

**LOWER ST. JOHNS TECHNICAL ADVISORY COMMITTEE (TAC) MEETING  
 FDEP – Northeast District  
 Conference Rooms A & B  
 Jacksonville, Florida  
 September 3, 2009**

**Participants**

Khalid Al-Nahdy, FDEP	Eric Hughes, EPA
Shelley Beville, TNC	Chuck Jacoby, SJRWMD
Jan Brewer, St. Johns County	Jay Kamys, St. Johns County
Dave Briglio, MACTEC	Joe Kistel, Reef Research Team
Russell Brodie, FWC	Justin Levine, COJ
Richard Bryant, Timucuan Preserve	Pam Livingston Way, SJRWMD
Robert Burke, SJRWMD	Melissa Long, FDEP
Derek Busby, SJRWMD	Jim Maher, FDEP
Tiffany Busby, Wildwood Consulting	Dana Morton, COJ
Dean Campbell, SJRWMD	George Myers, FDEP/CAMA
Rick Carper, Atlantic Beach	Ying Ouyang, SJRWMD
Ivan Chou, ECT	Marcy Policastro, Wildwood Consulting
Ed Cordova, JEA	Ron Roberson, COJ
Barry Cotter, COJ	Vince Seibold, COJ
Tony Cubbedge, St. Johns County	Lucy Sonnenberg, JU
Betsy Deuerling, COJ	Cheryl Wapnick, PBS&J
Trish Gramajo, TNC	Jessica Weatherby, Jones Edmunds
John Hendrickson, SJRWMD	Pat Welsh, UNF
Mike Hollingsworth, USACE	

**Welcome and Introductions**

Jim Maher welcomed everyone and the participants introduced themselves and the entity they represent.

**Fecal Coliform Source Identification Status Report**

Cheryl Wapnick stated that PBS&J is working on two projects for the Florida Department of Environmental Protection (FDEP): (1) Geographic Information System (GIS) database and technical reports to identify the most probable fecal coliform sources; and (2) detailed assessment of fecal sources using existing information, field investigations, and sampling. The technical reports are being prepared for 53 of the original 55 fecal coliform impaired tributaries. The reports interpret existing information to create a set of maps for use in a weight of evidence approach to identify potential sources. The reports document management actions by the stakeholders through June 2007. Also included is an evaluation of sufficiency of effort to determine if the current management actions match the potential sources in the basin. The report also recommends any additional actions that should be taken to address sources. The maps used in this effort include a watershed location, land use, wastewater infrastructure (including septic tank repair permits through 2006 and any septic tank failure areas), sanitary sewer overflows, supplementary wastewater infrastructure, and stormwater infrastructure map. The existing monitoring data are analyzed to determine any trends in fecal coliform over time.

Several of the existing management actions that are discussed in the report are the Tributaries Assessment Team (TAT) intensive sampling, JEA predicative and preventative maintenance programs, City of Jacksonville (COJ) Environmental Quality Division (EQD) private lift station inspection program and potential illicit connection (PIC) program, Duval County Health Department (DCHD) septic tank inspection and designation of failure and nuisance areas, and COJ Public Works Department (PWD) and Florida Department of Transportation (FDOT) stormwater infrastructure maintenance. PBS&J has made

recommendations in the reports for additional actions such as additional routine sampling stations to target sources, performing more infrastructure inspections upstream of chronic high counts, septic tank outreach efforts in specific areas, implementing a subsidized septic tank pumping program, more extensive routine maintenance of stormwater systems, and modifying stormwater outfalls to provide additional treatment before discharging to a waterbody. To prepare each technical report, there is a deadline for the TAT to submit any routine monitoring data and the most recent intensive sampling information. The draft report is sent to FDEP for review and then PBS&J revises the report before sending it to the technical stakeholders for review. The final draft report is submitted to FDEP and can be updated as new information is obtained. A total of 31 reports have been completed with an additional three in draft. All 53 reports are due to FDEP in June 2010.

