AWRA Florida Section Meeting September 19th, Tampa, FL
“The Tampa Bay Water Quality Restoration Program: Current Status, Lessons Learned and Looking Forward”

Join AWRA and the Tampa Bay Estuary Program for “The Tampa Bay Water Quality Restoration Program: Current Status, Lessons Learned and Looking Forward.” During our meeting on September 19, we will see presentations regarding statewide nutrient management efforts and their roles in Tampa Bay; an overview of the Tampa Bay nitrogen management program; an overview of the Nitrogen Management Consortium and anticipated future challenges; using the Tampa Bay Action Plan Database to track nitrogen management projects and load reductions; private sector/utility perspective on the nitrogen management effort and other pertinent topics regarding water quality in Tampa Bay.

The meeting will be held at the Rusty Pelican Restaurant, the premier location in Tampa and Pinellas for an elegant atmosphere and enchanting food. A true gem, The Rusty Pelican has maintained a landmark reputation in the Tampa Bay area since 1978. Stunning and sophisticated with four beckoning warm fireplaces, guests can gaze at the bay and listen to the soothing sound of waves lapping at the pier below. Recent honors include a nomination for “the best view”, with an incredible panorama of Tampa Bay and the lights underneath the restaurant that illuminate the bay’s marine life. Located at: 2425 North Rocky Point Drive Tampa, FL 33607

“Florida Association of Environmental Professionals (FAEP) members are invited to attend at the AWRA membership rate. Contact Kristin Bennett at Kristin.Bennett@tetratech.com for the registration code.”
AGENDA

Thursday, September 18th

6:00 p.m. - 8:00 p.m.  Florida Section Board of Directors Meeting – AMEC Office - 4919 W. Laurel St., Tampa, FL (near the Rusty Pelican) – All are welcome to attend as the Board of Directors handles the business of the section.

Friday, September 19th

9:00 a.m.  Registration Opens at the Rusty Pelican
9:45 a.m.  Call to Order and Welcome – Michael DelCharco, President, Florida Section AWRA

10:00 a.m.  FDEP’s Numeric Nutrient Criteria: Status, Lessons Learned from Tampa Bay, and the Path Forward – Daryll Joyner, Water Quality Standards Program, Florida Department of Environmental Protection

10:30 a.m.  Overview of the Tampa Bay nitrogen management program – Holly Greening and Ed Sherwood, Tampa Bay Estuary Program

11:00 a.m.  Overview of the Nitrogen Management Consortium and anticipated future challenges – Craig Kovach, Mosaic Fertilizer LLC

11:30 a.m.  Lunch Break – provided

12:30 p.m.  Using the Tampa Bay Action Plan Database to track nitrogen management projects and estimated load reductions – Gerold Morrison, AMEC; Ed Sherwood, Tampa Bay Estuary Program; Terry Hansen, Florida Department of Environmental Protection

1:00 p.m.  Private sector/utility perspective on the nitrogen management effort – Amy Butler, TECO Energy

1:30 p.m.  Old Tampa Bay Integrated Model System: Examining effects of nutrient management scenarios  Tony Janicki, Janicki Environmental; Brett Cunningham, Jones Edmunds & Associates; Steve Peene, Applied Technology & Management; James Fitzpatrick, HDR; Kellie Dixon, Mote Marine Laboratory; Mike Wessel, Janicki Environmental; and Ray Pribble, Janicki Environmental

2:00 p.m.  Break

2:15 p.m.  The Role of Water Quality Credit Trading in Nutrient Reduction Programs – Winston Borkowski, Hopping Green & Sams

2:45 p.m.  Update on Gulf Coast Ecosystem Restoration Council Activities – Amber Whittle, FWC Fish and Wildlife Research Institute

3:15 p.m.  Climate change and resiliency in Tampa Bay – Gary Mitchum, University of South Florida

3:45 p.m.  Closing Remarks

4:00 p.m.  Networking Hour – cash bar

SPECIAL EVENT

Saturday, September 20th

TBA  Guide a kayak or paddleboard over shallow waters and through mangrove tree tunnels of Cooper’s Bayou. Stop for a snack and some island exploration. $50 per person. Paddle around a calm, shallow bayou, through some mangrove tunnels and canals, and enjoy the peace and quiet that this beautiful area will provide. There is an abundance of wildlife and Egret, Heron, Ibis and Spoonbill can be seen soaring overhead while mullet and other fish launch themselves out of the water.
Board of Directors Summary

The Florida Section AWRA Board of Directors (BOD) met July 17, 2014 10:00 a.m. – 11:45 a.m. prior to the membership meeting. The detailed agenda and minutes will be included on the Section website following BOD approval of the minutes at the September 18 BOD meeting.

