

The Droplet

Florida Water Environment Association Integrated Water Resources Committee

September 2014

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From the IWRC Chairman

One of the goals of the IWRC is to further the dialogue between water professionals throughout Florida. Another goal is to provide timely, high-quality information and education on water as a valuable resource that can be used to meet current and future water resources and water supply challenges throughout Florida.

The Committee has begun planning events this year and is excited about the upcoming events. IWRC is planning to organize a luncheon in 2015 (which will be a biennial event), and there are also talks of organizing an encore presentation of the 1-day seminar to be held in the FWEA Treasure Coast Chapter region in January 2015. Such events will bring more recognition to the committee and will definitely be rewarding for anyone associated with the committee in a leadership position, which is another goal of the committee.

If you are interested in becoming a member of IWRC or nominating yourself for an open position, please contact me at JChristopherson@Geosyntec.com.

And keep an eye out for more details on the upcoming events organized by the IWRC in future issues of this newsletter.

*Jason Christopherson
(FWEA IWRC Chair)*

FY 2014-2015

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Florida Water Resources Monitoring Council Releases the Water-CAT Water Resource Monitoring Catalog

Who monitors water resources in your neighborhood?

The Florida Water Resources Monitoring Council (FWRMC) has released the Water-CAT, an interactive, searchable, online database of information on water resource monitoring programs across the state. The Water-CAT was developed to facilitate access for everyone, from policymakers to the general public, to information on marine, freshwater, groundwater, sediment, and biological monitoring in Florida. Monitoring groups can use this resource to share data more easily, improve resource management, and minimize duplicate monitoring efforts. Users can easily access water resource monitoring information from approximately 75 organizations and nearly 104,000 monitoring stations across Florida. The Water-CAT will be continuously updated as the Council and users add new organizations, monitoring stations, and other data.



The catalog allows for both basic and advanced searches using different kinds of queries including: organization, sampled parameters and station location. In the future, other searchable variables will be added, including monitoring frequency and time range. This resource is designed to be useful not only to members of the industry, but also for citizens interested in water resource monitoring in their area. Searches are designed to be downloaded and can be exported to Excel or into a KML file to display information as geographic points on Google Earth. Spatial search results on maps can also be saved as JPG files.

The FWRMC has been developing the Water-CAT since 2011, when a workgroup was formed and began meeting regularly to evaluate existing online monitoring atlases, catalogs, and portals for usability and desirable features. The workgroup eventually selected the platform

used by the University of South Florida's Water Institute, which created and maintains the Florida Water Atlas.

After three years of planning and organizing, the Florida Water Resources Monitoring Council is pleased to release the Water-CAT at www.water-cat.org. The Council is enthusiastic about this database and the opportunity to advance high-quality, integrated water resource monitoring in Florida. We encourage you to explore the Water-CAT and discover who is monitoring in your neighborhood.

The Florida Water Resources Monitoring Council, chaired by the Department of Environmental Protection, is a coordinating body of 21 stakeholders charged with informing, planning, and ultimately coordinating water resource monitoring efforts at the state, local, and federal levels.

Gail Sloane
Florida Department of Environmental Protection
Division of Environmental Assessment and Restoration

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Water Reclamation: Lessons Learned

Abstract

Over the past 30 years the role of reclaimed water has shifted from that of land application as a means of effluent disposal to one of increasing importance as an alternative to traditional water supplies. With millions of gallons of reclaimed water being used every day, we can leverage our knowledge of those municipal reclamation projects along with lessons learned and apply it towards development of industry leading innovative reuse projects.