George Myers asked if there is currently a residential septic tank inspection program. Cheryl responded that the current inspection program is complaint driven. Dana Morton added that DCHD has included a project in the Basin Management Action Plan (BMAP) to conduct proactive inspections in four tributaries in which septic tanks appear to be a major source. Tiffany Busby stated that DCHD has also received special legislative funding in the past for targeted inspections in the failure areas. Vince Seibold noted that COJ is currently preparing an ordinance that would require homeowners to provide information to the city every five years that they have maintained their septic system. COJ is also discussing increasing the septic tank set back distance from waterways and requiring an operating permit.

Cheryl stated that the detailed assessment of the tributaries included 11 waterbody identification numbers (WBIDs). The first step was to analyze existing monitoring and GIS data, including private lift station information. The technical stakeholders then participated in a “maps on the table” workshop to add local knowledge to the existing data. A field reconnaissance event, called “Walk the WBIDs,” was conducted with over 20 participants from each of the TAT entities. This exercise took place over eight days in two events in September and October 2008. The group walked large parts of each basin to look for obvious sources, field verify the data, identify sample locations, and add to everyone’s understanding of the basin and the information needed to identify sources.

The sampling portion of the project included ten of the 11 WBIDs and they were sampled for eight months (December 2008 – July 2009). This period of time includes both the wet and dry seasons. The sampling was conducted by the TAT, PBS&J, and University of South Florida (USF). These three entities and Source Molecular performed the laboratory analyses. The indicator organisms used in the sampling were fecal coliform, *Escherichia coli*, and enterococci. Sources of bacteria include aging sewer infrastructure, septic systems, surface runoff, agriculture, wild animals, and soil/sediments. Microbial source tracking (MST), which was utilized in the sampling plan, is based on the fact that certain species of the bacteria are associated with the gastrointestinal tract of specific animals. MST can be used to track bacteria to its original host. Three indicators were used in the MST analysis: (1) *Bacteroides*, both a quantitative human-specific marker and a ruminant- and horse-specific marker; (2) *Enterococcus faecium* esp gene, which is a quantitative human-specific marker; and (3) Human Polyomavirus (HPyV), which is also a quantitative human-specific marker.

The MST sampling included 15 fixed samples sites for USF and 15 fixed sites for Source Molecular, for a total of three sampling points in each of the ten WBIDs. The USF sites were sampled for all three indicator organisms, HPyV, and horse and ruminant *Bacteroides* and sediment samples were also collected. The Source Molecular sites were sampled for all three indicator organisms, esp gene, and human *Bacteroides*. In addition, flexible sites were sampled by the TAT (COJ, FDEP, and JEA), only for fecal coliform. The TAT would also sometimes collect additional water for MST or a sediment sample.

The final assessment conducted was thermal imaging for four of the WBIDs (Big Fishweir Creek, Miramar Creek, Craig Creek, and McCoy Creek). These tributaries were flown using a plane with

thermal imaging cameras during the winter to capture any warmer inputs to the cooler waters of the creeks. COJ did a pilot test for thermal imaging several years ago and they learned it would be helpful to have water quality samples to help verify the results. For the event that took place on February 6, 2008, water quality samples were collected that day and the following morning to determine fecal coliform counts in several areas of each tributary. PBS&J field verified most of thermal anomalies from the images for all the WBIDs except McCoy Creek. McCoy Creek had low fecal coliform counts (all below 1,000 counts) and COJ may conduct the follow up investigations. PBS&J will use the information from all of these assessments to update the GIS database and the technical reports for these WBIDs.

Dean Campbell asked if there is a map that shows all the WBIDs that have a technical report. Cheryl responded that there is a map of the original 55 impaired tributaries in the presentation and she will send a list of the completed technical reports. Tiffany added that the TAC website includes a link to the FDEP FTP site, which has the reports. Dean asked if the GIS layers are available. Cheryl responded that the GIS database is in draft now and will be provided to FDEP at the end of the project.

John Hendrickson asked if the bacteria in the sediments are viable and growing. Cheryl responded that this potentially could be occurring but more research needs to be conducted. The sediments would not be the original source of the bacteria; instead, the sediments would have been inoculated and, if the conditions are favorable, could allow for bacteria growth.

Trish Gramajo asked what the cost was for the thermal imaging. Cheryl responded that it cost \$50,000, not including the laboratory analysis or the field verification. Justin Levine added that the actual cost was \$60,000 but the company charged less than their usual price. Ed Cordova asked if the thermal imaging was helpful for identifying sources. Cheryl responded that they found some interesting things with the imaging but they have yet to identify a source of fecal coliform.