Highlights of the meeting include:

- **Treasurer:** The Sanford N. Young endowment fund continues to grow. The intention of the Board is to fund the SNY scholarship from the general account until 2018 at which time it is anticipated the SNY fund will be self-supporting.

- **Education Program:** The Education Committee made its recommendations regarding recipients for the grants, awards and scholarships. A summary of the recipients is included with the July meeting minutes and will be included in the August newsletter.

- **Membership Directory:** The 2014 membership directory will be available on-line only and will be available to members only.

- **National:** Financial assistance is available to students attending the National conference in November.

- **Upcoming Meetings:** September 19 at the Rusty Pelican in Tampa; November 21; St. Augustine

- **2015 Annual Meeting:** A committee was formed to address options for 2015.

- **BOD Elections:** the nominating committee submitted names for consideration and a call for nominations from the floor will be made at the membership dinner.

- **Next BOD meeting:** September 19.

Board meetings are open to all members of the Florida Section AWRA and their guests. Members and guests are encouraged to get involved and increase the value of their AWRA membership.

Meeting Sponsors
as of 08/13/14
UPDATE OF FLORIDA KEYS INITIATIVE
Rhonda Haag, Monroe County
Florida Keys Water Quality Program is an effort among state federal and local government and stakeholders with a goal of addressing waste water plan implementation, stormwater master plan implementation, and residential canals in Monroe County. Reef and seagrass health is linked to near-shore marine water quality and a need for high dissolved oxygen for success. To address the issue, a canal management master plan was developed. Restoration technologies were evaluated for each canal and a demonstration project for each technology was reviewed and approved by the Monroe County Board of County Commissioners. Upon completion of the demonstration, permitting scheduling and cost information of the successes were developed for restoration, planning and grant purposes. Five million dollars was approved for one of the five technologies deemed successful and individual projects were selected. Six total projects were approved on May 21, 2014. Permitting and design is to be complete by January 2015.

The second issue presented was Climate adaptation planning for the Florida Keys. Eight inches of sea-level rise has occurred in the last 100 years in the Keys. A two pronged approach is underway to address future sea-level rise. First, scope and organize, assess the current conditions, and secondly, plan and implement and monitor. Action scenarios will be developed to help prioritize infrastructure investments.

CONTAMINANTS IN DRINKING WATER AS A RESULT OF PRIVATE WELL HOMEOWNER BEHAVIOR
Isabella Bergonzoli and Teresa E. Thornton, Ph.D.
Assessment of human health risk caused by an improper maintenance of private water filtration systems appears to be attributed to homeowner ignorance. This lack of attention to private wells was believed to be one cause for what the Florida Department of Health termed to be a 2010 “cancer cluster” in Loxahatchee, FL.
Speculation regarding the exact source of the cancer continues to cause debate. During remediation studies it surfaced that homeowners were unknowingly creating a cancerous substance (trihalomethanes) through improper maintenance of their private water filtration systems. In order to evaluate homeowner behavior in the Loxahatchee and Jupiter Farms area, a survey was sent out to private homeowners. Behaviors regarding their knowledge, usage, and maintenance of private wells, septic systems, and filtration systems were identified. Included in the survey were questions pertaining to what might motivate a homeowner to test their water systems. Results show that homeowners are not aware that groundwater quality may be compromised by natural and manmade contaminants. Results also indicate homeowners do not understand how to properly maintain their systems, are uncertain of the chemicals they should test for, and are not sure who to contact regarding this matter.