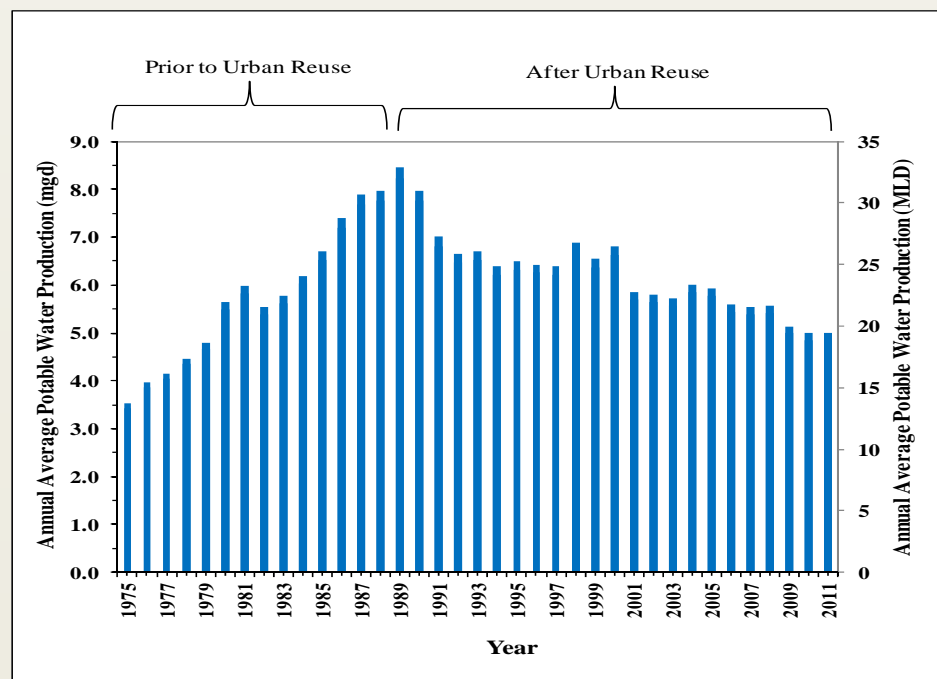
Institutional Issues

The institutional requirements of a potable water system and sewer collection and treatment system are well established. This is not the case with reclaimed water utilities. Reclaimed water utilities such as those being developed in Florida, California, and elsewhere are similar in the water quality provided but may differ greatly in the relationship with the end users. A measure of how different reclaimed water utilities are from one another was highlighted by the results of a survey of reclaimed water rates which showed that only 11 percent of the respondents set rates based on the direct cost of providing reclaimed water services (*AWWA, 2007*). Most of the rate structures (42 percent) were set to promote the use of reclaimed water, and 16 percent of the rate structures were set as a percentage of the cost of potable water. The lack of a well-worn path in developing reclaimed water rates or other institutional relationships between the utility and the end-user can be intimidating. However, it can also be an advantage, allowing the utility to formulate rates and service arrangements to fit the program's objectives. In some cases this may be providing low- or no-cost water to end-users to encourage use so that the discharge of effluent to local surface waters is reduced. On the other hand Venice, Florida for example, implements a tiered rate structure charging more as reclaimed water use increases to encourage efficient use of a valuable water supply.

How Effective Is Reclaimed Water in Reducing Potable Water Use for Non-potable Purposes?

Given the time, effort, and expense of water reclamation projects, the expected gains need to be considered. How well do these systems work in reducing the use of potable water? *Figure 1* below presents the historical use of potable water from 1975 to 2010 for a central Florida city with the dual distribution system. Historical potable water use shows a continuous increase up until 1989, after which potable water demands decline despite the fact that the city's population continued to increase. This decrease corresponds to the implementation of the dual distribution system, and its expansion correlates to the persistent declines in potable water use since that time. As of 2010 potable water demands within the city are back to those of 1979. Stated another way, the per capita use of potable water is approximately 40 percent less than prior to the construction of the urban reuse system.

Figure 1 Historical Potable Water Use Before and After Implementation of an Urban Reuse



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Potable Reuse Projects

By volume and numbers indirect potable reuse programs currently utilize a small percentage of the water used nationwide, but where implemented these projects are often critical to maintaining reliable drinking water supplies. Much of the technical community believes that both indirect and even direct potable reuse of reclaimed water will become more widespread and is inevitable in areas with severely limited water resources.

The engineering community generally accepts that the quality of reclaimed water is reduced when it is returned to nature through indirect potable reuse projects. The explanation for our embracing non-potable reuse applications, grudgingly accepting indirect potable reuse projects and largely rejecting direct potable reuse has little to do with technology and everything to do with human nature and public acceptance. This is a lesson that the technical community has taken a particularly long time to learn. The WateReuse Research Foundation has an ongoing study that will provide a better understanding of the public's perceptions. In a recent interview, Brent Haddad, a professor of environmental studies at the University of California, Santa Cruz, summarized the lack of communications between the technical planners and the public: "The public wasn't really examining the science involved," Haddad says. "They were just saying no." This frustrated the water engineers, who thought the public's response was fundamentally irrational, Haddad says.