Tiffany thanked Cheryl and the TAT for all their work in completing the assessments since this information was used in the BMAP to identify sources and determine what actions should be taken. The TAT sampling includes both routine monitoring of the tributaries and follow up sampling on any counts over 5,000 to try and determine the source. Cheryl added that the TAT also did the follow up sampling as part of the assessments on their own initiative.

### **Numeric Nutrient Criteria for Florida Lakes and Streams**

John Hendrickson stated that nutrients are the second most common cause of impairments for waterbodies, with other nutrient-related impairments also in the top 15. Nutrients became a high profile issue in the 1990s because of large blooms that brought this problem to the public's attention. The benefits of having numeric criteria are that they unambiguously define the point of agency action and greatly reduces the time and expense of determining impairments. The U.S. Environmental Protection Agency (EPA) has developed guidance documents on how to approach establishing numeric criteria. EPA has established the priority of waterbodies with lakes and reservoirs first followed by rivers and streams, estuaries and coastal, and wetlands. The EPA approach is based on ecoregions and requires that the criteria be protective of downstream regions. In 2001, EPA determined recommended Florida-specific criteria and if the state does not create their own criteria, EPA will implement their recommendations. FDEP has taken this effort seriously and submitted a plan for establishing criteria to EPA in 2003. The current goal is to determine criteria by 2010. To do this, FDEP has established a TAC and compiled the extensive nutrient data that have been collected in the state.

Last year EarthJustice sued EPA and EPA entered a consent agreement for establishing numeric nutrient criteria in Florida. In early 2009, EPA sent a notice to the state that they have to complete criteria for lakes and streams by January 2010 and estuaries by January 2011. FDEP is still determining how to

proceed under these timelines and, if EPA proceeds with establishing the criteria themselves, they will likely use the information FDEP compiled.

In a related effort, FDEP is also looking at modifying the waterbody designated use classifications. FDEP convened a Policy Advisory Committee (PAC) to evaluate the current classification and determine new classes. The purpose of this reclassification is that there are a lot of artificial systems that should not be held to the same standards as natural waterbodies and there are also pristine waters that are not fully protected. The proposed classification system is split into seven human use and four aquatic life use categories. Not all of the new categories correspond to the existing five classifications. Tiffany asked if any other states use a similar two prong classification system and if each waterbody will be assigned both a human use and aquatic life use category. John responded that he does not know of another state that does this and each waterbody will be assigned both distinctions.

John stated that nutrient criteria development can be done through a reference site approach or a stressor-response approach. The reference site approach uses reference waterbodies in a region to determine nutrient concentrations and the 75<sup>th</sup> percentile concentration would be used as the criteria. The stressor-response approach determines the cause and effect between nutrient concentrations and health of the waterbody. Stressor-response tools for streams include the stream condition index (SCI) and periphyton assessment. For lakes, classification (acid, alkaline and clear, colored), trophic state index (TSI), chlorophyll-nutrient relationships, and lake vegetation index (LVI) can be used. Reference condition tools can include landscape development intensity index, paleolimnology, and morphoedaphic index.

LVI will be used to verify that waterbodies that exceed the nutrient criteria are actually impaired. This is based on vegetation and is strongly correlated to human disturbance in a watershed. This index is somewhat controversial because there are other factors that affect plants other than human-related impacts. SCI is a multi metric index based on macroinvertebrates that is correlated with watershed disturbance; however, there is not a strong correlation for determining nutrient impairment. The periphyton index is still being developed and while it looks promising, the results are not significant enough for use in establishing the numeric criteria. Since these tools were not appropriate, FDEP will utilize a reference approach for streams. This is based on a map of total phosphorus (TP) concentrations throughout the state because some areas have naturally high TP levels.

For springs, FDEP looked at the effects of nitrate concentrations on biology and were able to determine criteria based on this relationship. Lakes were split into clear and colored categories and criteria were established using LVI and chlorophyll response. The morphoedaphic index is an alternative approach that uses alkalinity, mean depth, and color in an equation to determine what the concentrations should be. St. Johns River Water Management District (SJRWMD) created this index using lakes that either had natural background conditions data or information from the Pollutant Load Reduction Goal (PLRG) or Total Maximum Daily Load (TMDL). This equation allows criteria to transition from one class of lakes to the other.

