

**LOWER ST. JOHNS TECHNICAL ADVISORY COMMITTEE (TAC) MEETING**  
**Jacksonville University**  
**Davis College of Business, Room 159**  
**Jacksonville, FL**  
**September 4, 2008**

**Participants**

Ray Bowman, SJR Alliance	Dana Morton, COJ
Russ Brodie, FWC	Alan Obaigbena, FDOT
Tiffany Busby, Wildwood Consulting	Andy Ouellette, JU
Dean Campbell, SJRWMD	Ying Ouyang, SJRWMD
Mike Corning, WSEA	Marcy Policastro, Wildwood Consulting
Barry Cotter, COJ	John Radtke, Putnam County
Betsy Deuerling, COJ	Steve Richter, SJRWMD
David Evans, Water & Air Research, Inc.	Vince Seibold, COJ
John Hendrickson, SJRWMD	Kelly Smith, JU
John Higman, SJRWMD	Justin Solomon, FWC
Nam Huynh, COJ	Lucy Sonnenberg, JU
Don Jacobovitz, Putnam County	Angelo Speno, Putnam County
Amy Kalmbacher, FDEP/CAMA	Greg Strong, FDEP
Melissa Long, FDEP	Scott Turner, DCHD
Lori McCloud, SJRWMD	Jessica Weatherby, Jones Edmunds
Kraig McLane, SJRWMD	

**Welcome and Introductions**

Lucy Sonnenberg welcomed the TAC and participants introduced themselves and the entity they represent.

**Lower Basin Legislative Funding Request**

Kraig McLane stated that the project list includes the same projects as last year and they are ranked in the same order. Several of the projects had slight changes in costs to update for current prices. The purpose of the first capital project on the list is to reduce point source discharges to the river. The second project is for tributaries remediation, which will benefit both the main stem and tributaries Total Maximum Daily Loads (TMDLs). There are also two assessment projects included on the list. Any funding received will be allocated by starting with the capital projects and moving down the list until the funding runs out. A portion of the funding will also be used for part of the assessment efforts in order to improve the science and management tools. The first two capital projects have estimated costs of \$20 million.

Dana Morton asked if any funding has been provided for the Hogan Creek project. Kraig responded that the project has not received any legislative initiative funding. This project was proposed by the St. Johns River Alliance to better assess that tributary. John Hendrickson asked if the first two projects on list encompassed multiple projects. Kraig responded that they do include several projects. The legislative funding is used for wastewater treatment upgrades and the St. Johns River Water Management District (SJRWMD) contributes *ad valorem* funds for reuse projects.

Steve Richter asked if the “Refinement of TMDLs and Other Management Tools” project is for additional monitoring or modeling. Kraig responded that this is for modeling work and *ad valorem* funds are used for monitoring. Dean Campbell stated that the SJRWMD has a broad category in the budget for TMDL modeling that includes several projects.

Dana asked how much funding they were going to ask for from the legislature. Kraig responded that the first project costs about \$15 million and the second project is about \$12 million. This second project includes both septic tank phase-out and enforcement. There is no set amount requested for assessment work each year; it depends on the needs for the year.

Tiffany Busby noted that the way these projects were ranked in previous years was based on efficiency in removing nutrients (cost per pound). Kraig added that once the majority of the wastewater projects are funded, the projects will be re-ranked with higher priority for stormwater projects. Any stormwater projects should be submitted because being on the legislative initiative list could help with other funding sources. Kraig stated that they will finalize the document for SJRWMD review. The list will then be sent to the SJRWMD Governing Board for approval for submittal to the legislature. The group provided general agreement with the projects on the list.

#### *“Upstream Updates” from Upper Basin and Middle Basin*

Kraig stated that the Upper and Middle basins are struggling with high water levels after Tropical Storm Fay but he heard that the Upper Basin project did a good job of holding water and alleviating some of the flooding further downstream. Kraig noted that the Governing Board adopted the Lower Basin SWIM Plan, which now includes the Lake George basin. This designates the Lake George basin as a SWIM waterbody, which should help with future funding for assessments.

