013 | Dr. Rafael Muñoz-Carpena, Agricultural and Biological Engineering, UF/IFAS. |
| 2014 | Dr. Jonathan Martin, Department of Geologic Sciences, CLAS. |
| 2014 | Dr. Jim Jawitz, Soil and Water Sciences, UF/IFAS |
| 2015 | Dr. Mark Clark, Soil and Water Sciences, UF/IFAS |
| 2015 | Dr. Michael Dukes, Agricultural and Biological Engineering, UF/IFAS |
| 2016 | Dr. Kati Migliaccio, Agricultural and Biological Engineering, UF/IFAS |
| 2016 | Dr. Arnoldo Valle-Levinson, Civil and Coastal Engineering, College of Engineering |
| 2017 | Dr. Sanjay Shukla, Agricultural and Biological Engineering, UF/IFAS |
| 2017 | Dr. David Kaplan, Environmental Engineering Sciences, College of Engineering |

 Table 2: Water Institute Faculty Fellows

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 balance among disciplines. Table 3 shows the 2016-2107 membership of the Water Institute Faculty Advisory Committee.

Table 3. 2016-2017 Water Institute Faculty Advisory Committee

| Name | Department | College |
|--------------------|---|--------------------------------|
| Christine Angelini | Environmental Engineering Sciences | Engineering |
| Mary Jane Angelo | Environmental and Land Use Law | Law |
| Thomas Bianchi | Geology | Liberal Arts and Sciences |
| Tatiana Borisova | Food and Resource Economics | Agricultural and Life Sciences |
| Mark Brenner | Geology | Liberal Arts and Sciences |
| Matthew Cohen | Forest Resources and Conservation | Agricultural and Life Sciences |
| Nancy Denslow | Environmental and Human Toxicology | Veterinary Medicine |
| Michael Dukes | Agricultural and Biological Engineering | Agricultural and Life Sciences |
| James Gillooly | Biology | Liberal Arts and Sciences |
| David Kaplan | Environmental Engineering Sciences | Engineering |
| Kai Lorenzen | Fisheries and Aquatic Sciences | Agricultural and Life Sciences |
| Jonathan Martin | Geology | Liberal Arts and Sciences |
| Kati Migliaccio | Agricultural and Biological Engineering | Agricultural and Life Sciences |
| Todd Osborne | Soil and Water Science | Agricultural and Life Sciences |
| Thomas Waltzek | Veterinary Medicine | Veterinary Medicine |

An ad-hoc External Council of Advisors consists of speakers who have participated in the Water Institute Distinguished Scholar Seminar Series. These individuals are representatives of leading academic institutions in a wide range of water-related fields, many of whom are National Academy members and two of whom are Stockholm Water Prize winners.

4 ACCOMPLISHMENTS

4.1 Research

During 2016-2017 faculty affiliated with the Water Institute led active research projects totaling approximately \$168 million, and received new sponsored water-related research awards totaling approximately \$30 million.

During 2016-2017 the Water Institute coordinated 7 active funded interdisciplinary projects (\$8M), supported 8 funded interdisciplinary projects (\$4.3M) and supported the submission of 8 new interdisciplinary proposals (\$11.3M), (See Table 4 below for details). For more information on Water Institute projects see the on-line searchable Water Institute research database.

Highlights in 2016-2017 included launching of the new \$5M USDA-NIFA Agricultural Water Security Coordinated Agricultural Project and continued coordination and execution of the \$2.2M Springs Protection Initiative project funded by the St. Johns River Water Management District. The goal of the new interdisciplinary USDA NIFA project, which involves 14 faculty members from 4 Universities, is to ensure economic sustainability of agriculture and silviculture in North Florida and South Georgia while protecting water quantity, quality, and habitat in the Upper Floridan Aquifer and the springs and rivers it feeds. The goal of the interdisciplinary Springs Protection Initiative project, which involves 11 faculty members from 3 UF colleges, is to provide a scientific basis for improved springs protection and remediation.