The proposed criteria also include a new type of site-specific alternative criteria (SSAC) that will be specific to nutrients. Existing nutrient TMDLs will be adopted by rule as SSACs as part of the criteria rule. Each SSAC will have to be adopted by EPA and the statewide criteria would not apply. Jessica Weatherby asked what would occur in an area, such as Tampa Bay, that has a reasonable assurance plan instead of a TMDL. John responded that there was discussion of this issue and the plan would have to be verified in order for it to apply instead of the statewide criteria.

Pat Welsh asked how information on the numeric nutrient criteria will be conveyed to the public. John responded that public meetings will be held during the rule adoption. However, people may not

understand the implications until the criteria are applied and additional waterbodies are determined to be impaired.

Jim asked what occurs if an existing TMDL is less restrictive than the criteria. John responded that the TMDL would trump the criteria and would be adopted as a SSAC. Ed added that EPA will have to review each TMDL to determine that it is protective and some of the TMDLs may need to be reopened. Eric Hughes stated that he hopes everyone realizes that this response by EPA on the nutrient criteria is driven by lawsuits. EPA had to appear before a federal judge who was not sympathetic to the need for additional time to develop the criteria. This is why there is pressure to meet the January 2010 and January 2011 deadlines. EPA is more than willing to let FDEP take the lead on developing the criteria if it can be done by the legal deadlines. EPA and FDEP have been closely coordinating on this issue. Derek Busby asked if there is a possibility that EPA would implement their standards but leave the option for FDEP to come back later with different criteria for adoption. Eric responded that it would be reasonable and likely in certain instances.

Jim asked if there was any information related to the algal bloom sampling. John responded that this is a microcystis bloom, which was more abundant in the 1990s. Since Tropical Storm Fay, this has been an average rainfall year, which maintained the conditions that promote this type of algae. In addition there is a high nitrogen to phosphorus ratio, which allows for microcystis growth. SJRWMD has implemented toxin sampling and is sharing information with the Department of Health.

Dana asked if a tributary going into a nutrient impaired waterbody would automatically be listed as impaired. John responded that the tributary would be evaluated on its own and would be listed separately if impaired.

Pat noted that a waterbody can oscillate between colored and clear and he asked how the classification based on this would work. John responded that the TAC discussed this and they will assess the impairment for each year and compare the nutrient concentrations to the color in that year.

#### **Lower Basin Initiative Legislative Funding Update**

Tiffany stated that SJRWMD compiles a list of projects each year for legislative funding. Last year they did not receive funding so this year's list is the same as previous years. Derek added that SJRWMD does not know if they will be asked to submit a funding request but they wanted to prepare the list in case funding became available. The package from last year was sent out to the people with projects for any updates and only minor changes were received. A handout was provided that summarized the projects. Eric asked if any of the projects would qualify for Section 319 nonpoint source funding through FDEP. Derek responded that it depends on the project and SJRWMD encourages the entities to look for other funding sources. The state received stimulus money and a lot of the money went to the State Revolving Loan Fund. FDEP was able to fund many of the projects that have been on list for a long time, which moved up the priority of the other projects on the list. Tiffany added that some of the projects on the list are stormwater, which would be eligible for Section 319 funds. They would receive extra points for being in an area with a TMDL and a BMAP.

Derek stated that past funding was used for treatment and reuse upgrades. The legislative funds have been primarily used for the treatment plant upgrades and SJRWMD has funded the reuse upgrades with *ad valorem* funds. SJRWMD does have some remaining funds for reuse projects.

#### **Technical Updates and Announcements** **Environmental Protection Board (EPB) Symposium**

Vince Seibold stated that the symposium was held on August 28<sup>th</sup> and it was well attended. The City of Jacksonville will be sending out a survey soon to obtain feedback. The focus of the symposium was on

sustainability and the River Accord and River Report were released. Both reports can be found on [www.coj.net](http://www.coj.net) and the River Report and brochure are also posted on [www.sjrreport.com](http://www.sjrreport.com). Vince asked if any of the TAC members had feedback. Derek stated that he attended the energy sessions and found the information very interesting because he did not realize how much energy-related activity was occurring in Jacksonville. Vince noted that they will hold another symposium next year at the University of North Florida (UNF).