Dean noted that parts of the river have been closed due to flooding. The Upper Basin project has been so successful in storing water that the water levels in the river are reaching historic highs. The Florida Fish and Wildlife Conservation Commission (FWC) has closed the river from Lake Monroe to S.R. 50 to boat traffic because of problems with flooded homes. Also, there is a safety issue because the defined channel is hard to identify and there are no navigational aids in that portion of the river. The FWC website lists all restrictions. The high water levels are also causing problems with freshwater flows into the Indian River Lagoon, which affects the salinity levels in the lagoon.

Dean stated that the St. Johns River Alliance is moving forward with the St. Johns River symposium in May. They are currently forming working groups to put together the agenda and programs for the symposium. The idea is to bring together a synopsis for each basin of the river and they are looking for experts that can provide information on the studies that have been conducted on the river. This will be a one day symposium held at Stetson University. Tiffany added that they are trying to identify subject matter experts so this group will be contacted for speakers. The symposium will be focused towards policymakers and the format will provide information about what has been done and discussions about the data gaps have been identified. The working groups will identify the gaps before the symposium in an effort to help promote funding for additional research.

Kraig thanked the TAC members for all their work and assistance with the SWIM Plan. Dean added that a copy of the plan is available on the SJRWMD Lower Basin webpage.

#### **Florida Water Resource Metadata Standards and Integrated Data Management System Design**

Tiffany noted that there were a lot of questions at the last meeting about metadata standards during the discussion on the Water Quality Exchange (WQX) network. Lori McCloud had suggested inviting Steven Richter to discuss the standards because he is part of the policy committee working on this issue.

Steven stated that they are working on developing the metadata standards and also a system to retrieve the data. The system will ultimately include all types of data, not just water quality information. A metadata standard, such as STORET, is a formalized collection of metadata elements. The metadata elements provide specific information about a value and standardization of these elements is needed so that the data

is comparable. The Integrated Data Management (IDM) system will be a web-based system to store and retrieve data and will be available to the public.

The process to develop the standards followed two different paths: one from the legislature and the other from the Florida Department of Environmental Protection (FDEP). The legislative Florida Oceans and Coastal Council determined that a new system was needed because a lot of money was spent to collect data that few people were using because of access issues. The council received \$500,000 last year to help develop the new system; however, no funding was allocated this year. Once the metadata standards are established, the legislature will put them into rule, which will make the new standards a requirement. Around this same time, FDEP formed the Florida Water Resources Monitoring Council to develop those metadata standards. The Council met for the first time in 2004 with approximately 80 people from 20 organizations. The 2005 meeting had a similar attendance; however, FDEP realized there were too many people participating to reach consensus. The Council was reorganized in 2006 to encompass ten organizations, each with one representative. This group had four charges: 1) develop metadata standards; 2) develop a system to replace STORET; 3) integrate different types of monitoring data; and 4) integrate federal, state and local monitoring efforts. The ten organizations include all five Water Management Districts, Department of Health, FDEP, Florida Department of Agriculture and Consumer Services, FWC, and Florida Local Environmental Resource Agencies.

The Council determined the best way to develop the standards was on discipline-specific basis. They organized workshops for eight general disciplines to discuss what types of information each needed to assess their dataset. The workshops began in January 2008 and were completed in August 2008. Additional disciplines will be added as funding becomes available. After the last workshop, the Council held a reconciliation meeting to minimize the dataset, which had approximately 270 elements and was reduced to about 100 elements. This change involved removing elements that were duplicated and moving some elements to a data exchange level because they were not considered necessary for understanding the dataset. There were elements, such as coordinates, that were added. The Council is presenting the data exchange level information to FDEP today. The elements will then be sent to the ten organizations of the Council for review before public workshops are held. The new standards will affect most data collection activities, except compliance monitoring because changing those standards would require rewriting the permits.

The IDM system will be designed to include different functional requirements. Different types of users will be provided various levels of access depending on their needs. The public will also be able to access the system. Policy decisions will need to be made about how to classify the different groups for each type of access. The system will have the option for users to perform both in place (standard) searches as well as more advanced searches that can be saved. The user can also generate reports, which can be saved to their local system. Subscription services will be available to provide notifications to a user when there are updates to data they are interested in. Users will also be allowed to comment on the data. Any data that are in question will be flagged until the comment is addressed. An arbitration panel will be needed to address any issues that may arise and the council has proposed that each member organization should nominate a representative to be on a standing committee.

