

CENTRAL FLORIDA CHAPTER NEWSLETTER



FWEA Central Florida Newsletter

October 2015

Message from the Steering Committee

by Stacey Smich

We finally did it! The Central Florida Chapter has been discussing the idea of a newsletter for several years, and we are excited to distribute our inaugural issue. The goal of this newsletter is to connect water professionals in the Central Florida area and update our members about upcoming Chapter luncheons, community outreach, socials, and networking events. We are VERY open to suggestions and embrace the journey of developing this newsletter into a well-read publication within our community of professionals. The Central Florida Chapter has 300+ members and about a dozen active Steering Committee members. If you would like to be more involved please contact any of the Steering Committee Chairs, listed on the last page. There is always room for more volunteers!

The Central Florida Chapter attended the ASCE Icebreaker Social (see below) held at the Orlando Science Center this past July, where we networked with 16 professional societies and organizations, and hosted the 16th Annual FWEA Central Florida Chapter Scholarship Golf Tournament at Falcon's Fire Golf Club held on August 28th (page 4). Our Chapter also hosted two Technical Luncheons and plan on hosting the next one in early 2016. Please keep a look out for emails and check out our Chapter [website](#) for more events and activities.

In This Issue

- Local Engineer Spotlight: Tim Madhanagopal, page 2
- Featured Article: Offstream Reservoirs, page 3
- Central Florida Chapter 16th Annual Scholarship Golf Tournament, page 4
- WEFMAX, page 5
- Crossword Puzzle: Water Resources, page 6

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Central Florida Chapter 's booth at the ASCE Icebreaker in July 2015
Front row: Alyssa Filippi, Chuck Olson; Second row: Steven Gillis, Stacey Smich, Adam Marquez, Da Yu, Deborah Cole, and Damaris Noriega.

*"All water has a perfect
memory and is forever
trying to get back to
where it was."*

- Toni Morrison



**Tim Madhanagopal, PE,
F.WEF, F.NSPE**

Local Water Professional Spotlight

Tim Madhanagopal, Orange County Utilities

Tim Madhanagopal has dedicated his professional career for the past 38 years to public service. He is currently serving as plant manager with Orange County Utilities where he manages the advanced water reclamation facilities that provide cost-effective and environmentally sound water reclamation and reuse programs in Central Florida. These facilities conserve billions of gallons of precious groundwater by supplying high quality reclaimed water for nondrinking purposes, while providing wastewater services to one of the fastest growing areas in the nation.

His technical accomplishments are characterized by a commitment to manage public infrastructure with integrity, quality, and fiscal responsibility. Throughout his career he has been committed to the professional aspects of engineering and water quality profession. He has been mentoring several students and young professionals. Tim holds a bachelor's degree in civil engineering from the National Institute of Technology, Trichy, India; a master's degree in civil/environmental engineering from Wayne State University, Michigan; and an MBA from the University of Central Florida. He is a member of many professional and technical societies, including the Water Environment Federation (WEF), American Water Works Association, and National Society of Professional Engineers. He joined WEF in 1982 and is currently serving on the Florida Water Environment Association (FWEA) and WEF Public Communications and Outreach Committees and WEF Stockholm Junior Water Prize Committee. He has been serving on the Florida Water Resources Conference (FWRC) Technical Program Committee since 1995 and is the current FWRC vice-chair.

Q&A with Tim

What has been the proudest moment in your professional career? *I am proud to be a member of one of the progressive utilities that contributes to the economic development and quality of life while protecting public health in Florida. Our staff go above and beyond in addressing needs of the County citizens. I am also very proud of working with dedicated water quality professionals in this area. They are the stewards of water resources in Central Florida.*

What advice would you give a young professional about the Central Florida water market? *Central Florida has been one of fastest growing regions / water markets in this country. I expect the trend to continue in the future. There will be several technical opportunities in the areas of potable reuse, energy recovery, automation, asset management and nutrient reduction/ recovery. I would advise the YP to keep up with the advancements in these areas. We have been blessed with several experienced water quality professionals in Central Florida who are willing to guide the students and YPs towards a bright water quality career. I would advise the YP to connect with a mentor and gain from the mentor's experience. Active participation in our professional associations will be very beneficial.*