U.S. ARMY COPS OF ENGINEERS UPDATE
David Hobbie, USACE
An overview of the Jacksonville District was provided. The USACE FY 2015 budget includes $40 million for navigation, $76 million for ecosystem restoration, $16 million for regulatory, $2 million for military construction, $675,000 for emergency management, $95 million for flood damage reduction and no money for shore protection. Additionally, an overview of the rehabilitation of the Herbert Hoover dike around Lake Okeechobee was provided. Seventy five million dollars is included in the FY 2015 budget for Herbert Hoover Dike repairs. The current focus on rehabilitation is the large culverts around the land. Once the culverts are completed, the results of the next rehabilitation study will be complete and will help shape future plans for continued rehabilitation.

NUMERIC NUTRIENT CRITERIA – Be Careful what you Wish for
Daniel Hammond, Cardno ENTRIX
This presentation provided an update on the status of Numeric Nutrient Criteria (NNC) implementation and discussed what comes next. Florida stakeholders pushed for the FDEP version of the NNC rule over the EPA’s because it gave local agencies more control and more options to stakeholders. However, Florida’s rule...
is no “get out of jail free card” and stakeholders are likely to find implementation and compliance difficult, confusing, cumbersome, and expensive. Some of the headaches facing stakeholders were discussed and what must be done to address them is leading many stakeholders to say: “Be Careful What You Wish For!”

**RESTORE UPDATE - Watershed Approach to Restoring the Gulf of Mexico**

Deborah Keller, *The Nature Conservancy*

An overview of the BP spill, the opportunity for restoration efforts resulting from the RESTORE Act, and an outline of how restoration funds will be divided among the impacted parties was presented. A goal of the RESTORE act is, to the greatest extent possible, leverage funding to increase the long term sustainability of the Gulf of Mexico. An outline of the ultimate goals of RESTORE was offered. Common key issues identified are water quality, habitat/buffer and education and outreach.

**WATER MANAGEMENT DISTRICT UPDATE**


Mike Cullum provided an overview of SJRWMD. Items covered included the recent organizational realignment of the organization and new appointees to the Governing Board. Underwriters Laboratory assisted in a vertical and horizontal assessment of the organization and resulted in revisions to better serve the taxpayers of the District.

Robert Beltran provided an update on the Central Florida Water Initiative. Eight hundred million gallons of water is used within the CFWI daily and projections indicate over a billion gallons of daily water use for the region. An additional 1.4 million people are projected to locate within the boundaries of CFWI by 2035. Additional work with existing sources can yield approximately 50 million gallons of groundwater and the challenge is to identify how to meet the demand for the remaining 250 million gallons of water needed by 2035. Strategies include large regional projects to deliver water and the implementation of these projects. Approximately ten large regional projects will provide approximately 80 percent of the projected water need. Conservation will continue to be a focus and water conserved is still the lowest cost alternative in water supply development. During the next legislative session, the group will spend time demonstrating the need and the plan to work with legislators to fund the needed projects.

Blake Guillory provided an update on activities at SFWMD. Over the past three years, SFWMD has increased efficiencies to new levels. Infrastructure needs are increasing and operation and maintenance (O&M) will need increased capacity. The SFWMD Budget for FY 2015 is $724 million. Of this, $367 million is for restoration projects and $201 million is for O&M. Also provided were updates on Kissimmee River Restoration, the Mod Waters Project, CERP, Picayune, C-44, C-43, CEPP and restoration strategies that include six projects with very definitive schedules for implementation. Over 100,000 acre feet of dispersed water storage will exist by the end of the year.

**SEA LEVEL RISE VS. COASTAL RESILIENCY - Implications of Climate Change on public infrastructure and property**

Dr. Frank Bloesscher, *FAU*

Sea-level rise is a permanent change to our environment and a slow and steady creep that we need to address. Sea-level rise is most likely to create significant risk to health and economic activity. The canals and structures in SE Florida all drain by gravity and sea level rise makes it harder to drain. As sea level rises, ground water also rises inland. Vulnerability assessments must be conducted, the expectations of the public must be assessed, adaptation strategies must be developed, and results tracked. An important factor for consideration is that during the rainy season, Florida’s aquifers fill and as sea level rise occurs, less capacity exists for accommodating tidally influenced flooding. Adaptation must be coordinated and strategies must be incremental. Local entities will be the lead with cooperation from state and federal agencies. Adaptation will be the key for the population.