| Principal Investigator | Dates | Title | Amount | Co-PIs | Agency | Status | | |
|--------------------------------------|--------------------|---|-------------|--|--|--------|--|--|
| Water Institute Coordinated Projects | | | | | | | | |
| Graham, Wendy, WI | 7/2017-62/2020 | Agricultural Water Security through Sustainable Use of the Floridan Aquifer: An Integrated Assessment of Economic and Environmental Impacts | \$4,918,926 | Adams, Damian Barrett, Charles Wendy- Lin Bartels Tatiana Borisova Dukes, Michael Kaplan, David Monroe, Martha plus faculty from AU, ASU and UGA | USDA-NIFA | Funded | | |
| Kaplan, David, ESSIE | 3/2016- 2/2018 | Water Resources Research Institute Annual Base Program | \$32,000 | Adams, Damian Graham, Wendy | US Geological Survey | Funded | | |
| Graham, Wendy, WI | 6/2015- 12/2017 | Support services for collaborative stakeholder-scientist partnership: Florida Water and Climate Alliance | \$25,000 | Irani, Tracy Martinez, Chris | Tampa Bay Water Authority | Funded | | |
| Michael Dukes, ABE | 1/2015- 12/2018 | Evaluation of water use, water quality and crop yield impacts of corn and peanut irrigation and nutrient BMPs in the springsheds of Suwannee River Water Management District | \$432,888 | Rowland, Diane Graham, Wendy | Suwannee River Water Management District, Florida Dept of Agriculture, Florida Dept of Environmental protection | Funded | | |
| Reddy, K. Ramesh, SWS | 6/2014- 9/2017 | Springs Protection Initiative - Collaborative Research Initiative on Sustainability and Protection of Springs [CRISPS] | \$2,170,468 | Graham, Wendy Annable, Mike Cohen, Matthew Jawitz, James Frazer, Tom Kaplan, David Kramer, Marc | St. Johns River Water Management District | Funded | | |
| Graham, Wendy, WI | 3/2011- 2/2016 | Water Resources Research Institute Annual Base Program | \$81,600 | Frazer, Thomas | US Geological Survey | Funded | | |
| Graham, Wendy, WI | 4/2007- 12/2017 | Use of Seasonal Climate Forecasts to Reduce Risk in Regional Public | \$374,800 | Martinez, Chris | Tampa Bay Water Authority | Funded | | |

 Table 4. 2016 Active Water Institute Projects and Grant Proposals Submitted

| | | Water Supply | | | | |
|----------------------------------|-------------------|---|-------------|---|--|--------|
| | | Management | | | | |
| | | | | | | |
| Water Institu | ite Suppor | ted Projects | | L | | |
| Cohen, | 08/2016 | Collaborative | \$475,565 | Hensley, Robert | National | Funded |
| Matthew, SFRC | - 7/2019 | Research: Continuous Metabolism and Nutrient Uptake Across the River Continuum | | | Science Foundation | |
| 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 | \$499,818 | Athayde, Simone, Bohlman, Stephanie Kaplan, David | National Science Foundation | Funded |
| Southworth, Jane GEO | 9/2016- 8/2020 | CNH:Emerging land transactions in Ethiopia and their impacts on food and energy security | \$364,164 | Agrawal, Arun Brown, Daniel | National Science Foundation | Funded |
| Reddy, K. Ramesh, SWS | 9/2015- 9/2017 | Identification And Quantification of Organic Phosphorus Forms in the Water Column and Sediments of Stormwater Treatment Areas | \$139,995 | | South Florida Water Management District | Funded |
| Reddy, K. Ramesh, SWS | 6/2015- 5/2018 | Evaluation of soil biogeochemical properties influencing phosphorus flux in the everglades stormwater treatment areas | \$1,210,164 | Patrick Inglett Todd Osborne Alan Wright Stefan Gerber | South Florida Water Management District | Funded |
| Grogan, Kelly, FRED | 3/2015- 3/2018 | Innovative Policies to Optimize the Allocation of Water Quality and Conservation Investments and Maximize Multiple Benefits | \$659,676 | Chris Martinez, Xiang Bi, Tatiana Borisova, Alan Hodges, Paul Monaghan | USDA NIFA | Funded |