What is the hardest decision you have made, personally or professionally? *We can always find solutions to any technical problems. As manager overseeing one of the largest water reclamation facilities in Central Florida, I found implementing unpopular organizational changes to be the toughest. With proper planning that also can be handled well. Personally, taking my sister off the medical life support system a few years ago was very difficult for me. It took me a while to overcome that.*

As a client, what are the most valuable traits a consultant can have when interacting with clients? *I consider our consultants as an extension of our organization during the life of the project. They should consider service above profit and be able to provide excellent professional service within the budget. They should have a good understanding of the clients' needs and be technically proficient. I have worked with several such excellent professionals in my career.*

If you weren't an engineer, what would be your day job? *I enjoy reading about and analyzing economics/ finance. If I wasn't an engineer, I would be working in an industry or academic setting closely related to finance.*

If you would like to nominate a Central Florida water professional for the Local Water Professional Spotlight, please contact Stacey Smich at stacey.smich@ch2m.com.

RESERVOIR FACTS

Tampa Bay Water is the state's largest wholesale water supplier, providing water to Hillsborough, Pasco and Pinellas counties and the cities of New Port Richey, St. Petersburg and Tampa. More than 2.3 million people throughout the Tampa Bay region are served through Tampa Bay Water's member governments.

- ◆ When full, the reservoir stores 15.5-billion gallons of water – enough to fill Raymond James Stadium more than 33 times.
- ◆ Covers approximately 1,100 acres.
- ◆ Can withstand sustained winds of 110 mph and 40 -inches of rain in 24 hours without overtopping.
- ◆ More than 13 million cubic yards of earth were moved to build the original reservoir – equivalent to one dump truck every minute for two years straight.
- ◆ All rainwater collected during renovation was used for construction and drinking—not a drop was wasted.
- ◆ 90 acres of old geomembrane liner was removed, sent to a recycler where it was used to make household items like trash bags.
- ◆ During the renovation, approximately 350 people and 140 pieces of heavy equipment, including lights for night work, were employed.



Tampa Bay Water Offstream Reservoir

Florida's Future Alternative Water Supply – Offstream Reservoirs

By Rick Menzies, PE, Randall Bushey, PE, Ed Davis, PE

Florida is recognized as one of 10 hot spots in the lower 48 states by 2025 to have significant water supply issues (USACE, 2012). Water supply in Florida, particularly peninsular Florida, is at a cross roads and new tools will have to be employed in the future to accommodate increased water supply demand due to projected population growth.

Alternative water supplies are needed to reduce the reliance on groundwater sources, mitigate impacts on the environment, and meet the future potable water demands within Florida. Alternatives include increased application of reclaimed water, conservation, increased surface water usage, desalination from non-potable groundwater sources and seawater, and storage facilities to capture and store surface water during periods of heavy surface water flow, which is normally discharged to tide. The storage facilities have typically been aquifer storage and recovery (ASR) wells and offstream reservoirs. This paper focuses on offstream reservoirs due to their increased raw water storage capacity, capability of storing large volumes in response to short surface water stage opportunities, reduced cost per 1,000 gallons delivered compared to ASR and desalination, and the increase in system reliability provided by the reservoir (Coates, 2012). Offstream reservoirs are usually above ground earthen embankments, by definition not located within the stream or river, and are usually filled by pumped operations and emptied by gravity or pump-assisted discharge.

Offstream Reservoirs

Peninsular Florida has two active offstream public water supply reservoir systems that demonstrate the contribution of offstream reservoir storage to the system...