**AGRIULTURE WATER POLICY UPDATE**

Ray Scott, *FDACS*, Tim Demarais, *Balmoral Group*

An overview of the Office of Agriculture Water Policy and specifically, the implementation of agriculture best management practices was provided. Over nine million acres of land in Florida are enrolled in BMPs. The Florida statewide agriculture irrigation demand project was developed to help meet the demands of agriculture and assist in water conservation planning and groundwater modeling. In coordination with the water management districts, agricultural land use coverages were refined and completed for SRWMD, SWFWMD, SJRWMD and SFWM to assist in completing reporting to better demonstrate water needs. There were approximately 9.5 million acres of agriculture in the 2012 Florida Ag census. Of the 9.5 million acres, 1.7 million are irrigated.
Well, the Annual Meeting in Key Largo was a fun one and we had a great time! Great presentations by the USACE’s David Hobbie, SWFWMD’s Exec Director Robert Beltran, SFWMED Exec Director Blake Guillory, and SJRWMD Engineering Bureau Chief Michael Cullum and many others. We’ve provided summaries in the newsletter so, if you missed it, you can get the gist of what everyone presented.

It was great being on the Key Largo waterfront and the Hampton Inn next door was fantastic. The Monroe County staff were incredible hosts. Garrett Wallace did a great job pulling it all together. Thanks, Garrett!

Only two more meetings left in 2014:

- **September 19 in Tampa** at the Rusty Pelican on the Courtney Campbell Causeway – Board member Walt Reigner and his crew at AMEC have setup a great meeting.
- **November 21 in St. Augustine** on the campus of Flagler College. If you haven’t seen this beautiful facility, you’ve got to sign up soon. Board member Shayne Wood and SJRWMD’s Michael Cullum are lining up a winner that will include great technical presentations and a look into the history of St. Augustine as we help celebrate the 450th anniversary of the City.

Don’t forget that you can get 4 PDH credits for your PE renewal at each meeting. At our low meeting costs, you can’t beat that deal!

We are working on filling the BOD spots being vacated by the following board members who have to roll off this year: Krista Sabin (USACE), Catherine Walker (SJRWMD), and Annette Carter (Past President). We are going to miss you three! We are also looking to fill the Secretary position on the BOD. Typically, the leadership rotation includes either 2 years as secretary or treasurer and then VP, President, and two years as past President.

Be sure to register on-line for our September meeting at [www.awraflorida.org](http://www.awraflorida.org)

Hope to see you at a meeting soon!

Michael DelCharco, P.E.
mdelcharco@taylorengineering.com

The Rusty Pelican Restaurant is the premier location in Tampa and Pinellas for an elegant atmosphere and enchanting food. A true gem, The Rusty Pelican has maintained a landmark reputation in the Tampa Bay area since 1978. Stunning and sophisticated with four beckoning warm fireplaces, guests can gaze at the bay and listen to the soothing sound of waves lapping at the pier below.
Our Section continues to grow. Please welcome some of our newest members and take a few minutes to introduce yourself at an upcoming meeting.

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You can renew your membership, change the level of your membership, and update your contact information from our website - [www.awraflorida.org](http://www.awraflorida.org). The online membership application is available by clicking Join on our home page or by navigating to the Membership page, which is under Get Involved.

Thank you for your participation!

Joanne Chamberlain  
*Membership Services Coordinator*  
jchamber@sjrwmd.com • 561-707-8301

Nationally, AWRA is celebrating 50 years! The 2014 Annual Conference is in DC (Tyson’s Corner) on November 3 – 6. Super saver deadline is August 29, so register now.

The Call for Abstracts for the Spring Conference – Water for Urban Areas – are due November 17. The conference will be in Los Angeles. The 2015 Summer Specialty Conference – Climate Change Adaptation – will be next June in New Orleans.

See [www.awra.org](http://www.awra.org) for more details!
The Rosanne Clementi Education Program

**Education Committee:** Rosanne Clementi, Clementi Environmental Consulting; Kristen Bennett, Tetra Tech, Inc.; Sara Caldwell, P.A., The Law Offices of Sara Caldwell, P.A.; Mike Copeland, WRS Compass; Mark Diblin, AMEC; Jeremy McBryan, SFWMD; Anne Murray, Martin County

The AWRA Education Committee and the Board of Directors are pleased to announce the recipients of the 2014 William V. Storch Awards, J.B. Butler Science Grants and Sandy Young Scholarship. The information provided below was obtained from the applications.

