The 23rd Annual Southwest Florida Water Resources Conference
“Sea Level Rise: Fight or Flight” 8:00 am – 5:30 pm
Friday, January 31, 2014, Florida Gulf Coast University, Fort Myers, FL

The 2013/14 Southwest Florida Water Resources Conference focuses on climate change and its effects on ecosystem services. As our climate is changing, what effects will there be on our infrastructure, food and water production and areas of habitation?

We all benefit from a multitude of resources and processes that are supplied by ecosystems. These benefits are referred to as ecosystem services. The conference will explore the affects of Climate Change on Ecosystem services such as raw materials and processes which are the basis from which we derive clean drinking water, clean air, processes of waste decomposition, food production, minerals that power our cell phones and computers, and the list goes on. We have a host of new challenges to meet in coming years and this years conference is set to advance the discussion.

The conference will be held Friday, January 31, 2014 in the FGCU Ballroom at the Cohen Center in Ft. Myers. Lunch is included as part of the conference and there will be a mixer after hours to follow the technical sessions. On Saturday, February 1, conference attendees are invited to participate in field trips.

Chaired by Karen Bickford, the Conference Host Committee is composed of American Water Resources Association (Florida Section), American Society of Civil Engineers (Florida Section), Audubon Society of Southwest Florida, Florida Engineering Society (Calusa Chapter), Florida Gulf Coast University, Southwest Florida Association of Environmental Professionals, Southwest Florida Watershed Council, University of Florida, and Caloosahatchee Riverwatch Citizens Association – Riverwatch Members. This year’s event will once again be outstanding, keeping with the conference’s long tradition of bringing forward experts from a diversity of disciplines to provide relevant and timely research and professional perspectives on contemporary issues.
Helping organize student participation in the conference is the Florida Gulf Coast University student chapter of AWRA and the FGCU student chapter of ASCE.

Students are strongly encouraged (and subsidized) to attend. Students are eligible to win poster session awards of $400, $300 and $200 as well as two $250 on-the-spot scholarship given out during the sessions by random drawing. Students are also invited to participate in the always-popular “Lunch with a Professional.” In 2013, half of all attendees were students, making for an excellent mix of participants. Limited student housing is available for nominal cost of $25 per night at the scenic FGCU Vester Field Station, a short walk from Barefoot Beach on Bonita Beach.

The Cohen Center Ballroom is located at 10501 FGCU Blvd south on the FGCU Campus. Click here for driving directions and here for the campus map.

Accommodations are available at nearby Hilton Garden Inn or Homewood Suites, both across from Gulf Coast Town Center and near the campus. Rates are $119.00 rate at the Hilton and a $129.00 at the Homewood suites. Go to http://homewoodsuites3.hilton.com or www.hiltongardeninn3.hilton.com. Hotel reservations must be made by January 14th to insure the block room rate. Group code for online booking: AWR

Additional information is available at www.awra.caloosahatchee.org/2014.

To Register: 
Click Here
or go to our website at www.awraflorida.org
# TECHNICAL AGENDA