Continued on page 7



1st Place - MTS Environmental
From left to right: Ben Fries, Mark Hickenbotham,
Bob Bierhorst and Bob Solomon



2nd Place - AECOM
Dave Wilcox, Tim Todd, Kevin Goolsby, and
Craig Fuller

Central Florida Chapter 16th Annual Scholarship Golf Tournament

by Kristi Fries

The Central Florida Chapter of FWEA held their 16th Annual Scholarship Golf Tournament on August 28, 2015 at Falcon's Fire Golf Club. The proceeds of the golf tournament benefit the "Gabe Delneky Scholarship Fund" and the "Norm Casey Scholarship Fund" for local students pursuing engineering degrees at the University of Central Florida. The tournament is funded by donations from both sponsors and competitors. The 16th Annual event was highly successful as 96 golfers participated in the event and over \$4,900 was raised for the scholarship funds. It was a fierce competition throughout the day, but the following teams came away victorious:

- The First Place Team, from MTS Environmental, included Bob Solomon, Ben Fries, Bob Bierhorst and Mark Hickenbotham
- The AECOM team, consisting of Craig Fuller, Dave Wilcox, Tim Todd and Kevin Goolsby, secured Second Place.

The individual contest winners consisted of Craig Fuller (from the AECOM team) for Men's Longest Drive, Charlyn Watts (from the CPW Construction team) for Women's Longest Drive, and Gordon Onderdonk (from the Infrastructure Solution Services team) for Closest to the Pin. Ben Fries (from the MTS Environmental team), Jacob Porter (from the Heyward Florida Incorporated team) and Cameron Young (from the Moss-Kelley team) took home a cash prize for being the Putting Contest winners, each having a hole-in-one.

The Central Florida Chapter would like to gratefully thank all of the sponsors and participants in this year's event. We are very proud of our success and it is due to the support from everyone involved in the tournament. The Platinum Sponsors were American Cast Iron Pipe Co., BFA Environmental, Black and Veatch, Brasfield & Gorrie, Carollo Engineers, CPH, Inc., Heyward Florida Incorporated, Hydra Service, Inc., PMA Consultants, LLC, Tetra Tech and Woolpert. The Gold Sponsors were Garney Construction and MTS Environmental. The Silver Sponsors were Barney's Pumps, CPW Construction, EnviroSales of Florida and Reiss Engineering. The Bronze Sponsors were Brown and Caldwell, Electrical Design Associates and TSC-Jacobs North.

Thank you to the volunteers who made this event possible. The Central Florida Chapter Golf Tournament Committee consisted of Kristi Fries (Chair of the Golf Tournament Committee), Stacey Smich (Chair of the FWEA Central Florida Chapter), Kenny Blanton, Bob Cadle, Alyssa Filippi, Patcha Huntra, Duncan Losinski, Alex Maas, Angel Martin, Chuck Olson, Lisa Prieto, Nicole Quinby, Gary ReVair, Leslie Turner and Chris Waalewyn.

Longest Drive



Charlyn Watts
CPW Construction
Team



Craig Fuller
AECOM
Team

WEFMAX in Central Florida by Stacey Smich

WEFMAX is short for WEF Member Association (MA) Exchange. WEFMAX is a WEF budgeted annual program offering Member Association leaders an opportunity to attend one of four meetings each year that provides a forum to learn what is new from WEF and provides sessions for ongoing exchange of MA information. WEFMAX format provides regional MAs with an enhanced experience for sharing of in-depth information based on topics that WEF MAs have said are important.

FWEA volunteered to host the southeast regional WEFMAX in 2016. Orlando was selected by FWEA as the host city and the event will take place March 9th-11th. If you are interested in volunteering or would like more information, please contact [Lisa Prieto](#).

Thank you to all of our Central Florida Chapter 16th Annual Scholarship Golf Tournament Sponsors!

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Planning for the Golf Tournament starts early! If you would like to be a part of the planning process, please contact [Kristi Fries](#) or [Stacey Smich](#).

Interested in Sponsoring the CF Chapter Newsletter?

For more information about sponsoring the Newsletter, please contact Stacey Smich at stacey.smich@ch2m.com.