| Cohen, Matthew, SFRC | 5/2014-4/2017 | The Ecological Drill Hypothesis: Biotic Control on Carbonate Dissolution in a Low Relief Patterned Landscape | \$599,080 | Martin, Jonathan Bianchi, Tom | National Science Foundation | Funded |
|-------------------------------------|-------------------|---|-------------|---|-----------------------------------|----------|
| Martin, Jonathan, GLY | 8/2013- 7/2016 | Coastal SEES (Track 1): Planning for hydrologic and ecological impacts of sea level rise on sustainability of coastal water resources | \$441,125 | Ogram, Andrew Valle-Levinson, Arnoldo Pen, Zhong-ren | National Science Foundation | Funded |
| Interdiscipli | inary Propo | sals Submitted | | | | |
| Martin, Jonathan, GLY | 10/2015 | Coastal SEES: Sea- level change and thresholds for coastal water sustainability | \$1,999,454 | Ogram, Andrew Valle-Levinson, Arnoldo Pen, Zhong-ren | National Science Foundation | Declined |
| Kaplan, David ESSIE | 3/2016 | When Policy, Practice, and Outcomes Diverge: Developing an Integrated Environmental and Economic Modeling Framework to Enhance Food, Energy and Water Sustainability of the Floridan aquifer FEWS | \$923,334 | Adams, Damian | National Science Foundation | Declined |
| Kaplan, David ESSIE | 11/2016 | CNH-L: Mega Infrastructure Development in Resource Frontiers: Modeling the impacts of Industrialization on Amazonia's Natural and Human Systems. | \$1,799,818 | Muñoz-Carpena, Rafael | National Science Foundation | Declined |
| Borisova, Tatiana FRED | 11/2016 | CNH-L: Whither are the thresholds in a Florida Urban Water System: Replaying history in a future world | 467,028 | Staal, Lisette | National Science Foundation | Pending |
| Muñoz- Carpena, Rafael ABE | 11/2016 | CNH-L Temporal miscoupling of the human and natural system responses: the need for an | \$1,773,980 | | National Science Foundation | Pending |

| | | institutional paradigm shift | | | | |
|-----------------------|--------|---|-------------|------------------|---|---------|
| Shukla, Sanjay ABE | 1/2017 | Evaluating Compact Bed Geometry for Plasticulture: Disease, Environmental, and Economics | \$358,855 | | Florida Department of Agriculture and Consumer Services | Pending |
| Southworth, | 3/2017 | Collaborative | \$1,458,721 | | National | Pending |
| Jane | | Research: | | | Science | |
| GEO | | Geosciences from | | | Foundation | |
| | | Exploration to | | | | |
| | | Opportunity (GEO) | | | | |
| | | Program | | | | |
| Muñoz- | 3/2017 | INFEWS/T1: | \$2,489,896 | Asseng, Senthold | National | Pending |
| Carpena, | | Engineering water | | Barrera Alviar, | Science | |
| Rafael | | governance for | | Jorge | Foundation | |
| ABE | | resilient FEW | | Garcia, Alfredo | | |
| | | systems: an iterative | | Johnson, Jeffrey | | |
| | | consensus | | Muneepeerakul, | | |
| | | mechanism | | Rachata | | |

4.2 Investment of Water Institute Funds in Program Initiation

Table 5 below summarizes investment of Water Institute funds in program initiation in 2016-2107

| Date Principal Investigator | | Description | Amount |
|--------------------------------|--------------------------|--|----------|
| May 2016 | Diane Rowland | Graduate student funding support | \$5,000 |
| January 2017 | Damian Adams | Post Doc/faculty funding support | \$12,000 |
| April 2017 | Rachata Muneepeerakul | 2017 Water Institute Graduate Fellows Cohort | \$25,000 |

 Table 5. Water Institute Program Initiation Funds 2016-2017

4.3 Water Institute Distinguished Scholar Seminar Series

The Water Institute Distinguished Scholar Seminar Series invites 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 and education issues. Eight Distinguished Scholar speakers and two UF speakers were hosted during 2016-2017 (see Table 6 for details). For a complete listing of speakers since the Water Institute's inception see http://waterinstitute.ufl.edu/seminars/seminars.asp.