**William V. Storch Award**

Ms. Alice Alonso and Mr. Jason Goodrich are the recipients of the 2014 William V. Storch Award. They each will receive $1,500. UF graduate student and current president of the UF Student Chapter, and Jason Goodrich, undergraduate student at FGCU.

Ms. Alonso is a graduate student at the University of Florida and is the current president of the UF Student Chapter. At an early age, Ms. Alonso became concerned about the worldwide food production challenge and sanitary issues. She chose to pursue Agricultural and Biological Engineering for her undergraduate and masters’ degrees at the Université catholique de Louvain, Belgium. In the course of her studies she quickly realized the prevailing role of water resources in the food and energy production and became aware of the numerous challenges human kind was facing to manage this precious resource. She therefore oriented her studies by choosing a major in Land and Water Resources Management.

During her master thesis, Ms. Alonso worked on a Moroccan watershed where she tested whether the quality of the underlying aquifer was impacted by human activities. She was interested in whether and how nearby agricultural system and wastewater treatment in the area was influencing this watershed. She combined the results obtained from physico-chemical analysis of water samples, nitrate isotopic analysis, stakeholder surveys, and a pollution prediction model into a complementary set of tools to assess the extent of the pollution and to infer the sources. Her thesis received the award for the best master thesis of the program.

Ms. Alonso’s coursework and experience during the pursuit of her undergraduate and masters degrees opened her eyes to many other questions and issues. Ms. Alonso realized that the classical water resources management approach, the style to which she had received the most exposure, often addresses a limited set of objectives in a short-term planning horizon, resulting in misunderstood complex systems and in unintended consequences. As a result, impacted ecosystems become progressively unsustainable, losing the ability to supply needs for present and future generations in terms of resource quality and quantity. She realized that such systems should be considered as part of a larger whole and future endeavors should try to better integrate and understand human-environment interactions with the system under study. Ms. Alonso decided to pursue her PhD to sharpen her analytical skills, as well as broadening and strengthening her tool set, in order to be able to tackle water resources management questions under an integrative approach that goes beyond the traditional engineering paradigm.

Ms. Alonso began her PhD program 1.5 years ago. She has taken a diverse class load and has learned other relevant topics outside of her courses to sharpen her water system analysis skills. Some examples include: wetland ecology, land and water resources engineering, ecological systems modeling, hydrological modeling, watershed modeling, numerical methods, stochastic hydrology, uncertainty analysis, time series analysis, and data diagnostics. Her research project focuses on the Tempisque watershed in Costa Rica. This watershed is facing water management issues since the implementation of a large scale hydropower – irrigation project. This project led to drastic changes in the hydrological signature of the system, with interlinked unexpected environmental impacts, as well as uncontrolled use of the resources. Situated downstream of the watershed, the internationally recognized Palo Verde wetlands are showing severe ecological degradation. Ms. Alonso hypothesized that those changes are a direct consequence of the human transformations in the upper part of the basin. Detecting and understanding the changes in the hydrology of the basin, as well as characterizing the spatio-temporal dynamic of hydrological interactions between both parts of the system, are therefore essential under a sustainable water management perspective. To test this hypothesis, she is analyzing a large hydrological and meteorological data set, which includes historical data from around the watershed and new data collected by a dense network of sensors distributed throughout Palo Verde and the surrounding rivers. Ms. Alonso
Mr. Jason Goodrich is an undergraduate student at Florida Gulf Coast University and Edison State College. Mr. Goodrich is “almost a native Floridian” having moved here when he was five years old. He was graduated from Mariner High School and is at both Edison State College and Florida Gulf Coast University where he is actively pursuing a Bachelor’s of Science in Civil Engineering. Shortly after graduating from high school, Mr. Goodrich began a very rewarding career in public works. He plans to continue his education in order to make a greater contribution in the water and natural resources field.

His career started with Severn Trent Environmental Services as a wastewater operator trainee. He quickly advanced through the various wastewater licenses while earning progressively responsible positions within the profession. He has successfully operated over twenty different wastewater treatment facilities, from small package plants to some of the larger facilities in the area, including a 6 million gallon per day Modified Ludzack-Ettinger facility. He has been employed as a wastewater treatment plant operator with the City of Sanibel for over 12 years, the last 9 years as the lead operator of the Donax Water Reclamation Facility.