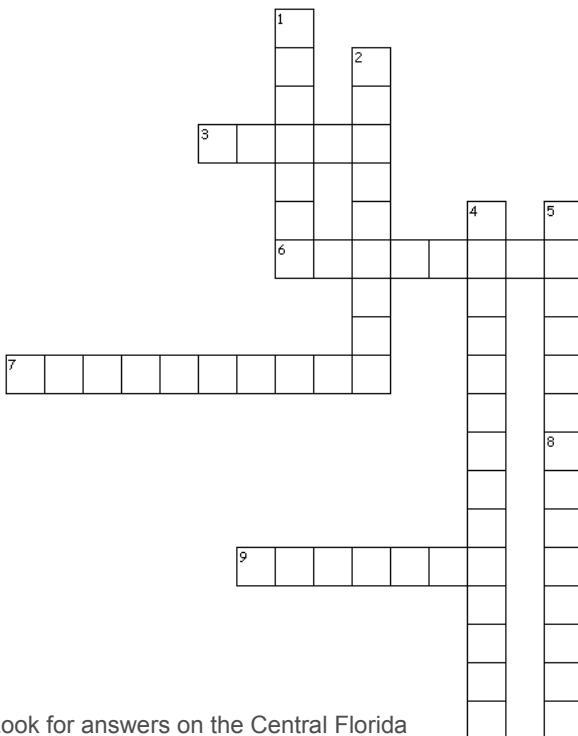


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Did you know?

- Every day, American businesses generate enough paper to circle the earth 20 times.
- About one-third of an average dump is made up of packaging material.
- Recycling one aluminum can saves enough energy to run a TV for three hours.
- More than 20,000,000 Hershey's Kisses are wrapped each day, using 133 square miles of tinfoil, which is recyclable.

Crossword Puzzle: *Water Resources*



Across

- 3. Animal and plant life of a particular region or habitat.
- 6. Develops in porous limestone and results in shallow depressions that often fill with water to become isolated wetlands.
- 7. Underwater equivalent to topography.
- 8. Wetlands system that frequently forms fringes around lakes.
- 9. Most common type of drainage lake found in Florida.

Down

- 1. Longest river entirely in Florida.
- 2. Mosquito's natural predator.
- 4. Type imaginary surface that represents the height to which water will rise in a tightly cased well.
- 5. 19 of the 20 counties with the largest groundwater withdrawals from the Upper Floridan aquifer are located in this region of Florida.

Look for answers on the Central Florida Chapter [webpage](#).

Offstream Reservoir, cont.

reliability, owned by Tampa Bay Water and the Peace River Manasota Regional Water Supply Authority (PRMRWSA) (FDEP, 2008) (SWFWMD, 2006). The PRMRWSA is a surface water system drawing water from the Peace River during periods of high flow and storing the water in a reservoir system or treating the water and storing it in ASR wells. The Tampa Bay Water system is recognized as a balanced approach to public water supply management, designed to meet the demand growth (USACE, 2012). Tampa Bay Water's system includes reservoir storage, groundwater pumping, desalination, and surface water sources. The Tampa Bay Water system provides the model facility to look at the contribution of the offstream reservoir.

Tampa Bay Water was required to reduce its groundwater pumping based on environmental impacts to contiguous wetlands and lake systems. As a result of this reduction of a relatively "cheap" source of water supply, the agency diversified its sources by investing in a desalination plant, a surface water treatment plant, promoting water conservation within its member governments, in both public and agricultural usage, encouraging implementation of reclaimed water for irrigation and aquifer recharge by its member governments, and constructing an offstream regional reservoir.

The Tampa Bay Water offstream reservoir, C. W. Bill Young Regional Reservoir (Regional Reservoir), has a 1,000 acre footprint with the capacity of 15.5 billion gallons (45,000 acre-feet), an average 50 foot high earthen embankment with a grassed downstream face and an upstream face with a soil cement erosion protection system. The reservoir is capable of filling based on surface water availability in the wet season typically from June through November. Using the stored reservoir water as its dry season "saving account" to augment the groundwater and surface water sources, Tampa Bay Water supplies six governmental customers in the



Tampa Bay region .

An offstream reservoir has three critical components, the earthen embankment, seepage control, and upstream and downstream erosion control. The earthen embankment must provide the water supply capacity and have a substantial foundation and structural integrity to operate under periodic operational filling and drawdown cycles. The seepage control must prevent leakage of the stored water and resist inflow and exchange with the surficial and underlying aquifers. In Tampa Bay Water's Regional Reservoir, this is accomplished through a geocomposite liner on the upstream of the embankment connected to a soil bentonite cutoff wall extending to an underlying aquitard (clay layer). The downstream erosion protection is a vegetative grass cover and the upstream is protected with a stair-step soil cement lining.