Table 6. 2016-2017 Distinguished Scholar Seminar Speakers

| Date | Date Distinguished Scholar Seminar Speaker | | | | |
|--|--|--|--|--|--|
| September 12, 2016 Duane De Freese, Ph.D., Executive Director, IRL Council & Indian River Lagoon | | | | | |
| | National Estuary Program | | | | |

| September 15, 2016 | Dr. Pedro Sanchez, Research Professor, Soil and Water Sciences Department, University of Florida | | | | |
|--|---|--|--|--|--|
| | | | | | |
| October 10, 2016 <u>Ty Ferré, Ph.D.</u> , Professor - Department of Hydrology and Water Resource | | | | | |
| | of Arizona, 2016 Darcy Lecture Series in Groundwater Science (Nat'l Groundwater | | | | |
| | Association) | | | | |
| November 14, 2016 | Kati Migliaccio, Ph.D., 2016 Water Institute Faculty Fellow, Department of Agricultural | | | | |
| , | and Biological Engineering | | | | |
| December 05, 2016 | Arnoldo Valle-Levinson, Ph.D., 2016 Water Institute Faculty Fellow, Department of | | | | |
| | Civil and Coastal Engineering, ESSIE | | | | |
| January 12, 2017 | James Elser, Ph.D., Bierman Professor of Ecology & Director - Flathead Lake Biological | | | | |
| | Station, University of Montana, Research Professor - School of Life Sciences & School | | | | |
| | of Sustainability, Arizona State University, Tempe, AZ | | | | |
| February 17, 2017 | Catherine Kling, Ph.D., Charles F. Curtiss Distinguished Professor in Agriculture and | | | | |
| • | Life Sciences, Iowa State University | | | | |
| March 17, 2017 | Christine Kirchhoff, Ph.D., Assistant Professor, Civil & Environmental Engineering | | | | |
| , | Department, University of Connecticut | | | | |
| April 04, 2017 | Upmanu Lall, Ph.D., Alan & Carol Silberstein Professor of Engineering & Director of | | | | |
| • | Columbia Water Center, Dept. of Earth & Environmental Engineering, Columbia | | | | |
| | University | | | | |
| May 02, 2017 | Ryan Bailey, Ph.D., Assistant Professor, Civil and Environmental Engineering, Colorado | | | | |
| | State University | | | | |

4.4 Symposia and Conferences

<u>Biennial Water Institute Symposium:</u> Five Water Institute Biennial Symposia have brought 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 6th Water Institute Symposium that will be held at the UF Reitz Union in Gainesville on February 6th -7th, 2018. The Water Institute Symposia website details the theme for the upcoming Symposium as well as the programs, presentations and attendees for the previous five Symposia.

<u>A graduate student poster competition</u> is sponsored during each of the UF Water Institute Biennial Symposia, during which graduate students compete for \$1,000 awards to attend a professional conference to present their research. Since 2008, over 225 students have competed and a total of 15 students have won \$1,000 each in travel support.

4.5 Graduate Education Programs

A Water Institute priority is to foster, support, and synergize innovative interdisciplinary water education. Although the Water Institute is not a degree granting entity, its research and education activities contribute substantially to graduate education at the University. <u>The Water Institute Graduate Fellows (WIGF) Program</u> was created in 2010 to support faculty-graduate teams to conduct interdisciplinary research in emerging areas of water science, including the social, natural, and engineering sciences. The Deans of the UF/IFAS College of Agricultural and Life Sciences, UF College of Liberal Arts and Sciences, and the Directors of the School of Natural Resources and Environment and the Engineering School of Sustainable Infrastructure and the Environment

have committed funding for UF Graduate Research Fellowships in support of this program. This funding provides 4 years of support (stipend and tuition) to biennial cohorts of 6-8 Ph.D. students. In addition, participating faculty add 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. Table 6 lists graduate students funded by the WIGF program to date. The Deans and Directors of the participating colleges and schools have agreed to provide funding for three additional cohorts that will begin in 2017, 2019 and 2021. Table 7 summarizes the students and faculty who have participated in the WIGF program to date.

