

the Watershed

St. Augustine, Florida
January 18, 2008
The Nation's Oldest City

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Technical Program: This meeting will provide both exciting technical presentations on current water management issues and a unique opportunity for water managers to experience the Nation's Oldest City from a local's perspective. The technical sessions will start at 1:00 p.m. in the historic City Council Chambers in downtown St. Augustine. A reception will follow at 5:00 p.m. in the outdoor courtyard of the historic Sala de Montiano at the Government House on the Plaza de Constitution. A catered dinner from one of St. Augustine's award winning restaurants will be held indoors at the Government House. Following dinner, a historic reenactment will be performed that describes water management conducted by the Oldest City for the past 542 years. Keeping with the energy conservation commitment of the State AWRA's Board of Directors, plan on parking and staying at one of St. Augustine's downtown historic Bed and Breakfast inns and walk to all of our meeting's activities. It is also the Festival of Lights in St. Augustine, which turns the city into a winter wonderland of light.

Location & Accommodations: The meeting, reception and dinner are all within very close walking distance of each other. It is recommended that you reserve a room at a local Bed and Breakfast, so you can enjoy St. Augustine on foot! Visit www.staugustineinns.com for local listings. As an alternative, a green lodging facility is available 15 minutes from the meeting location, Hampton Inn and Suites Oceanside, Vilano Beach.



2008 Meetings: January 18 St. Augustine; March 14 White Springs; May 16 St. Pete Vicinity;
July 24-26 Key Largo; September 19 Lake Okeechobee; November 7 Fort Myers



AWRA NATIONAL NEWS

Upcoming conferences hosted by AWRA

◆ **GIS and Water Resources V, March 17-19, 2008, San Mateo, CA.** (Early registration deadline is February 25, 2008) AWRA continues its series on Geographic Information Systems and Water Resources with its fifth specialty conference on the topic. GIS has become a necessary component in the planning and management of water resources, and the natural and human systems affected by water resources.

◆ **Riparian Ecosystems and Buffers: Working at the Water's Edge, June 30-July 2, 2008, Virginia Beach, VA.** (Abstracts due February 4, 2008) The study of riparian ecosystem functions and the proliferation of initiatives and programs using riparian areas as buffers and living shorelines have demonstrated the need to remain on the cutting edge of science and practice when working at the water's edge.

◆ **Annual Water Resources Conference, November 17-20, 2008, New Orleans, LA.** In addition to the broad array of topics on which we always encourage submission for the annual conference, we welcome individuals who wish to propose panel discussions or special sessions on

themed tracks consisting of a core of invited presentations. Special sessions could focus on water resource issues in the New Orleans area, large regional wetlands restoration/ protection projects around the world, such as the Everglades and the Pantanal, the National Levee Certification Program, or other hot topics from recent specialty conferences and the National Water Policy Dialogue. If you are interested in organizing a special session, please contact the Technical Chair, Patrick Victor (victorpr@cdm.com) to discuss details.

For more information and to renew your membership or become a member of the National AWRA, go to www.awra.org, or contact David Watt at 386-329-4355 or [dwatt@sjrwmd.com](mailto:d watt@sjrwmd.com).

AWRA FLORIDA NEWS

- Membership News
- PEs: *Check Your PDH Certificates!*
- Board of Directors Summary
- Technical Program Summary
- Student Chapter News
- Announcements

Membership

The membership has increased by 12 since the October newsletter, to-date we have 487 active members. Please take a few minutes to introduce yourself to the new members at the next meeting. This is how we continue to grow! Please feel free to contact me for membership questions or ideas on how we can improve service to our members.

Annette Carter, Membership Services Coordinator
ancarter@sfwmd.gov or (561) 682-6433

PEs: Check Your PDH Certificates!