## Thursday, January 30, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:00PM</td>
<td>AWRA Board meeting will be at the Bass Pro shop at Gulf Coast Town Center</td>
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## Friday, January 31, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00AM</td>
<td>Registration</td>
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<tr>
<td>8:30</td>
<td>Opening remarks</td>
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<tr>
<td>• Welcome to Florida Gulf Coast University: Dr. Wilson Bradshaw, FGCU President</td>
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<tr>
<td>• Welcome to Water Resources at FGCU: Dr. Aswani Volety, Dean, FGCU College of Arts and Sciences</td>
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<tr>
<td>8:45</td>
<td>Keynote Address</td>
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<tr>
<td>• Carol Collier, Executive Director, Delaware River Basin Commission; and President, American Water Resources Association: “Integrated Water Resources Management: The Delaware River Experience, and Potential Lessons for the Gulf Coast”</td>
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<td>9:30</td>
<td>Address from the South Florida Water Management District</td>
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<tr>
<td>• Blake Guillory, Executive Director, South Florida Water Management District: “Current Technical Priorities and Regulatory Hot Topics at SFWMD”</td>
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<tr>
<td>9:50</td>
<td>Session A. Visit the Research Posters / Networking Break</td>
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<td>In the entrance gallery, second floor of Cohen Center</td>
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<tr>
<td>10:30</td>
<td>Session B. Southwest Florida Water Resources Issues &amp; Interest</td>
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<tr>
<td>• Rae Ann Wessel, Sanibel-Captiva Conservation Foundation: “Drought Buster – the Caloosahatchee Estuary Flood of 2013”</td>
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<tr>
<td>• Dr. Serge Thomas, Florida Gulf Coast University: “Wet Detention Stormwater Treatment Ponds: Thousands of Ticking Time Bombs for Water Quality in Southwest Florida”</td>
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<tr>
<td>• Dr. Teresa Thornton, Oxbridge Academy of the Palm Beaches: “High School Students Conducting Water Resources Research”</td>
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<td>• Jon Wadas, Johnson Engineering: “Overview of Stormwater Facilities on FGCU Campus”</td>
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<tr>
<td>12:00PM</td>
<td>Lunch</td>
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<td>Student-Professional One-on-One Luncheon</td>
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<tr>
<td>1:20</td>
<td>Session C. Climate Change / Sea Level Rise: Identified Effects in South Florida</td>
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<tr>
<td>• Dr. Harold Wanless, University of Miami: “Climate Change topic”</td>
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<tr>
<td>• Dr. Steven Davis, Everglades Foundation: “Mangrove Peat Soils Response to Inundation, Increasing Salinity, and Other SLR Problems: Changes in Carbon Efflux, Methane Efflux, and DOC Production”</td>
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<tr>
<td>• Dr. Clyde Fraisse, University of Florida: “Climate Change Topic”</td>
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2:25 Session D. Potential Responses to Climate Change / Sea Level Rise in South Florida
- Maria Humphrey, Town of Fort Myers Beach (invited): “Planning for Response to Sea Level Rise at a Beach Community Built on a Barrier Island”
- James Beever III, Southwest Florida Regional Planning Council: “Climate Change topic”
- Dr. Nancy Gassman, Natural Resources Administrator, Energy and Sustainability Program, Broward County Natural Resources Planning and Management Division: “A Model for Regional Cooperation: The Southeast Florida Regional Climate Change Compact”
- Daniel L. Trescott, Trescott Planning Solutions (invited): “The Status of Southwest Florida’s Planning and Policy Implementation for Climate Change”

4:05 Session E. Panel Discussion. Sea Level Rise: Fight or Flight?
- Open Q & A between the audience and the SLR experts
- Panel (invited):
  - Dan Trescott, SWFRPC
  - Tabitha Stadler, Rookery Bay National Estuarine Research Reserve
  - Dr. Harold Wanless, University of Miami
  - Carol Collier, Delaware River Basin Commission; President, AWRA

5:15 Attitude Adjustment Networking
Cash bar and light hor d'oeuvres

Registration forms and further details at our website: http://awra.calosahatchee.org/2014/

The 23rd annual Southwest Florida Water Resources Conference is hosted by a multiple-society consortium.
Planning committee:
- American Society of Civil Engineers: James Ink, Andy Tilton
- American Water Resources Association, Florida section: Ron Edenfield
- Audubon of Southwest Florida: Dan Van Norman
- Caloosahatchee River Citizens Association: John Capece
- Florida Engineering Society: Roxanne Gause
- Florida Gulf Coast University: Kristoph Kinzli and L. D. Duke, faculty representatives; Sergio Guzman, Gayk Mekencyan, and Robin Palmer, student representatives
- Southwest Florida Association of Environmental Professionals: Sabrina Lartz
- Watershed Council of Southwest Florida: L. D. Duke
- Webmaster: Nargis Abduvohidova
Board of Directors Summary

The Florida Section AWRA Board of Directors (BOD) met November 14, 2013, 6:00-8:00 p.m. prior to the November 15 membership meeting. The detailed agenda and minutes will be included on the Section website following BOD approval of the minutes at the January 2014 BOD meeting.