Kelly Smith asked if all the data will be housed in one location or multiple locations. Steve responded that this is still being discussed since there are issues associated with both options. In a centralized database, there would be problems with keeping all the data up-to-date. In a delocalized system, custom translators would be needed to allow the system to look for data from multiple users. One suggestion for the system is to partner with an existing program, the Comprehensive Everglades Restoration Plan (CERP), which has an existing database. The CERP database is a Geographic Information System (GIS) based system that is hosted both in Jacksonville (U.S. Army Corps of Engineers) and West Palm Beach

(South Florida Water Management District). If partnering with an existing system does not work, funding would be needed to pay for hosting services.

Tiffany asked if the system would have a viewer component for users that do not have GIS. Steve responded that a viewer was discussed because it is understood that most of the public would not have GIS software. John Hendrickson stated that they went through a migration of data into STORET several years ago, which involved new standards. John asked if these new standards would depart from the STORET standards. Steve responded that these would be a different set of standards. STORET was mandated because it was the only option at the time. However, FDEP is now developing a new system and the metadata standards will be applied to this system. It will take approximately two years before there is a replacement for STORET. John asked if the Environmental Protection Agency (EPA) will still accept data from STORET. Steve responded that EPA is moving to WQX, which will be HTML based instead of Oracle based. Nam Huynh asked if there are similar efforts to create a system at the national level or the EPA regional level. Steve responded that several other states are undertaking a similar effort but not to the same extent. These systems will be for water quality data, whereas the IDM system would be for all types of data.

### **Characterization of Shallow Groundwater Quality Dynamics in the LSJRB**

Ying Ouyang gave a presentation on the SJRWMD shallow groundwater (SGW) study. River pollution from nutrients is a major environmental concern because it causes algal blooms, low dissolved oxygen, and degrades water quality. There is evidence that the SGW is contaminated by nutrients but it is unknown if this contributes to eutrophication of the river. The study began in 2003 to gather information to address this question. Sites were chosen to represent five land uses: 1) natural forestry (background), 2) neighborhoods (septic tanks), 3) agricultural lands, 4) stormwater retention pond, and 5) permitted land application of treated wastewater. A total of 59 wells were installed at 17 sites with well depths that range from 4 to 30 feet. The parameters studied include field measurements, lab physicals, and nutrients (the main focus). They found that 25 wells exceeded the standards for total nitrogen, 16 exceeded for nitrogen oxides, 14 exceeded for total phosphorus, and two exceeded for potassium.

The study found that the septic tank area had the highest nitrogen concentrations. The highest phosphorus levels were found in the septic tank and row crop areas. Potassium concentrations were highest in residential and row crops areas; most likely from fertilizer applications. The seasonal variation was not found to be as profound as the site variations. Tiffany asked if the soil type could have affected the results. Ying responded that soil type would play a role but most of the sites have sandy soil. They found that the redox potential increased as water level is increased. The total Kjeldahl nitrogen (TKN) content decreased with redox potential increase whereas nitrogen oxides and phosphate decreased. There was no correlation found between potassium and redox potential.

Modeling using MODFLOW was utilized to determine the direction of groundwater flow in the septic tank area. They are now working on using the STELLA model to estimate the nitrate discharge into the river from the SGW. Both flow from SGW through wetlands to the river and direct discharge will be estimated. A wetland attenuation factor was used in which 80 percent of the nitrate is removed by the wetlands. Ying stated that they have preliminary data that he is still verifying. The study will be furthered by adding seasonal surface water sampling and more wells in the wetlands at the Julington Creek site. These data will help to improve understanding of nutrient discharge to the river from SGW. Tiffany asked if additional wetland wells on different soil types would help to better estimate the attenuation factor. Ying responded that the factor they are using now was based on three reports (two from Florida) and the data from the study will be used to refine this factor, but funding was limited to add additional sites for comparison. John Higman asked if the wetland attenuation factor was kept constant in the modeling. Ying responded that this factor was kept constant but they expect it to change once they have data for this area.