Earlier this year, certificates for professional development hours (PDH) were issued with an incorrect provider number. In September the Florida Board of Professional Engineers (FBPE) informed us that our provider number had been changed. We have shown the correct provider number on recent certificates issued in September and November. For hours you earned at AWRA Florida Section meetings, please use provider number 0003897 when reporting those hours to FBPE for the March 2009 renewal cycle. If you have questions, please contact David Watt at [dwatt@sjrwmd.com](mailto:d watt@sjrwmd.com), or 386-329-4355.

Board of Directors Summary

- by David Watt

The Florida Section AWRA Board of Directors (BOD) met in Ft. Myers on Friday, November 16, at 10 AM. The detailed agenda and minutes will be included on our website after they are approved by the BOD. Highlights of the meeting include:

- Several exciting venues and meeting formats are planned for 2008. The schedule includes January 18th at the historic Government House in St. Augustine, March 14th in Live Oak, a May 16th tour of Tampa Bay Water facilities, July 24th and 25th at the Key Largo Grande Resort for our annual meeting, September 19th in Clewiston, and November 7th in Ft. Myers for the annual SW Florida Water Resources Conference.

- The Board approved \$1,300 to support a water resources project conducted by USF students.
- After our best year for education awards, members are encouraged to continue to get the word out to students and teachers about our education awards. Information about the awards is posted on the web site.
- Improvements continue on our website. We encourage members to check it out and give us your feedback.
- The 2008 Board of Directors has been elected. Thanks to everyone who took the time to vote. Gary Howalt, Teller Committee Chair, provided the ballot results. For 2008 your Directors are: President Cathleen C. Vogel, Vice President Jay W. Yingling, Secretary David R. Watt, Treasurer Ronald M. Edenfield, Past President Patrick R. Victor, Past President Robert W. Higgins, Kristin K. Bennett, Gordon H. Brown, Annette Carter, Michael DelCharco, Douglas J. Durbin, John J. Fumero, Marji Hightower, Carol Hinton, Gary K. Howalt, Donald W. McEwen, Steve J. Nix, Paul W. O'Neil, Jr., and Garrett Wallace
- Outgoing President Victor reminded us of our accomplishments for 2007 including record memberships and attendance at our meetings, excellent participation in our education awards program, improvements to our website, and the pending publication of a Florida water resources journal. Thanks to all our members for your participation, and we look forward to an even better 2008!

Remember, Board meetings are open to all members of the Florida Section and their guests. Please feel free to arrive early at one of our bi-monthly meetings to sit in on our lively discussions. The Board always welcomes member input.

Technical Program Summary

- by Doug Durbin

The meeting was well attended by AWRA members and other local water resources professionals (95) including 16 students. Five student registrations were covered by conference attendees who included an additional \$10 with their registration; the remaining 11 were covered by the sponsoring committee. A total of \$1,000 in On-the-Spot Scholarships was awarded to two FGCU students attending the conference: Tricha Louis and Chris Conti.

Tom Missimer, Missimer Groundwater Solutions, Inc. — Impacts of Drought on Our Water Supply

In the past, when both the City of Fort Myers and Lee County were totally dependant on the Caloosahatchee River for their public supplies, this area was very subject to drought impacts. Droughts occur every 5 to 10 years in South Florida, but the impacts are not uniform throughout the region. County and local governments have diversified their water supplies to include: surface-water from the Caloosahatchee River (Lee County), reverse osmosis treatment of water from the Lower Hawthorn Aquifer (Lee County, City of Fort Myers, City of Cape Coral, Island Water Association, Greater Pine Island Water Association, Bonita Springs Utilities, Collier County, City of Marco Island), surface water from lakes (Marco Island), use of the Lower Tamiami Aquifer in interior wellfields (Bonita Springs Utilities, Collier County, City of Naples), and use of the water-table aquifer in interior wellfields (Lee County). This diversity of water supplies makes the area utilities essentially drought-proof in terms of continuity of supplies. Southwest Florida is a leader in water reuse, with most local and county governments using nearly 100% of reclaimed water during the dry season, yielding one of the highest percentages of reuse in the United States. Impacts of the current drought will adversely affect two types of water users in the area: individual home wells and agriculture. Individual home wells in the Mid-Hawthorn Aquifer in north Cape Coral and in the Sandstone Aquifer in Lehigh Acres are expected to fail in large numbers this year. Agricultural interests, particularly north of Lake Okeechobee will be seriously affected.