Highlights of the meeting include:

• **Website:** The transition to Wild Apricot has worked well. Meeting registration and membership renewals are being accepted online through PayPal. People will be able to pay the meeting registration fee via credit card at the meeting. 2014 membership renewal will be online only.

• **2014 Board of Directors:** All members on the ballot were elected. 2014 Board will be: Michael DelCharco, Gary Howalt, Mark Diblin, Kristin Bennett, Krista Sabin, Carol Howard, Rick Creech, Cathy Katchikis, Shayne Wood, Jeremy McBryan, Joanne Chamberlain, Catherine Walker, Carol Hinton (past president), Don Duke, Ed Call, Garrett Wallace, Gregg Jones, Walt Reignery, Annette Carter (past president). Slate of officers to be voted on at the January Board meeting: Michael DelCharco – President, Gary Howalt – Vice President, Mark Diblin – Treasurer, Kristin Bennett – Secretary.

• **Education Program:** 8 students were funded to attend National. Applications are being revised and a process to accept online applications is being developed. Members Sara Caldwell and Anne Murray joined the committee.

• **Sanford N. Young endowment:** the endowment is doing well and continues to grow. The current amount is just over $60,000.

• **National:** Students networked with the professionals, asking about their professional background and experience, education and employment. The students represented themselves and the association well. The funding provided to assist in travel expenses was a worthwhile investment. National is offering webinars as a member benefit.

• **Upcoming Meetings:** January 31 Ft. Myers; March Tampa or Lakeland area; May Wakulla or White Springs; June Key Largo; September TBD (Central or South Florida area); November Jacksonville area

• **Next BOD meeting:** January 30. Exact time and location TBD.

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.
Overview and History of Springs Degradation

Jim Stevenson, Former Chair, Florida Springs Taskforce

Jim worked at DEP for 38 years and on springs for at least 18 years. The State actually named a spring after him along the Suwannee River – Stevenson Spring. Jim led the spring’s task force at the request of the Governor.

Natural Gems and Troubled waters – Florida has a long history with the springs. Like our beaches, our springs are an integral part of our character. We have 38 first magnitude springs (greater than 100 cfs). There are, however, many different entities that own those springs – state, federal, local, and private. Some springs help with water supplies of large cities. In the late 1800s the springs were more popular than the beaches as a tourist destination!

There are a variety of impacts to our springs. One impact is simply too many feet. Water quality issues stem from agriculture and urban areas. Springs die a slow death of a thousand wounds. The best protected springs are those in the Ocala National Forest – simply because the forest is conserved area.

Mr. Stevenson showed a graph with 60 years of nitrate trends in four Florida springs – Silver, Lithia, Juniper, and Fannin. Fertilizer use spread in the 1950’s – so it is easy to see the increase in nitrates after that. Something like 65% of nitrogen in springs is due to fertilizers.

Weeki Wachee Springs – Mr. Stevenson showed a plot of population growth and spring nitrates: they go hand-in-hand. There is a Chinese saying that goes – when you drink the water, think of the spring.

Pumping in spring recharge areas causes declines in spring flows. There are multiple examples of springs going dry due to pumping in the recharge area.

Many springs are overrun by algae – caused by increased nitrogen. Blue springs are now green.

This is a call to action – procrastination won’t solve our problems. In 1999 the Springs Task force was focused on evaluating the state of the springs and developing strategies for improvement.