During the summer of 2010, Mr. Goodrich realized he wanted to have a greater impact in the public works department which would require additional schooling. Mr. Goodrich believes the William V. Storch Student Award will be invaluable in helping him with tuition costs, providing the opportunity to fulfill his dreams of becoming a Utilities Director. He is committed to academic and intellectual growth. Mr. Goodrich completed the spring 2014 semester with an associate of arts degree from Edison State College as a member of the Phi Theta Kappa Honor Society and was accepted to Florida Gulf Coast University’s Civil Engineering Program which he will begin in the fall of 2014. He plans to pursue a master’s degree.

Mr. Jason Goodrich
Sanford N. Young Scholarship

Ms. Natalie Nelson is a Florida native and a University of Florida graduate student developing a specialization in Water Resources Engineering. She has incorporated AWRA’s mission to advance multidisciplinary water resources education and investigation within her program by threading several fields into her research and curriculum. Ms. Nelson’s principal area of study is Hydrologic and Wetland Sciences and she is doing research in algal bloom and hydrologic modeling. She is an enthusiastic member of and leader in the UF AWRA student chapter.

Ms. Nelson’s specialization in Water Resources Engineering is channeled through her Ph.D. program in the Agricultural and Biological (ABE) Department at UF. Certificates in Hydrologic Sciences and Wetland Science through UF’s Water Institute and Center for Wetlands are also integral to her academic performance. She was awarded a National Science Foundation Graduate Research Fellowship the summer after graduating with her B.S. in ABE from UF in May 2012, developing a data collection plan for her dissertation project. Ms. Nelson’s research hones in on ecosystem-scale dynamics of algal blooms in relation to nutrient ratios and hydrology. Much like plants, algae rely on light and nutrient availability to thrive. An excess of nutrients often leads to algal overgrowth, resulting in a condition described as an “algal bloom.” However, unlike plants, many taxa of algae have developed unique abilities that enable them to access nutrients from several parts of their physical environment aside from the water column, such as from the sediment and/or atmosphere. These alternative nutrient-capturing capacities not only enable some algae to grow in low nutrient conditions, but also to modify the water chemistry of the affected water body. Cyanobacteria, or “blue-green” algae, are a common type of algae that possess these efficient nutrient-fixing abilities.

J.B. Butler Science Award

The AWRA Florida Section is awarding J.B. Butler Science Grants to the following organizations: 3 Oaks Elementary (Ft. Myers), Harbordale Elementary (Ft. Lauderdale), Flagler Montessori, Inc. (West Palm Beach) and Rymfire Elementary School (Palm Bay).

3 Oaks Elementary

Ms. Patsy Howell submitted the application on behalf of 3 Oaks Elementary School’s EIE, Engineering is Elementary, program designed to foster 1) applying science and math in engineering 2) employ creative and critical thinking to solve problems and 3) develop lifelong learners.

The essential question the program will ask is: What materials will effectively filter dirty water? The objectives of the program are:

* To compare and contrast various materials that may filter water;
* To design a water filtering system to clean water;
* To generate a list of items that may contaminate a water system;
* To classify the material used for filtering in ranking order from most effective to least effective; and
* To modify their filtering system to create a product that will be a stronger filtering system.

The grant will allow the school to purchase the educational unit Water, Water Everywhere: Designing Water Filters that addresses the increasingly important issue of water quality through lessons that teach students about water contamination and the ways that people ensure the quality of their drinking water. Students will think like environmental engineers as they develop a list of possible sources of pollution and ways to clean up or eliminate the sources of the pollution. Students will focus on the environmental engineering problem of providing safe drinking water as they plan, construct, test, and improve their own water filters.

Following background knowledge development through the Water, Water Everywhere EIE unit students will follow the engineering design process: ask, imagine, plan, create, and improve, as they create their own water filters.

As an extension of these activities, a community volunteer from Driftwood Gardens in Ft Myers will assist in designing an outdoor school pond. He will teach students how to test the water quality in the pond (which will be an ongoing project at school). The pond will be an effective tool for teaching life science by keeping the lessons as hands on experiences for students. Students will practice the scientific method as they conduct various water quality tests on the pond water and make adjustments to the water quality based on the data they collect. In addition, students will collect data on the number of organisms that are in the pond over a period of time to predict when the population of the pond has reached carrying capacity.