Mike Duever -- South Florida Water Management District — Droughts in South Florida

Drought can be defined in a number of ways and across a range of scales in time. Long-term rainfall records indicate repeated periods of rainfall deficit over the past century in South Florida, most of which extended across several years and resulted in some 20 to 30 inches of overall deficit from "normal" rainfall. Many wetland plants are adapted to this variability. Data from Corkscrew Swamp show that cypress seeds have germinated in specific locations during periods of low water and were later inundated (cypress cannot germinate and grow under water). Thus, the very existence of cypress swamps is dependent on dry conditions for a period long enough for seedlings to become established. Paleolimnological investigations show that ponds in the middle of some cypress swamps may have been created during periods of extreme drought hundreds or thousands of years ago. It is clear that recurring natural droughts (even long-term severe droughts) are an important facet of the development and maintenance of wetland ecosystems in South Florida.

Paul Gray, Audubon Society of Southwest Florida — The Big "O", How are We Doing?

Lake Okeechobee is the center of south Florida's complex water management system. Recent volatile weather patterns, accentuated by extensive drainage, revealed gross inadequacies in the water management system. Deep-water events created widespread drowning of plant communities in the lake and threatened the integrity of the Hoover Dike triggering harmful fresh-water releases to the St. Lucie and Caloosahatchee Estuaries. Phosphorus levels in the lake have reached record high levels, aggravated by large loads during the wet years. Conversely, drought-induced record low water levels have lead to severe water rationing and associated economic losses. The 2008 "Northern

Everglades" legislation mandated the agencies re-calculate the storage and nutrient control needs north of the lake. Preliminary calculations are that between 900,000 and 1.3 million acre-feet of storage are needed (two to three times the amount of storage in present plans). If this goal can be attained, water level and nutrient control improve greatly, reducing excessively high and low water levels, water rationing, and harmful estuary dumps.

Aswani Volety, Florida Gulf Coast University -- Drought Impacts on Our Estuaries

Estuaries are the interface between freshwater and salt water, so drought can have a direct effect on salinity distribution patterns there. Ecological communities of an estuary show distinct physiological and behavioral responses to these changing salinity regimes. Dr. Volety has studied the response of oyster reefs and their associated fauna, zooplankton assemblages, and host-parasite associations in light of drought patterns. While many of the responses are complex and not easily attributed solely to drought-related factors, several patterns are apparent: higher salinities (i.e., drought conditions) can result in a greater prevalence of disease and predation pressure in oysters, but also seem to cause greater reproductive activity. Both excessively high and excessively low salinities affect survival of juvenile oysters. Oyster reef commensal species were less abundant during dry periods and both oyster reef and zooplankton communities showed a distinct change in species structure between the wet and dry seasons. These findings indicate the important role that drought patterns can play in estuarine systems by affecting the numbers and distribution of species to a greater degree than is seen during typical seasonal patterns.

Lunchtime Keynote Speaker — Vernon Peoples — Well-known local radio commentator

Man has been affecting Florida's water resources for thousands of years. As Nature changes the landscape, humans follow behind to change it back or make it accommodate their goals. Mr. Peoples provided a historical perspective on the intersection between water resources and human presence in Florida. He pointed out the challenges of dealing with aquatic habitats, droughts, water quality changes, exotic species, funding of water resource solutions, growth management, and dwindling water supplies.