Early results of the WateReuse Research Foundation study indicate a fundamental characteristic of the human thought process is involved, when explaining why returning highly treated reclaimed water to an aquifer may be acceptable, while piping it back into the potable water system is not. Referred to as "psychological contagion," humans have a habit of thinking, consciously or not, that once something has had contact with another thing, their parts are joined. Discharging water to the "natural" environment breaks this link, allowing wastewater to become an acceptable source of drinking water. This is not to say that there will not be significant direct potable reuse in the future, as it is receiving increasing interest. However, the public education process necessary to get to this point will be significant.

As some water utilities experience severe droughts and/or experience strain on limited water resources, the acceptability and need for reuse programs increase. This need has driven many utilities to begin studying and in a few cases begin implementing pilot direct reuse projects. One such example is Big Springs, Texas, which has recently completed a \$14 million "raw water production facility" utilizing sewage effluent as a source for direct potable reuse. In addition to limited water resources, the existing water quality has led the majority of water customers to provide additional water treatment at their tap and the use of bottled water for drinking. So the inclusion of reclaimed water for direct reuse has been more accepted. The customer satisfaction can be summarized by the statement, "the local water supply didn't have a lot to lose." <http://www.marketplace.org/topics/sustainability/texas-town-closes-toilet-tap-loop-our-future-water-supply>

Summary and Conclusion

Use of reclaimed water for beneficial purposes has a long and successful history. The treatment required to produce water safe enough for its intended use is well understood. The overwhelming majority of the reclaimed water projects in operation provide water for non-potable uses such as urban and agricultural irrigation. But there are a smaller number of potable reuse projects via groundwater recharge or surface water augmentation of raw water supplies, and these programs are often critical for providing reliable supplies of drinking water.

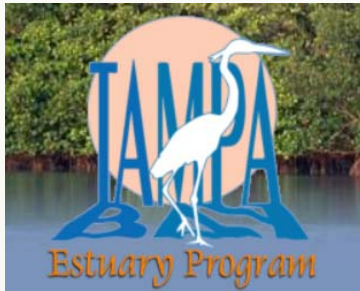
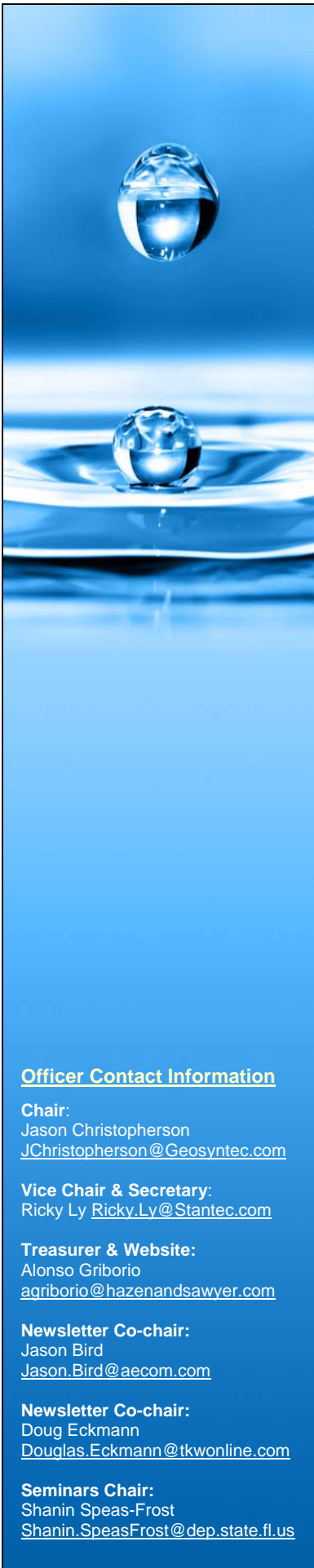
As populations have increased throughout the U.S., the same pressures that led to reuse projects in the southern and western U.S. are now present in other states. Examples of reclaimed water regulations and guidelines are readily available for use in areas that have no or minimal reuse of municipal wastewater. However, these regulatory documents are typically limited to treatment requirements, with opportunities for improvement regarding practical considerations to operations, agreements between supplier and users, or methods to set rates. The details of what is required for successful operations often do not reveal themselves until projects are up and running.