In addition to the WIGF program the UF Water Institute provides administrative services to <u>The</u> <u>Hydrologic Sciences Academic Cluster (HSAC)</u>, an interdisciplinary program designed to broaden the skills of science and engineering students interested in all aspects of water. <u>Water Institute</u> <u>Research Projects</u> support many additional graduate students pursuing M.S. and Ph. D. degrees in water-related fields.

| WIGF Cohort | Fellow | Faculty Advisor | Department | Date Graduated / Professional Placement |
|----------------|---------------------|----------------------------|---|--|
| 2011 | Arnold, Elliott | Brenner, Mark | Geological Sciences | Spring 2017 /Post-Doctoral Scholar, University of Pittsburgh |
| 2011 | Henson, Wesley | Graham, Wendy | Agricultural and Biological Engineering | Fall 2016 / Research Hydrologist, U.S. Geologic Survey |
| 2011 | Laing, Joelle | Frazer, Tom | School of Natural Resources and Environment | Fall 2016 / Environmental Consulting and Design |
| 2011 | Nealis, Charles | Clark, Mark | Soil and Water Science | Fall 2015 / Assistant Professor, Virginia State University |
| 2011 | Weinkam, Grant | Brown, Mark | Environmental Engineering Sciences | Spring 2016 / Post-Doctoral Scholar, University of Arizona |
| 2013 | Branyon, Jaqueline | Valle Levinson, Arnoldo | Civil and Coastal Engineering | Fall 2015 / Coastal Engineer & Research Scientist, Mofatt & Nichol |
| 2013 | Chutcharavan, Peter | Dutton, Andrea | Geological Sciences | Graduation anticipated Spring 2019 |
| 2013 | Deng, Yujun | Peng, Zong-Ren | Urban and Regional Planning | Graduation anticipated Spring 2018 |
| 2013 | Glodzik, Katie | Pine, William | Wildlife Ecology and Conservation | Graduation anticipated Fall 2017 |
| 2013 | Huang, Labin | Ogram, Andrew | Soil and Water Sciences | Summer 2017 / Post- Doctoral Scholar, University of Florida, Fort |

 Table 7. Water Institute Graduate Fellows and Advisors

| | | | | Lauderdale Research and Education Center |
|------|---------------------------|------------------------------------|---|--|
| 2013 | Pain, Andrea | Dutton, Andrea | Geological Sciences | Graduation anticipated Fall 2017 / Post-Doctoral Scholar, University of Florida, Geological Sciences |
| 2013 | Skrivanek, Alexandra | Dutton, Andrea | Geological Sciences | Graduation anticipated Spring 2019 |
| 2013 | Vyverberg, Karen | Martin, Jon | Geological Sciences | Graduation anticipated Fall 2017. |
| 2015 | Hyde, Jacy | Bohlmann, Stephanie | School of Forest Resources and Conservation | Graduation anticipated Summer 2019 |
| 2015 | Lehmensiek, May | Lorensen, Kai | School of Natural Resource and Environment | |
| 2015 | Sabo, Alexandra | Simmons, Cynthia | Geography | |
| 2015 | Swanson, Christine | Valle, Dennis | School of Forest Resources and Conservation | Graduation anticipated Summer 2020 |
| 2015 | Crouch, Trey | Kaplan, David | Environmental Engineering Sciences | |
| 2015 | De Carvalho, Roberta | Walker, Bob | Geography | |
| 2017 | Kati Vazquez | Rachata Muneepeerakul | Agricultural and Biological Engineering | |
| 2017 | Caroline Huguenin | Peter Waylen | Geography | |
| 2017 | Matt Foster | Rafael Muñoz- Carpena | Agricultural and Biological Engineering | |
| 2017 | Oswaldo Medina Ramirez | Jeffrey Johnson | Anthropology | |
| 2017 | Daniel Penniman | Greg Kiker / Christine Angelini | School of Natural Resource and Environment | |

4.6 Public Outreach and Communication Programs

The UF Water Institute engages actively with statewide, regional and national communities. In 2016-2017 these activities included:

<u>UF/IFAS Extension Water Initiative:</u> Since 2012 the Water Institute has been assisting UF/IFAS Extension with implementation of its Water Initiative, a priority in the UF/IFAS Extension Roadmap through 2023. The goal of the UF/IFAS Extension Water Initiative is enhancing and protecting water quality, quantity, and supply through public programming offered by Extension faculty.