Chuck Hanlon, South Florida Water Management District — Lake Okeechobee Basin Results

Mr. Hanlon gave an overview of the lake's vegetative communities and the way they are affected by water levels and other external influences. Hurricane Wilma caused substantial damage to vegetation in and around the lake, dropping the lake's submergent vegetation cover from about 55,000 acres to 11,000 acres. This habitat loss led to two years of essentially no recruitment of young largemouth bass. Recent drought conditions have dramatically lowered the lake level and allowed the South Florida Water Management District to remove accumulated muck in several areas along the northwest shoreline of the lake. This organic material, up to a meter deep in some places, contained excessive nutrients and propagules for nuisance species. Low lake levels also allowed for controlled burns in shallow marsh areas to eliminate nuisance brush and associated organic material. In particular, torpedograss was brought under control through burning and then herbicide application. Thousands of native trees have been planted along lake shorelines while the lake has been low. With the reduced marsh area, apple snails have a greatly reduced habitat area, leading to a food shortage for the Snail Kite. SFWMD teamed with Harbor Branch Oceanographic Institute to start an apple snail propagation program to help jump-start the return of snail, and Snail Kite, populations when water levels come up again. The ecology of Lake Okeechobee has seen considerable benefits from recent low levels and an interagency plan has been prepared to take advantage of such conditions when they occur in the future.

Chuck Akins, Evan Thomas Associates — Staffing Resources

Engineering and science employment continues to expand, with an increased demand of 10-14 percent expected by 2014. The proportion of students graduating with engineering degrees has dropped in recent years, resulting in greater demand for talented engineers. Finding a good match between a potential employee and a position is a function of the specific company looking for an employee, the location of the job, salary and benefits, housing costs and various other factors. The competitive nature of the job market – from the perspective of employers – mandates creative hiring and compensation practices.

John Fitch, Florida Gulf Coast University — Green Technologies

Water is an essential and pervasive component of human existence, with many challenges in terms of providing adequate quantities and qualities of water for various uses. Sustainability is an approach to ensuring that today's generation does not overuse or deplete resources to the point that future generations cannot meet their needs. Green technology is focused on developing and using sustainable practices with respect to environmental resources. For water resources, green technologies include the Everglades Restoration Plan, lawn irrigation and size reduction, reducing stormwater runoff, and reuse and recycling of wastewater.

Joe Elarde, CH2M Hill — Membrane Technology

Membrane treatment is a rapidly evolving technology for using semipermeable membranes to change the chemical composition of water. Reverse osmosis uses pressure to force water through such membranes to purify it. A series of filters can be used for varying levels of treatment. This technology allows for the use of alternative water supplies

like brackish groundwater, seawater, and even stormwater or wastewater. Using membrane treatment options requires knowledge of the source water characteristics, the expected uses of the water, and the regulatory requirements of such systems. Brackish water reverse osmosis is becoming very popular in cities and counties of southern Florida, where a brackish aquifer offers ample supply with little or no potential environmental impact. The use and expansion of this technology is an important step to developing “drought-proof” water supplies. The latest technology for membranes is “nanotubes” which provide high treatment capacity at much lower pressure. When nanotube technology is available for large-scale use, it could reduce the cost of seawater reverse osmosis by 75 percent.

Panel Discussion -- Resource Conservation Issues

The day’s session concluded with a panel discussion by Phil Flood of SFWMD, John Fitch of FGCU, Diane Boedhangen of FGCU and Paul Gray of Audubon, moderated by Tom Missimer. The group discussed overall progress on improving the management of Lake Okeechobee and the Everglades, arsenic issues in aquifer storage and recovery systems, landscaping irrigation issues, drought effects on wildlife, and water quality concerns. The group’s discussion underscored the progress that has been made in managing this ecosystem, but also showed the questions and challenges that remain. The group also discussed ways to improve the education process for environmental professionals in the future.

Time to Renew Your Membership for 2008

AWRA Florida Section membership dues for 2008 are due January 1st, 2008. An invoice will be sent in January to members who have not yet paid dues for the new year. Dues for both Regular and Student membership remain at \$20.00 and \$4.00, respectively. If you would like to beat the rush and renew early, please use the 2008 membership application form in this newsletter, or the one on our web page at www.awraflorida.org. Our membership continues to grow at an exciting rate! To date we have 487 active members! This is a definite testament to the value of belonging to such a dynamic organization.