Wakulla Springs can serve as an example state-wide. Since 1875 there were glass bottom boats. Today, they rarely run because the water is too cloudy. In 2000 the Apple Snail disappeared, and then the Limpkin bird. Eel grass has declined and replaced by algae. Divers have mapped over 35 miles of caverns in Wakulla Springs. Thanks to them, the Task Force learned a lot about springs-sheds. The spring shed for Wakulla is about 1200 square miles – including all of Tallahassee and into Georgia. Near Wakulla the karst region allows direct connection from land to groundwater. However many areas have a thick clay layer that minimizes surface water connection to the aquifer. Mr. Stevenson gave several examples of simple solutions to minimize impacts to the springs – fencing off cars, giving cattle alternative water sources, and so on. Now fertilize contribution is much smaller than septic tanks – which still contribute about 33% of the nitrate.

So, we have to protect water quality – as discussed above – and water use. Consumptive use in the basin is 71% public supply, 13% domestic self-supply and 6% power generation.

In conclusion, we must work together and “stand a little taller” to protect our springs.

Twenty Years of Springs Research in SW Florida

Gregg Jones, Cardno ENTRIX

Mr. Jones worked for SWFWMD for 22 years, focused predominately in springs. His first exposure to springs was in 1986 when he was in the groundwater monitoring group. The Alafia River had experienced a large nitrate increase – so the SWFWMD dug in deep to the springs in the basin to examine the source of nitrates. Mr. Jones presented a hydrogeologic cross section of the area – and showed the Floridan, Intermediate, and surficial aquifers. In the southern part of the SWFWMD there are few springs – while in the northern part it is predominately springs. These springs are fed from the Floridan aquifer. Mr. Jones presented generalized spring shed boundaries for the major springs in the SWFWMD.
Kissengin Springs used to flow and had a very large head that supported lots of recreation. In 2000 there was 851 MGD withdrawn from the aquifer due to a drought. The potentionmetric surface dropped rapidly. In Polk County alone the groundwater use sky rocketed. It went from 80 MGD in the 50’s to about 400 MGD in the 70’s to about 275 MGD now. The Peace River can be seen – at low flow – to simply drop into a crevasse and cease to exist for long stretches.

Along the Suwannee River, White Springs used to flow but has dried up. Back in the early 1900’s it flowed about 70 cfs. In the 50’s there was not a lot of flow, and now in the 80’s and beyond there seems to be some flow. That may just be riverine flow filling the springs and draining back out – not true spring flow.

Mr. Jones presented some groundwater flow divides across the state of Florida. This data is controversial and not everyone accepts it. Generally it shows how the divide migrates to the west – and now the recharge area has changed completely. This has changed the characteristics of the groundwater flow - and therefore the springs.

If 2030 water use projections are correct – the need increases dramatically. If the water supply need is met by groundwater, many springs will be affected. So, let's try to meet those needs in other ways.

Water Quality – The nitrate loads out of the springs is tremendous. Since the 1980’s the nitrate load has increased from 0.1 mg/l to 0.6 mg/l in Weeki Wachee. This is due to developments in the area from the 70’s.

So, what would you need to do to reduce nitrate levels in the springs? The legislature said the state would reduce the levels to 0.35 mg/l in 5 years. Nineteen of the 33 springs currently exceed this. Mr. Jones did a study to look at how you could reduce nitrate loads in recharge area and how long it would take for those changes to show up in spring flows. Annual nitrate loading from those springs is 1,026 tons. Using Rainbow Springs as an example, he showed the nitrogen loading would have to be reduced by 52%. If you took a reasonable reduction rate, it would still take 29 years to get to the 0.35mg/l level.

While the goals of the legislature are admirable, they are probably not achievable.

2013 National AWRA Meeting
Portland, Oregon

The National AWRA meetings are always a great time to get to network with Water Resource professionals from around the country. This year Michael Campana and Brenda Bateman led the technical sessions and put together over 89 sessions for the week of November 4-7. Talks ranged from integrated water resources planning, basin-scale modeling to flow measurements in small streams and groundwater recharge in the Maldives. Every year there is an astounding array of presentations covering every aspect of water resources.

Our State Chapter is well represented on the National Board with David Watt (SJRWMD), serving as treasurer, Rafael Frias (Black and Veatch), and, newly elected, Don Duke (FGCU). We had a lot of students and myself from the State chapter.