Dana asked for an explanation of the preliminary data plot that compares kilograms/day of nitrate versus days. Ying responded that these data are for one well, as an example. The distance from the well to the wetlands and the wetlands to the river were multiplied by the depth of the wetland and groundwater, respectively. This provided a cross-sectional area so the plot should say kilograms/day/meters squared. Scott Turner asked if the septic tank area was chosen to represent all septic tank areas in the county or if it is representing a worst-case scenario. Ying stated that they chose the area because they had 15 wells so they were able to see how the groundwater moves. This is not meant to be representative of all the septic tank areas. Scott stated that the Duval County Health Department (DCHD) considers this a worst-case area. It will also be important to look at soil type because it affects how effective the treatment will be. Scott noted that he saw a SJRWMD presentation in the past that looked at the buffering provided by wetlands and it may be useful to merge this information with information from the SGW study.

Scott asked why septic tanks were found to be such high contributors to loading in this study. Other studies have found that only five to six percent of nutrients in groundwater are from septic tanks. Ying responded that this study examined a continuous source as opposed to a flow through, which would show higher concentrations. Scott asked if leaking wastewater infrastructure was factored into the study because there is a lot of old infrastructure in the area. Ying responded that they did not focus on sources because they were trying to determine the total amount of nutrients reaching the river from SGW.

John Higman noted that barium was listed as one of the parameters studied. This can be used as a tracer for groundwater and he asked if that was its purpose in the study. Ying responded that this was not used as a tracer. Instead, they used bromide as a tracer for potato fields, as it is used as a soil treatment for potato crops.

### **Technical Updates and Announcements**

#### *St Johns River Alliance Update*

Ray Bowman stated that Tiffany is now part of symposium planning team with him and Mark Middlebrook. The symposium will be held on May 28, 2009 at Stetson University. They will meet with SJRWMD staff to discuss how the workshop sessions and symposium will be organized. The symposium will cover geology, hydrology and hydrodynamics; water chemistry and quality; sediments and toxic contaminants; biological communities and natural systems; interactions with the adjacent basin, and future research for each basin. The theme is "Saving the St. Johns – What We Would Like to Know." Tiffany added that they are meeting with SJRWMD later this month to discuss topics for the symposium and to identify what people should be involved in the working groups. The working groups will discuss the research gaps for each of the main topics and this information will be presented at the future research panel at the symposium.

Nam asked if there is a cost to attend the symposium. Ray responded that they are still working on the budget but there will probably be a registration fee and a fee to exhibit. Tiffany noted that they are also looking for sponsors to help offset costs because the symposium includes lunch. Mark Middlebrook is the contact for sponsorships ([markmiddlebrook@gmail.com](mailto:markmiddlebrook@gmail.com)). Tiffany stated that the Alliance board will be meeting on Monday, September 8<sup>th</sup> at University of North Florida (UNF).

#### *River Accord/AHRI Anniversary and City of Jacksonville Environmental Protection Board Symposium*

Vince Seibold stated that he has copies of the State of the River brochure, which includes the webpage where the full report is posted. Tiffany added that the report can also be posted on an FTP site, if needed.

Vince stated the Environmental Protection Board Symposium (EPB) was held on August 26<sup>th</sup>. They will be sending a survey to participants to obtain feedback on how to improve the conference in future years.

The symposium was well attended and a lot of good discussions were held. The EPB and UNF are planning another symposium for next year.

#### *City of Jacksonville Master Stormwater Plan Update*

Vince stated that the plan is approximately 50 percent complete. The Light Detection and Ranging (LIDAR) data used in the plan should be available in about a month. Patrick Victor (CDM) can give a presentation on the plan at the next meeting. The stormwater projects will be included in the Basin Management Action Plan (BMAP) to help meet the nutrient TMDL. More detailed timelines for the projects will be provided in the stormwater plan. John Hendrickson asked for more information about the LIDAR data. Vince responded that he did not have more details but the data were used to provide better elevation information in the City to help with stormwater planning.