Florida Section Meeting Notice – March 14, 2008

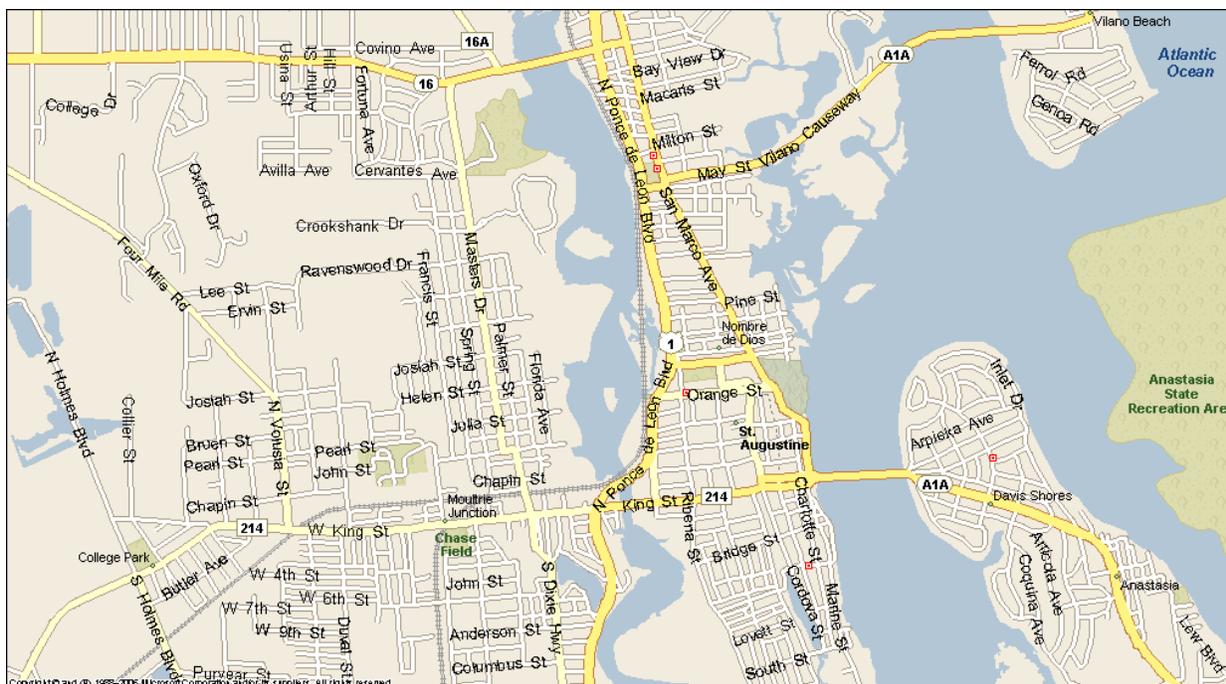
Mark your calendars for the March 14, 2008 Florida Section meeting in White Springs (Suwannee River). The February 2008 issue of *The Watershed* will provide details of this meeting.

Bed & Breakfast Inns, and Things To Do

<http://www.staugustineinns.com/>

<http://www.staugustine.com/visit/>

<http://www.oldcity.com/>





Florida Section Bi-Monthly Meeting
Friday, January 18, 2008
City of St. Augustine Commission Chambers
St. Augustine, Florida

10:00 a.m. Meeting: Update on Planning Efforts for the 2008 National Annual Conference
A1A Ale House, Members Welcome

11:00 a.m. Board of Directors' Meeting, A1A Ale House
*Dutch Treat; Section Members Welcome**

