

**LOWER ST. JOHNS RIVER TECHNICAL ADVISORY COMMITTEE (TAC) MEETING**  
**City of Jacksonville-Ed Ball Building - First Floor Training Room**  
**214 North Hogan Street, Jacksonville, Florida 32202**  
**June 28, 2013**

**Participants**

Errol Bos, ETM	Jay Kamys, St. John County
Russ Brodie, FWC	Matt Kershner, FDEP
Derek Busby, SJRWMD	Phyl Kimball, Kimball Environmental
Tiffany Busby, Wildwood Consulting	Jody Lee, FDACS
Stuart Chalk, UNF	Lori McCloud, SJRWMD
Ivan Chou, IBC Consulting	Mark Nelson, Jones Edmunds
Ed Cordova, JEA	Marcy Policastro, Wildwood Consulting
Barry Cotter, COJ	Cicely Pontiflet, NPS
Betsy Deuerling, COJ	James Richardson, COJ
Mary Gaudios, FDEP	Lucy Sonnenberg, JU
Walt Godwin, SJRWMD	Angelo Speno, Putnam County
Mike Hollingsworth, USACE	Eric Summa, USACE
Doug Hurst, ETM	

**Welcome and Introductions**

Betsy Deuerling welcomed everyone to the Lower St. Johns River (LSJR) Technical Advisory Committee (TAC) meeting. The participants introduced themselves and the entity they represent. Tiffany Busby noted that the theme of this meeting is “innovative technologies.” If anyone has ideas for themes or presentations for future meetings, they can provide them to Tiffany and the TAC chairs.

**Biomaniipulation for Lake Restoration**

Walt Godwin stated that the St. Johns River Water Management District (SJRWMD) has implemented projects in Lake Apopka and the Upper Ocklawaha River Basin to harvest gizzard shad. For the LSJR Basin, about 84 metric tons (MT) of total phosphorus (TP) reductions are needed from upstream sources to achieve the LSJR total maximum daily load (TMDL). About 71 MT of TP reductions will be addressed by the Middle St. Johns River (MSJR) basin management action plan (BMAP), which leaves about 13 MT of reductions needed. Of these remaining reductions, all but about 5 MT will be met by agricultural reductions. It is estimated that harvesting gizzard shad in Lake George will result in about 3 – 4 MT of TP reductions.

Large nets are used to harvest gizzard shad by the thousands of pounds. Samples of the shad in Lake George were collected to determine the nutrient removals associated with different levels of harvesting. Walt noted that this project has no capital costs, only operations and maintenance (O&M) costs. With a budget of \$500,000, 2,649 kg of TP would be removed. A budget of \$750,000 would remove 4,023 kg of TP and a budget of \$1,000,000 remove 5,328 kg of TP. This is a very cost effective way to remove TP, with a cost of about \$188 per kg of TP. SJRWMD has been working with the Florida Fish and Wildlife Conservation Commission (FWC) on the constraints for harvesting shad in Lake George. On the west side of the lake, there is a lot of vegetation, which creates prime manatee habitat. Therefore, gizzard shad fishing will not occur in this area.

Walt stated that gizzard shad feed on sediments, which causes nutrient resuspension. Shad can also feed on zooplankton, which then suppresses the zooplankton population and allows for more algae growth. The additional algae lead to more sedimentation, which increases shad feeding in the sediments. Tank experiments were conducted to determine the effects of gizzard shad on water quality. A series of tanks were set up with 10-15 cm of Lake Apopka sediments and filtered Lake Apopka water. The tanks were

stocked with two different biomass levels of shad to represent the range of shad found in the lake, and some tanks were not stocked with fish. In addition, nets were added in some tanks to prevent direct access to the sediments. The water quality was sampled in the tanks over a 2 – 3 day period and they found that the tanks with shad had much more turbid waters than the tanks without shad. The tanks with fish and nets over the sediments had about double the TP concentrations as the tanks with no fish. The tanks with fish and no nets had even higher TP concentrations. Short-term and long-term diet analyses showed that sediments were the majority of the gizzard shad diet. The smaller fish (less than 30 mm) had slightly more reliance on zooplankton, whereas the larger fish fed on sediments almost exclusively.