The first part of this project involves 112 “elementary engineering students” and parts may be used over the next 4 years, while the second part of the project will involve 400 students and will last for 10 years. In addition, community partner will participate in the extending activity.
Harbordale Elementary

On behalf of all the teachers of Harbordale, Harbordale’s Vice Principal and the School’s parent association submitted the application for the J.B. Butler Science Grant. The teachers have many years of experience in teaching elementary school and would all be able to incorporate teaching about water conservation and resources at a grade appropriate level for their respective classes. Science is part of each grade level’s lessons taught at the age appropriate level so science is taught on a daily basis to the various grade levels. It is expected over 400 students will benefit from the water conservation project.

While matching funds are not available the Harbordale school / parent association has been very active in fundraising to assist with the overall project of improving and beautifying the school’s playground area. They also have at their disposal the assistance and guidance of Pamela Fletcher, a NOAA scientist / biologist, with a background in water resources, who is a Harbordale parent and can provide guidance in the development of an eco-friendly garden and related water resources components.

Harbordale Elementary is seeking the J.B. Butler Science Grant to assist in creating a Florida friendly garden that incorporates native vegetation and water conversation features. The project would teach the students the need and value of water conservation in Florida. The eco-friendly garden will be located in the same area as the school’s playground, thus improving the function of the school’s playground area - currently an urban playground devoid of landscaping, surrounded by a chain link fence with a harsh institutional feel.

The school would greatly benefit from creating this eco-friendly garden because it would enable the teachers to teach important conservation concepts to the students, many of which live in the urban downtown Fort Lauderdale area, with little access or exposure to water resources or conservation experiences. The grant will allow the teachers to build a hands on living lesson plan for the students, while improving the look and function of the playground. Since the students use the playground every day for recess, this garden and its educational value can part of their everyday exposure at school.

The garden would consist of native plants, hardscaping to create a border, a rain barrel to demonstrate water conversation and alternative sources of irrigation, signs that name each element and plants and a corresponding lesson plan to be used by the teachers (grade level appropriate) to explain and enhance the educational aspects of the eco-friendly garden.

The budget will provide for the purchase of plants, hardscape, a rain barrel and weather proof signage to identify plants and describe the water features. Volunteers will plant and set up garden. The school intends to seek assistance from Broward County’s Nature Scape program for additional guidance and support to ensure the school is able to maximize the educational potential in creating this garden.

Flagler Montessori, Inc.

Ms. Janet Nadolna submitted the application on behalf of Flagler Montessori, Inc., a preschool located in the downtown West Palm Beach area. Flagler Montessori has been servicing the community for 23 years. It offers four classes which serve a total of eighty children; ages two through Pre-K. The school’s purpose is to foster an atmosphere of mutual respect and trust in which each child is encouraged to grow academically, emotionally, socially and physically. The Montessori approach to learning provides a rich environment of materials where the children can learn through their own curiosity and discovery.

The award of the J.B. Butler Science Grant will enable the school to purchase more science materials for the Pre-K classroom. The new materials will allow the children to become more aware of the environment in which they live. Topics of study will include botany, underwater life, land and water, universe and Earth, volcano and rock. The students are naturally curious and these types of materials will help feed their hunger for knowledge.

Rymfire Elementary School

Mr. William Bianco submitted the Butler application on behalf of Rymfire Elementary School in Palm Bay. The Rymfire students will be reusing raised bed gardens to grow fruits and vegetables and will be moving an indoor hydroponics lab outside. Students will work on all aspects of creating and maintaining 3 separate outdoor hydroponic systems. Each system will be self-contained and water levels and nutrients will be measured and revitalized by the students. If time and funding lasts, the students will add an aquaponics section with Koi fish and plants co-existing. The end results will focus on students learning plant structures and their roles with in the plant. Students will track the path of water and nutrients through the plants and the hydroponic systems. Students will be charged with comparing and contrasting plants grown hydroponically versus plants grown traditionally in the raised beds. Students will record and use data to teach lower grades the basics of hydroponics and gardening. They will also reinforce their knowledge of the structures and roles of the different parts of plants. Students also will be able to visualize pollination and the affects that seasons have on plant growth.