12:30 p.m. Registration – City of St. Augustine Commission Chambers

Technical Program – Agenda

1:00 p.m. Welcome (Alcazar Room)
Michael G. Cullum, P.E., Meeting Chairman

1:10 p.m. State-wide Fertilizer Management Task Force with Local Application
Casey Fitzgerald, Asst. Director, Dept. of Water Resources, SJRWMD
Ebenezer Gujjarlapudi, P.E., Director, Environmental & Compliance Dept., City of Jacksonville

1:40 p.m. What's Happening on the Water in NE Florida Before It Goes to Tide
David Roach, Executive Director, Florida Inland Navigation District

2:10 p.m. Overview of the GTM NERR Management Plan, Watershed Implications
Michael Shirley, Ph.D., Director, Guana, Tolomato, Matanzas, National Estuarine Research Reserve

2:40 p.m. Break

3:10 p.m. St. Augustine's Harbor Management Plan – Protecting the Environment and Public Access in the Nation's Oldest City
John Regan, P.E., Chief Operations Officer, City of St. Augustine

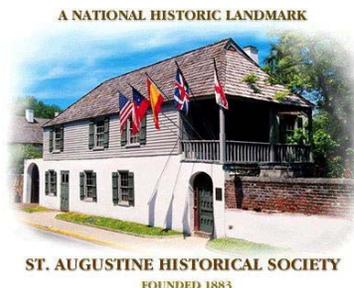
3:50 p.m. State-wide Stormwater Rule Revision, Water Quality Pre-Post Treatment
Eric Livingston, Chief, Watershed Management, FDEP

4:20 p.m. Can the St. Johns River Be Part of A Sustainable Water Supply Solution for Central Florida? *Hal Wilkening, P.E., Director, Dept. of Resource Management, SJRWMD*

5:00 p.m. Social Hour (Courtyard, Sala de Montiano Room, Government House)

6:00 p.m. Dinner (Sala de Montiano Room, Government House)
Dinner Speaker: Don Pedro Menendez de Aviles, History of Water in the Nation's Oldest City

** Please advise Meeting Facilitator (see Registration Form) if you plan to attend the Board Meeting so that appropriate arrangements may be made for lunch.*





Registration Deadline – January 11, 2008

St. Augustine City Council Chambers – Friday, January 18, 2008 @ 1 p.m.

Name:	First:	M.I.:	Last:	Suffix: (PE, Ph.D., etc.):
Firm/Organization:				
Street Address:				
City, State, ZIP:				
Phone:		Fax:		
E-Mail:				

Item	Cost	Number Attending	Extended Amount
Board of Directors Meeting (Members Welcome)	Dutch		
Florida Section Member Registration	\$45		
Non-member Registration <input type="checkbox"/> Apply this fee to making me a Member or to renew my membership	\$65		
Dinner Guest / Name:	\$25		
Florida Section Student Registration	Free		
Students (Non-member) <input type="checkbox"/> Apply this fee to making me a Member or to renew my membership	\$4		
Donation to Sanford N. Young Scholarship Fund		-----	
Donation to General Education Fund		-----	
TOTAL			\$

Dietary Restrictions? Contact Meeting Chair Michael Cullum at mcullum@sjrwmd.com

PDH Credit for Engineers AWRA is an approved provider by the Florida Board of Professional Engineers (FBPE Provider No.EX0003897) and offers Professional Development Hour (PDH) credit to Florida Licensed Professional Engineers. You will only receive credit if you attend the entire technical session. Please check the box below and include your PE number if you would like to obtain PDH credit.