To help launch the Water Initiative, the Water Institute in 2012 planned and facilitated a 2-day <u>Extension Water Initiative Summit</u> that convened over 70 County and State Extension faculty, who developed an implementation plan for the Water Initiative. At the Summit, action teams were formed that subsequently developed action plans for 3 areas: water conservation, water quality, and public awareness of water issues.

Water Institute staff have served since 2012 as actively contributing members of the Water Initiative Leadership Team and of the Public Awareness team. Results have included development of a <u>UF/IFAS water website</u>, a Delivery-Ready-Outreach-Plug In on laws protecting water quality, and a <u>pilot Florida Waters Stewardship Program</u> in Pinellas County.

The Water Institute planned and facilitated a 1-day in-person Water Initiative team meeting in summer 2016 that provided impetus and defined specific resources needed by Extension faculty to successfully complete the Extension Water Initiative.

<u>Water Resource Regional Specialized Agents</u> – UF/IFAS in 2015-2016 hired a cohort of 5 new Water Regional Specialized Agents (Water RSAs) who are developing public programming on statewide water-resource issues. The Water Institute entered into an MOU with UF/IFAS Extension to plan and lead fieldtrips to the 5 Extension Districts. The fieldtrips have been providing an opportunity for the Water RSAs to learn about regional and statewide water-resources and issues. During fieldtrips, the Water RSAs are meeting with Extension staff working on waterrelated topics, actual & potential partners in local government and state/federal agencies, and other water-related stakeholders. This is enabling them to develop timely and effective water-related public education programs across Florida in topics ranging from innovative agricultural Best Management Practices to high-performance residential septic systems.

The Florida Water and Climate Alliance – The UF Water Institute coordinates the Florida Water and Climate Alliance (FloridaWCA), a stakeholder-scientist partnership committed to increasing relevance of climate-science data and tools at relevant time and space scales to support decisionmaking in water resource management, planning and supply operations in Florida. FloridaWCA collaborators and funders include NOAA, six major public water supply utilities, three Florida water management districts, local government representatives and several academic institutions. The FloridaWCA facilitates interactions that help to define important questions that result in valuable research and actionable information. Workshops, publications, proposal development and an active website contribute to the impact of the network. There have been 3 workshops held per year (16 to date) reaching over 193 people from scores of organizations in Florida. According to a recent Utility funded citation impact analysis report (Qu, S., & Irani, T., 2017) FloridaWCA members have published 28 journal articles and cited 240 times. Over 10 proposals have been submitted to state, regional and national organizations (WERF, WRF, NOAA, EPA, NSF and local utilities and water management districts) ranging from values of \$5000 to \$1.5 million. All publications, workshop reports and presentations are available on the FloridaWCA website.

Center/Institute Plans for 2016-2017

a. Strategic Goals

- Maintain network with national funders and academic partners formed during year as Program Director at the National Science Foundation in Washington DC
- Continue to build network of national funders and academic partners through participation in the National Academies Water Science and Technology Board.

- Continue to support submission of proposals for multi-million dollar interdisciplinary grants from national/international funding agencies
- Successfully complete high-profile \$2.2 Million Springs Research Initiative funded by the St. Johns River Water Management District
- Successfully launch and coordinate \$5M Agricultural Water Security Project funded by USDA-NIFA
- Coordinate and develop additional funding for the Florida Water and Climate Alliance
- Plan and execute a successful February 2018 Biennial Water Institute Symposium in Gainesville FL
- Continue collaboration with UF/IFAS Extension
- Continue to bring in internationally known water experts to a well-attended Distinguished Scholar Seminar Series
- Build and strengthen the Water Institute Graduate Fellows Program
- Maintain an up-to-date website that showcases Water Institute faculty programs and publications

b. Anticipated challenges and needs

- Assistance with Water Institute promotion, marketing and public relations
- Assistance with pursuit of endowments
- Assistance with pursuit of state legislative budget requests and targeted federal funding