#### *Fecal Coliform TMDL Update*

Vince stated that the City is working with FDEP to contract with PBS&J for further assessments of several tributaries, including a “walk the WBIDs (waterbody identification numbers)” effort. The methods that will be used in the assessment were developed from previous tributaries studies and work completed in Tampa Bay. In addition, Dr. Jody Harwood with the University of South Florida will be performing microbial source tracking sampling to help identify potential sources. The Technical Working Group is currently putting together project lists for the BMAP, which should be adopted next year.

#### *Fisheries Data Collection Update*

Russ Brodie stated that their offices are now located on the Jacksonville University campus. The sampling work has been continuing and they are working with the SJRWMD on continuing the expanded area fisheries sampling that includes upstream areas near Palatka because funds have remained available to continue those stations.

#### *LSJ Main Stem TMDL Update*

Melissa Long stated that the next Executive Committee meeting will be held on September 15<sup>th</sup> and they will review the final draft BMAP. The public meeting on the BMAP will be held on September 16<sup>th</sup> at 10:00 AM at the FDEP office. The BMAP will then go through the FDEP adoption process and should be adopted by the end of the year. Tiffany added that the final draft BMAP is available on the FDEP website and is the version dated August 2008. Dana noted that the nutrient TMDL is still shown as draft on the website. Melissa stated that the TMDL is final and they will update the website.

#### *Other Member Updates*

Lucy stated that the River Report team has begun thinking about improvements to the report for next year.

Don Jacobovitz stated that Putnam County has been talking to SJRWMD about taking over the operation and maintenance of the Edgefield Regional Stormwater Treatment (RST) facility to meet part of their TMDL reductions. The county is also working on additions to their trail system.

Dana stated that Rick Hicks (FDEP) is working with Tom Belanger (Florida Institute of Technology) on a septic tank study in Jacksonville. The TAC Natural Resources Monitoring Subcommittee met with Rick and Tom to discuss the study and the draft scope of work should be available soon. The study is expected to begin in the fall. Tiffany added that they will be asking the TAC for help in identifying homeowners on septic tanks near surface waters that would be willing to allow the study team in their yards. Tiffany will send the meeting summary to the group so they can learn more about the study.

Scott stated that the DCHD will be holding a conference on performance based treatment systems during the second week in December (date to be determined). This type of septic tank system includes an aeration unit for additional treatment. The number of these systems has quadrupled in Jacksonville over

the past few years. More systems may be put into place if proposed legislation to make these a requirement near surface waters passes. Scott will send an invitation to the group once a date has been set. Experts from across the state have been invited to speak at this conference.

Scott also noted that list of septic tank failure areas in Duval County has been revised and has grown from 22 to 37 sites. DCHD worked closely with the City to rank the failure areas and the City developed a new sanitary conditions index to use in the ranking. The updated list has been approved by the DCHD Director and has been sent to the City to include in their budget review.

Tiffany stated that Betsy Deuerling is part of Tributary Assessment Team (TAT), which is conducting additional monitoring to help with identifying sources in the tributaries. The City, JEA, and FDEP are doing the sampling. Betsy noted that when the City was sampling in Newcastle Creek, they found high fecal coliform counts in headwaters of the creek. This area is a stormwater ditch that was filled with sediments. They wanted to determine if the sediments were the cause of the high counts or if there were any hidden illicit connections. Several agencies worked together to remove the sediments. They did not find any hidden pipes or illicit connections but removing the sediments did result in lower fecal coliform counts. The sediment was not analyzed for bacteria so its contribution could not be determined.

Dean stated that the Cumulative Impact Symposium on the river will be held in Gainesville on September 17<sup>th</sup> and 18<sup>th</sup>. This will be a technical symposium focusing on the work the SJRWMD and specialists from around the country have conducted related to the proposed water withdrawals. There will be a registration fee and more information can be found on the University of Florida Water Institute website.

#### *Next Meeting Date*

The next meeting will be in December and hosted by SJRWMD. Once a date and location have been set, Tiffany will send email. UNF has offered their University Center for an upcoming meeting.

#### **Adjourn**

The meeting was adjourned at 1:15 PM.