I plan to be present for the entire session and would like PDH credit. My PE number is: _____

<p><i>Make checks payable to</i></p> <p><u>AWRA Florida Section</u></p> <p>Please mail to: Micahel Cullum 4575 Carter Road St. Augustine, FL 32086 (386) 312-2351 mcullum@sjrwmd.com</p>	<p><i>Sponsorship Opportunities</i></p> <p>Don't miss this great opportunity to highlight your organization and network with water resource professionals and students. Get your logo on the sponsorship boards!</p> 	<p><i>Accommodations</i></p> <p>B & Bs: http://www.staugustineinns.com/</p> <p>Green lodging facility: Hampton Inn and Suites Oceanside, Vilano Beach</p> <p>Sightseeing Information: http://www.staugustine.com/visit/ http://www.oldcity.com/</p>
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JOINING AND RENEWING MEMBERS *Please complete this entire form for our membership records and directory.*

Preference for Receiving our Newsletter: E-mail US Mail

Are you an AWRA National Member: Yes No

Would you like information on AWRA National? Yes No

Are you interested in corporate sponsorship opportunities? Yes No

Would you like to be part of a bi-monthly meeting team or committee? Yes No

Thank You to Our Sponsors!



Faulkner & Associates





2008 Membership Application

MEMBERSHIP DUES

New \$20 Regular
 Renewal \$ 4 Student

DIRECTORY INFORMATION

Please give us the information requested below, as you would like it to appear in the membership directory.

Name: _____
First Middle Initial Last Suffix (Ph.D., PE, PG, etc)

Company/Affiliation: _____

Mailing Address: _____
Box, Street or Route Suite or Apartment

City State Zip Code

Daytime Telephone: _____ Area Code _____ Alternate Telephone: _____ Area Code _____

Facsimile: _____ Area Code _____ E-mail: _____

MEMBERSHIP INTERESTS

Would you like to receive our newsletter via e-mail? Yes No
 Are you an AWRA National Member? Yes No
 If not, would you like information? Yes No
 Are you interested in sponsorship opportunities? Yes No
 Would you like to be part of a bi-monthly meeting team? Yes No

SPONSOR/RECRUITER: _____

PAYMENT INFORMATION

\$ _____ Annual dues (please indicate if you are paying for additional years)
 \$ _____ Florida Section Water Resources Education Fund (tax deductible contribution)
 \$ _____ Sandy Young Scholarship Fund (tax deductible contribution)
 \$ _____ **TOTAL (Please make checks payable to AWRA Florida Section, THANK YOU!)**

Return application & your check to: **Annette Carter, Membership Services Coordinator
 c/o South Florida WMD
 3301 Gunn Club Road
 West Palm Beach, Florida 33406**

Florida Section membership dues are due January 1 and are good through December 31. Contributions or gifts to the Florida Section are deductible as charitable contributions for federal income tax purposes. Dues payments may be deductible by members as an ordinary and necessary business expense. For membership information, please contact Annette Carter at (561) 682-6433 or ancarter@sfwmd.gov.

Section Use Only:

Date Received: _____ Check #: _____ Amount: _____



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VISIT THE FLORIDA SECTION WEBSITE AT:
www.awraflorida.org

✪ Contact Upcoming Meeting Chairmen Regarding Sponsorship or Assistance ✪

St. Augustine

January 18, 2008
 Mike Cullum
 386-312-2351

White Springs

March 14, 2008
 Gordon Brown
 352-246-1865

St. Pete Beach Area

May 16, 2008
 Rob Birrenkott
 813-250-0577

Key Largo

July 24-26, 2008
 Cathy Vogel
 239-565-1429

Lake Okeechobee

September 19, 2008
 Charlie Shinn
 352-538-0853

Welcome New Members!

Daniel Alford, AM Environmental, Boca Raton
 Norman Anderson, Earth Tech, Jacksonville
 Trevor Campbell, Plato Consulting, West Palm Beach
 Robert Compton, University of Florida student, Gainesville
 Stacia Davis, University of Florida student, Gainesville
 Gregg Jones, Integrated Water Solutions, Riverview
 Mary Lindgren, Environmental Services, Jupiter
 Rajendra Paudel, University of Florida student, Gainesville
 Michael Ports, Bergmann Associates, Jacksonville
 Jenna Santangelo, Environmental Services, Jupiter
 Mark Shaeffer, Baskerville Donovan, Pensacola
 Tom Vill, Baskerville Donovan, Pensacola