Let me take a minute to highlight our AWRA Florida Section efforts to support our students. Kristin Bennett did a fantastic job coordinating our student involvement. We were able to provide financial assistance for seven students to attended the Conference.

Five of the students presented: Michael MacCarthy, Mehroonsh “Noosa” Mahmoudi, Di Tian, Hari Kandel, Isabella Bergonzoli. Isabella is a high school student who attended under the guidance and direction of their school, the Oxbridge Academy of the Palm Beaches. Their student advisor, Teresa Thornton, is also presenting. Isabella was the winner of the 2013 poster competition held during the AWRA Florida Section January 2013 meeting held in Ft. Myers.
Last June, AWRA National donated six complimentary student registrations for our Annual Meeting silent auction. A generous bidder bought those registrations and enabled the Florida Section to provide additional financial support for the students.

Allison Lewis (UF – Student Chapter President), Michelle Trayner (UF), and Michael DelCharco after the 5k fun run

Michael DelCharco and David Watt enjoying lunch on Nike HQ Campus
Upcoming Conferences

2014 Spring Specialty Conference: GIS and Water Resources VIII
• May 12-14, 2014
• Snowbird Resort, Salt Lake City, UT
• Register - Supersaver Deadline: March 10, 2014

• June 30- July 2, 2014
• John Ascuaga’s Nugget Casino Resort, Reno, NV
• Call for abstracts - Deadline: February 17, 2014

2014 Annual Water Resources Conference
• Nov. 3-6, 2014
• Sheraton Premier Hotel, Tysons Corner, VA
• Call for Special Sessions - Deadline: January 31, 2014

Remember to check the AWRA website for all things water resources, including blogs, career center, non-AWRA conferences and a virtual exhibit hall.

For more information, to renew your membership, or become a member of the National AWRA, go to www.awra.org.
Happy New Year,

As I fulfill my last official duty as President, writing this message, I’m amazed at how quickly 2013 has gone by. We had a great year accomplishing our mission of education. I don’t want to brag, but y’all are an awesome group of people.

• We had six successful meetings: Ft. Myers, Gainesville, Lake Placid, Cocoa Beach, St. Augustine and Homosassa. I hope you were able to join us at a couple of these meetings.

• We gave away $9000 to high school teachers, college students and for the first time a high school student. And we also funded nine students (high school and college) to attend the national AWRA meeting in Portland.

• We developed a new website that integrates registration and membership information. This was one of the top items on our strategic plan and we were able to go live in the fall with a more professional looking webpage.

• We changed investment strategies for the Sandy Young endowment and are already seeing an increase in the fund.

I’d like to thank the board members and the executive committee for their support this year. As always, there was always someone ready to step forward and take on tasks. The new board is already working on great meetings for next year. Join me in welcoming: Mike Delcharco, President; Gary Howalt, Vice President; Kristin Bennett, Secretary, and Mark Diblin, Treasurer. We also have three new board members, Rick Creech, Carol Howard and Catherine Katsikis. Next year is going to be another great year. I hope you have the opportunity to get involved.

Regards,

Carol Hinton

2013 President

chinton@treeo.ufl.edu
Welcome to 2014! I'm excited to be bringing in the New Year as President of the State of Florida chapter for AWRA!

I have three pretty modest goals for this year. First, keep up our excellent, technically and socially, bi-monthly meetings. I think we have been doing a great job with our meetings and we just need to keep on keeping on. Second, I’d like to see us hold some regional AWRA events other than our bi-monthly meetings. And third, I’d like to take a field trip - to Cuba! While I know there is a lot of political baggage with a trip to Cuba, I’d like to see us have a professional exchange with the Cuban water resources professionals. Rosanne Clementi got me thinking about a trip there, and I’m going to see if we can make it happen. There are a lot of moving parts, but let's see what we can do. Stay tuned!