The overriding design and operational feature of the reservoir is safety. As a "High Hazard " reservoir, defined by Federal Emergency Management Agency (FEMA) guidelines (FEMA, 2004), the Regional Reservoir has an Emergency Action Plan (EAP) to identify possible embankment breach scenarios and then prepare for notification of the resident and commercial properties downstream to reduce possible loss of life and limit potential public infrastructure damage. The EAP has recently been updated to reflect a new upstream erosion protection system. The upstream erosion system is critical to the successful operation of the reservoir, protecting the earthen embankment from wind induced wave erosion during cycles of filling and discharge.

Reservoirs, in-line and offstream, requiring erosion protection from wind waves, have historically utilized a durable stone rip rap, with most designs requiring granite. Reservoir construction where a durable stone is not readily available,

Continued on page 8

Reservoir, cont.

such as Florida, presented a cost impact that was addressed by the US Bureau of Reclamation (USBR) in 1951. The USBR designed and installed stair-step soil cement at the Bonny Reservoir in eastern Colorado (ACI, 2009) as an alternative to stone rip rap. The Bonny Reservoir soil cement test section was studied for 10 years. The USBR concluded that soil cement created an acceptable erosion protection system, providing an economically feasible alternative to stone rip rap where durable rip rap is not naturally available. Soil cement erosion protection systems have been subsequently installed in three major reservoirs in Florida; FPL Martin County Cooling Reservoir, Peace River Manasota Regional Water Supply Authority, and the Tampa Bay Water Regional Reservoir. It was also designed

and tested for the Everglades Agricultural Area (EAA) Reservoir, but not constructed.

The recent modification of the Tampa Bay Regional Reservoir's upstream erosion control system can be a model for future designs in Florida, applying a robust drainage system beneath a substantial stair-step soil cement erosion protection system. The soil cement design also provided a platform for defining design specifications, monitoring and testing protocols, and construction methods for future off-stream reservoirs in Florida.

Offstream reservoirs in Florida are a needed water supply tool that will be applied in the future to meet growing demand and provide an environmentally acceptable and cost efficient alternative to other sources of water.

For references, please contact [Ed Davis](#).

Recap of September Technical Luncheon by Anna Hackett

This past September, our Chapter had the pleasure of listening to Brad Blais, P.E. present on the subject of Integrated Fixed-Film Activated Sludge (IFAS) process. Takeaways from the presentation:

- IFAS is an excellent technology for upgrading existing CAS systems within the existing tankage for achieving nitrification at higher flow rates/loads and for new facilities or upgrades to meet advanced nutrient removal requirements.
- IFAS technology achieves extremely low NH₃-N and NO₃-N concentrations in secondary effluent. A total of 0.5 mg/L of total inorganic nitrogen (TIN) is achievable for IFAS technology. (>600 plants in 50 countries – 60 US installations)
- Process and equipment selection can result in reduced sludge production, lower nutrients and reduced power consumption.
- Sludge production was reduced by 12%, TN and TP were reduced by 81% and 32%, respectively and power consumption was reduced by 21%.
- The experience at Cocoa Beach demonstrates that enhanced sustainability can actually reduce operating expenses!

Don't forget to register for our next Technical Luncheon!

Our next Technical Luncheon will be in early 2016. Our luncheons are \$25 for early registration or \$30 at the door. Please contact [Tonya Kay](#) with any suggestions for topics or to sponsor our next luncheon.

Thank you to our July and September Technical Luncheon Sponsors!



Contact Us

Give us a call for more information about joining the Steering Committee and other volunteer opportunities!

Chair, Stacey Smich
CH2M Hill
(407) 375-0761

Vice Chair, Damaris Noriega
Reiss Engineering, Inc.
(407) 679-5358

Secretary, Claes Westring
CDM Smith
(407) 618-7426

Treasurer, Alyssa Filippi
CPH
(407) 425-0452