### **St. Johns River Alliance Update**

Tiffany stated that the Alliance Board will have a meeting at UNF on September 17<sup>th</sup>. They have decided to pursue the St. Johns River license plate, which was not approved during the last legislative session. Senator King was a big proponent of the plate and the Alliance hopes it passes as a tribute to him. The proceeds from the plate could help fund river projects. The Board will also hear presentations on water conservation efforts at the upcoming meeting and will discuss holding a River Summit in 2010. The Alliance was originally considering a summit in February; however, the University of Florida (UF) is holding a river conference at that time so the Alliance is considering having the summit later in the year.

### **GTMNERR Update**

George Myers stated that he spoke with Nicole Love (previously Nicole Robinson) and she is the new conservation and outreach coordinator at GTMNERR. Nicole did not have any updates for the TAC and suggested removing this as a standing update item since they are not conducting any specific work that would interest the TAC. George stated that he will continue to attend the meetings since his aquatic preserve work is more related. An update item for this is not needed; however he will provide updates on any major efforts. Tiffany noted that Nicole contacted her about a facilitation workshop that will be held September 15-17. There are a few openings and if anyone is interested they can contact Nicole directly.

### **ACOE Update**

Mike Hollingsworth stated that he received an email today about a meeting for the Big Fishweir Creek project team to determine how to proceed with the project. The project is receiving funds for the upcoming fiscal year (starting October 1<sup>st</sup>). They had previously started putting together the preliminary information and will now be able to determine project alternatives. Once they have identified project options, they will ask the TAC for comments. Mike noted that Phase 3 of the Jacksonville Harbor deepening will begin next. This will cover river mile 14.7 to 20 and deepen the channel by two feet. All the dredged material will be disposed of on Bartram Island. This phase will take six to nine months. The other harbor deepening project is several years away. The Corps is modeling alternatives to determine the project depth. The Port requested they look at one foot increments up to 50 feet deep. The Corps was previously unable to economically justify the project and they are not sure what the results will be of the current study. They have initiated cultural resource and biological surveys in the harbor and in potential exposure areas to help with the decision. The Corps is running out of space on their current disposal site so they have started an Environmental Impact Statement (EIS) to determine other locations. They also have the mile point navigation project, which will remove the jetty at the St. Johns River and Intracoastal Waterway. This project is being reviewed by Corps Headquarters and they have had a lot of questions. The maintenance dredging in the Palm Valley north reach of the Intracoastal Waterway will also start soon. In addition, the Corps is working on the Mayport deepening project and they have filed a Department of the Army application. Mike is currently preparing the FDEP permit application package.

Mike noted that it may be better to list the Big Fishweir Creek project on the legislative funding list instead of Hogan Creek. Derek requested information on that change as soon as possible.

Ed asked how SJRWMD and the Corps are interacting with the water withdrawal study and the impact of channel deepening. Mike responded that the modelers from both agencies are working closing together

and the Corps will use the information from the SJRWMD water withdrawal study in their EIS for the channel deepening. John added that there are other factors that affect the river salinity other than channel deepening. SJRWMD will only use the 50 foot depth to model the worst case scenario. John noted that Ivan Chou (ECT) has done several model runs with different channel depths so this information can be used.

### **Fisheries Data Collection Update**

Tiffany stated that Russ Brodie (FWC) had to leave the meeting but stated that they have been conducting the extended fisheries monitoring that SJRWMD has funded. They are in the process of compiling the annual report and Russ will send past reports to Tiffany for posting on the TAC website.