Throughout the year we hold 6 meetings around the state. I've always enjoyed the diverse locations and venues we choose – because they get us to see the real Florida. Last year we met at some great places I haven’t been to in years – Marineland/Whitney Labs up in Flagler Beach, Homosassa Springs, Cocoa Beach, and Lake June-in-Winter. This year will be similar – with meetings in Wakulla Springs, Ft. Myers, and a return to one of my favorites - Key Largo.

One of the things I’ve realized, over the years of serving on the Board, is that we get lots of great local participation at our meetings. But, because we move around the state, it is hard for people to participate in more than one or two meetings unless they want to do some traveling! So, that got me thinking about having small, informal gatherings of AWRA folks during the year. My idea is to have a Board member host a brown bag seminar, social gathering/happy hour, or something – anything – in their area outside of our regular meetings. For me, since our Jacksonville area meeting is in November – we will try to host an AWRA event of some sort in March. Just to engage the membership and give everyone an opportunity to network with other water resource professionals or learn of a significant water resources happening during the year.

So, be on the lookout for an event – other than our regular meetings – near you! Let me know what you think of this idea by emailing me at mdelcharco@taylorengineering.com.

If you haven’t noticed, we’ve upgraded our on-line presence! We switched our ISP to WildApricot and this allows us some advantages – you can update your AWRA profile, renew your membership, read the latest “Watershed” newsletter, and sign up for meetings on-line. We have way better control of our membership list and can spam you mercilessly with the push of a button. Okay, just kidding on that – but it does make it easier for us to contact everyone. We’ll be judicious in what we send out! Check it out at www.awraflorida.org

Hope to see you at a meeting soon!

Michael DelCharco, P.E.
mdelcharco@taylorengineering.com
The Rosanne Clementi Education Program

Education Committee: Rosanne Clementi, Clementi Environmental Consulting; Kristin Bennett, Tetra Tech, Inc.; Mike Copeland, WRS Compass; Mark Diblin, AMEC, Jeremy McBryan, SFWMD, Ann Murray, Martin County, Sara Caldwell, Sara Caldwell, P.A.

The deadline for all applications for grants, awards and scholarships is May 1, 2014 with an anticipated award date by the June meeting. Thank you to all members who helped us promote the Education Program.

Do not forget that every time you register for a meeting you have an opportunity to make a tax-deductible donation to the Education Program. You can also send a check to Rosanne Clementi, Clementi Environmental Consulting, LLC 5205 South Lois Avenue, Tampa, FL 33611, (813) 230-8100. If you want the donation directed to one particular scholarship/grant please put the name in the memo line on the check. If you have any questions, you can contact Rosanne Clementi at rclementi@clementi-ec.com.

Students

If your school does not have an active AWRA Student Chapter, you can still participate in the section and may be eligible for travel reimbursement to attend AWRA Florida Section meetings. Please speak with a member of the education committee prior to incurring any expenses to determine if you are eligible for reimbursement. If you have any questions regarding student chapters, student involvement in the Section or the Student Support Policy, please contact any Education Committee member (contact information is available on the webpage and in the membership directory). Reimbursement may also be available for students presenting at any AWRA national meeting. The Board is as generous as the annual budget will allow.

Students should contact the Education committee prior to incurring any expenses to ask the committee to consider the request.

Grants, Scholarships and Awards

Do not forget that the deadline for JB Butler, William Storch, Sanford N. Young and the High School Scholarship is May 1, 2014.

We would like suggestions on a name for honoring a member to name the high school scholarship. Please email Rosanne Clementi at Rosanne@clementi-ec.com.

Happy New Year from your Education Committee!
the Watershed Editor:
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visit the florida section website at:
www.awraflorida.org

the Watershed is assembled and published by Cardno ENTRIX, a proud sponsor of the Florida Section of AWRA.

Contact Upcoming Meeting Chairs Regarding Sponsorship or Assistance

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ron@mec-llc.com
ldduke@fgcu.edu
http://awra.calosahatchee.org/2014/

Tampa Bay Area – March
Wakulla Springs – May
Key Largo – June
TBD – September
Jacksonville – November

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