References

American Water Works Association, 2007, Water Reuse Rates and Charges Survey Results, Prepared by HDR Engineering for the American Water Works Association and Water Environment Federation.

Adapted from North East Water Environment Association Article (Ammerman 2012)

David Ammerman
National Reuse Practice Leader
AECOM



Get Involved Spotlight

Tampa Bay Estuary Program

Tampa Bay was designated an "estuary of national significance" by Congress in 1990, paving the way for development of a long-term blueprint for bay restoration through the Tampa Bay National Estuary Program. Tampa Bay is one of 28 estuaries in the National Estuary Program; others in Florida are Sarasota Bay, Charlotte Harbor and Indian River Lagoon.

The Tampa Bay National Estuary Program (TBNEP) was established in 1991 as a partnership of Hillsborough, Manatee and Pinellas counties; the cities of Tampa, St. Petersburg and Clearwater; the Southwest Florida Water Management District; the Florida Department of Environmental Protection; and the U.S. Environmental Protection Agency. In 1998, the TBNEP became the Tampa Bay Estuary Program (TBEP) with the signing of an Inter-local Agreement which pledged to achieve the goals of the new Comprehensive Conservation and Management Plan.

TBEP leverages the resources of program partners by financing cutting-edge research into key problems impacting the bay; sponsoring demonstration projects to test innovative solutions to these problems; providing "Mini-Grants" to community groups to engage the public in bay restoration; and developing educational programs targeting key segments of the bay community - including teachers, boaters and homeowners.

Volunteer opportunities abound via the "Give A Day For the Bay" program to give back to your local community by restoring coastal and upland habitats which help improve the quality of our watershed and outstanding Tampa Bay resource. More information can be found on the website: <http://www.tbep.org/help/giveaday.html>

Other Water News and Events

- **Tampa Bay Estuary Program – Bay Mini Grants**

The Tampa Bay Estuary Program is accepting grant applications from local citizen groups and organizations for projects that help to protect or restore Tampa Bay while involving the local community. Projects may be educational, involve habitat restoration or both. <http://www.tbep.org/bayminigrants.html>

- Grant award limit: \$5,000 (Available on reimbursement basis only)
- Deadline for submission : October 1, 2014 by 3:00 pm
- Award Date: Mid-December

- **Sarasota Bay Estuary Program – Bay Partner Grant Program**

The SBEP Bay Partners Grant Program promotes environmental education, awareness, community involvement, and stewardship to improve the overall quality of Sarasota Bay and its tributaries. To support these goals, funding is available from SBEP for projects that focus on *Bay Education*, *Bay Restoration* or *Bay-Friendly Landscaping*. <http://sarasotabay.org/get-involved/bay-partners-grant-program/>

- Applications due March 2, 2015
- Grants will be awarded in the fall

- **National Estuaries Day:** <http://estuaries.noaa.gov/GetInvolved/Default.aspx?ID=593>

National Estuaries Day was established in 1988 as part of Coast Weeks to promote the importance of estuaries and the need to protect them. The National Estuary Day has strengthened the partnership between the National Estuary Program (NEP) and the National Estuarine Research Reserve System (NERRS). The two programs protect more than 50 estuarine habitats that have been federally designated as living resources.

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- **Governor Scott's Budget Recommends \$1.4 Billion to Protect and Preserve Florida's Environment** <http://content.govdelivery.com/accounts/FLDEP/bulletins/a227ff>

The Governor's Budget will include support for restoration projects in the Everglades, springs protection improvements, and the purchase of conservation lands. The FY2014/2015 budget places a priority on protecting the health of Florida's natural resources. "By proposing more than a billion dollars, Governor Scott recognizes the Department's commitment to preserving the environment through sound science," said Florida Department of Environmental Protection Secretary Herschel T. Vinyard Jr. "This significant funding will ensure the Department's ability to continue to safeguard and protect the state's natural resources."