### **Upstream Updates from the Upper and Middle Basins**

Derek stated that the Middle Basin coordinator asked him to report on four projects that are being implemented in the basin. The Little Wekiva erosion control project is an erosion and sediment transport control project with some water quality elements. The Sanford midway treatment facility is located in Seminole County is being constructed mainly with county funds. The project is 50% complete and includes four large regional detention ponds that treat water before it discharges to Lake Monroe. The Sweetwater Cove dredging project will increase the residence time in the area and improve shoreline vegetation. This area discharges to the Wekiva and the project is being led by Seminole County. The Solary Canal project is also being implemented and Winter Springs will be responsible for the project once completed. SJRWMD also has the Algal Initiative; however, it did not receive much funding for this fiscal year. There are also two key projects for the Lower Basin that are occurring in the Middle Basin. One is a project at a Florida Power and Light (FPL) site to see if the cooling water can be treated before it is returned to the river. The other project is the Lake Jesup pay-for-performance project, which in which proprietary technology is being used to treat the lake. The contractor will be paid by SJRWMD based on the amount of phosphorus removed. The project looks promising and could be applied in other areas. Derek also reviewed the handout with the Lower and Middle basins proposed TMDLs.

Derek stated that the algae blooms have been widespread and SJRWMD is part of a coordination group with COJ and Department of Health. This group has provided information to the public on any health related issues. SJRWMD has lost funding for the algal analyses next year; however, they were able to find replacement funding through another source. Information on the blooms can be found at [www.sjrwmd.com/algae](http://www.sjrwmd.com/algae).

### **Fecal Coliform TMDL Update**

Vince stated the COJ letter of commitment for the BMAP is currently at the Mayor's office for his signature. The BMAP is posted on the FDEP FTP site if anyone wants to review it. Melissa Long added that this BMAP is for ten tributaries and the BMAP process for another 15 tributaries will kickoff at the technical meeting on September 10<sup>th</sup>. FDEP has also met with the Beaches because two of the waterbodies included in the next BMAP are in their jurisdictions. Tiffany noted that the public comment on the first BMAP ended last week and the BMAP will now go through the FDEP Secretarial adoption process. The BMAP should be fully adopted in October.

### **Lower St. Johns River Main Stem TMDL Update**

Melissa stated that the Executive Committee met on August 26<sup>th</sup>, which was the first meeting after BMAP adoption. The purpose of the BMAP was to give updates. Most of the BMAP monitoring has started except for storm event sampling, which requires certain conditions. The dissolved oxygen data sondes have been deployed and FDEP will fix some of the piping to help with flushing. FDEP has issued all the aggregate permits and most of the individual permits. Only four permits need to be issued and three of them should be ready in the next few months. The final permit is for Georgia-Pacific and that permit will

take longer to complete. The first annual BMAP progress report will be released in January with data through October 31<sup>st</sup>.

Lucy Sonnenberg asked for an update on the state mercury TMDL and monitoring supersites. Vince responded that COJ donated land for a supersite, which replaced the site that would have been located in Gainesville. There are four supersites that will take samples over two years. The other sites are ahead of the Jacksonville site for data collection.

### **Other Member Updates**

Vince stated that a low impact development (LID) workshop, sponsored by SJRWMD, will be held on September 11<sup>th</sup> at 9:30 AM at the Ed Ball building. Vince is also chairing an LID subcommittee for the city's land development regulations update. They hope to follow in the footsteps of Alachua County and there will be a representative from Alachua County to provide information on lessons learned.

Dana stated that the artificial reef program is now housed in the COJ Environmental Compliance Division. The program has a three person staff that used a grant to sink a tugboat in July and concrete in August to form reefs.

Tiffany noted that Cheryl asked to pass along a request that Dr. Jodi Harwood at USF is looking for raccoon and opossum scat from wild animals to help build an MST library. Cheryl can provide more information on collection if anyone is interested in helping.

Melissa stated that the SJRWMD water withdrawal symposium will be held September 23 – 24 at UF. The conference will also be streamed live on the SJRWMD website.

Tiffany stated that the TAC website, <http://www.lsjr.org/>, is kept up to date with conferences and information related to the Lower Basin. TAC members should send any information they want posted.

Dean stated that Rob Mattson (SJRWMD) is looking for data on macroinvertebrates as part of the alternative water supply effort. Anyone with data is requested to send it to Rob.

### **Next Meeting Date**

The next meeting will be held in November or December at Jacksonville University. A notice will be sent to the TAC once a date is set.

### **Adjourn**

The meeting was adjourned at 2:15 PM.