- **Florida Department of Environmental Protection – SB 536**

Senate Bill 536, which passed in the 2014 legislative session, requires DEP, in coordination with stakeholders to conduct a comprehensive study on the expansion of use of reclaimed water, stormwater, and excess surface water in this state.

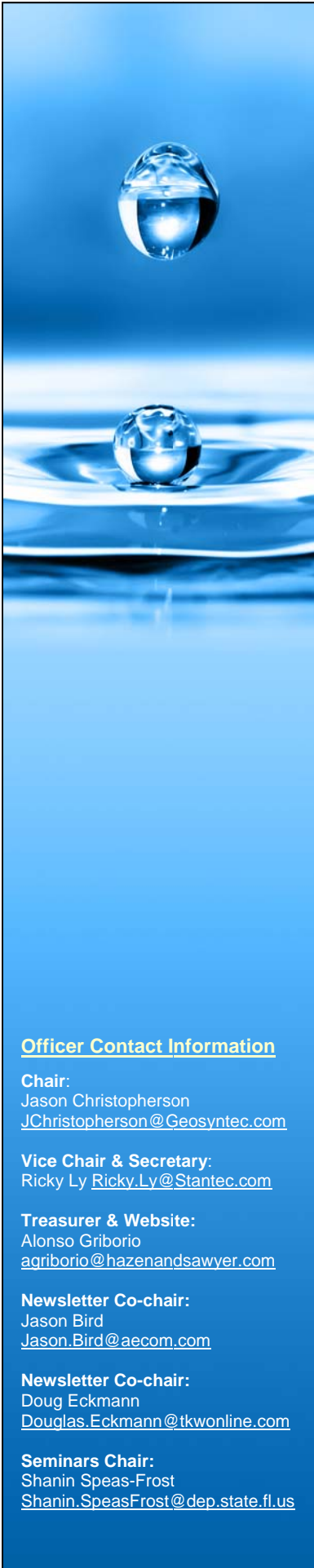
<http://www.dep.state.fl.us/water/reuse/study.htm>

Public Workshops will be held as follows:

- Wednesday, October 8, 1 PM, Live Oak (SRWMD/DEP)
- Friday, October 17, 10 AM, Palatka (SJRWMD/DEP)
- Monday, October 20, 1 PM, West Palm Beach (SFWMD/DEP)
- Monday, October 27, 1 PM (CST)/2 PM (EST), Panama City (NFWMD/DEP)
- Wednesday, October 29, 10 AM, Brooksville (SWFWMD/DEP)

- **Florida Ballot Measure** "Water and Land Conservation Amendment" (November 4th). [http://ballotpedia.org/Florida_Water_and_Land_Conservation_Initiative_Amendment_1_\(2014\)](http://ballotpedia.org/Florida_Water_and_Land_Conservation_Initiative_Amendment_1_(2014))

Official ballot summary reads: "Funds the Land Acquisition Trust Fund to acquire, restore, improve, and manage conservation lands including wetlands and forests; fish and wildlife habitat; lands protecting water resources and drinking water sources, including the Everglades, and the water quality of rivers, lakes, and streams; beaches and shores; outdoor recreational lands; working farms and ranches; and historic or geologic sites, by dedicating 33 percent of net revenues from the existing excise tax on documents for 20 years."



IWRC Calendar of Events

<u>Date</u>	<u>Description</u>
Oct. 7, 2014	Monthly IWRC Teleconference
Nov. 4, 2014	Monthly IWRC Teleconference
Jan-Feb. 2015	Biennial Luncheon

IWRC Goals and Focus

The goals of the IWRC are:

- To further the dialogue between water professionals throughout Florida to meet our growing needs in all areas of water resources.
- To provide timely, high-quality information and education on water as a valuable resource that can be used to meet current and future water resources and water supply challenges throughout Florida.
- To provide rewarding leadership opportunities to water professionals at all levels of experience.

The focus of the IWRC encompasses the following areas of water resources practice:

- | | |
|---|--|
| <ul style="list-style-type: none"> • water quality • watershed and stormwater management • water supply • water conservation and reuse • ecological and hydrologic restoration | <ul style="list-style-type: none"> • groundwater recharge • hydrologic and hydraulic modeling • funding and grant opportunities • regulations and policies |
|---|--|

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