SJRWMD started gizzard shad harvesting in Lake Apopka in the late 1990s. Since then about 9,500 MT of fish have been harvested which resulted in a direct removal of about 67 MT of TP and 196 MT of total nitrogen (TN). In addition, 163 MT of TP was prevented from sediment recycling. Walt noted that the sediment recycling reductions expected from harvesting in Lake George have not been calculated because the feeding patterns of the shad in that lake have not been determined yet. Reductions in TP loading in Lake Apopka have occurred by reducing the amount of agricultural discharges around the lake, adding a small wetlands filter system, and implementing gizzard shad harvesting. While there is a significant trend in the TP reductions, Lake Apopka is a shallow lake so the TP levels increase during drought conditions.

Matt Kershner asked what SJRWMD does with the gizzard shad that are harvested. Walt responded that SJRWMD found a contractor that processes the shad and uses it as crayfish bait, mainly in Louisiana. Lucy Sonnenberg asked if the experiments looked at the amount of phosphorus in both particulate and dissolved forms. Walt responded that they only look at TP because the phosphorus is about 80% particulate in these lakes. Lucy asked if gizzard harvesting would affect the distribution of phosphorus forms. Walt responded that they think shad harvesting will affect this distribution because the shad feed on sediments and then excrete phosphorus in dissolved form into the water column.

Phyl Kimball asked if SJRWMD has looked at seeding these lakes with microbes to reduce nutrients. Walt responded that they conducted a series of studies in the 1990s to look at the potential for microbes, but the lakes are too large for something like this to work. Just like alum and dredging, the cost to treat the large lakes with microbes is prohibitive. In addition, SJRWMD was not sure that the lakes are stable enough for this type of treatment because a pH change could release the nutrients from the sediments.

Tiffany asked if the primary TP reductions from shad harvesting are from removing the fish themselves rather than reducing sediment resuspension. Walt responded that they have verified the reductions from removing the fish, but the reductions associated with sediment resuspension are not as well known. Ivan Chou asked if SJRWMD looked at the affect on TN concentrations. Walt responded that the TN reductions are about three times the TP reductions. Ivan asked if harvesting tilapia would provide the same results. Walt responded that there are some tilapia in these lakes, but to a lesser extent than gizzard shad. The tilapia are located in the littoral zones so they cannot be harvested without affecting populations of other fish. Ivan noted that there are larger populations of tilapia in reservoirs. Walt responded that tilapia harvesting could probably work in ponds, but there are not enough in these lakes to have an impact. Eric Summa asked if SJRWMD has related TP removal to chlorophyll-a concentrations. Walt responded that they have and there is a correlation between TP and chlorophyll-a. In Lake Griffin, there was a very strong correlation between TP removal from gizzard shad harvesting and reductions in chlorophyll-a. In Lake Apopka, there is a correlation to some extent but there are also light limitations that affect the relationship.

Mike Hollingsworth asked if there are any issues with by-catch when harvesting shad. Walt responded that SJRWMD coordinates with FWC on when and where they should harvest to reduce by-catch. In Lake George, there are sunshine bass and American shad that migrate through the lake, so harvesting does not occur during that time. Matt asked what timeframe does harvesting occur. Walt responded that they

harvest from May to September in Lake George. Derek Busby noted that SJRWMD has observers, including Walt and a contractor, to help avoid by-catch. Mike asked if there have been issues with by-catch in other areas. Walt responded that for Lake Griffin, they decided to limit the by-catch of black crappie to 5% of total catch. This limit was reached after about five years of shad harvesting. Derek added that these same limitations are in place for Lake George and, so far, there has been very little by-catch. Walt noted that they have collected about 300,000 lbs of shad in about four weeks at Lake George. Phyl asked if there are any issues with mullet. Walt responded that mullet are not an issue because they are found along the shoreline and the shad are not harvested there. Eric asked if there would be a shift in finfish in September when the shad harvesting is completed. Walt responded that they do not expect to see a real change in the fish populations in the first few years of harvesting in Lake George because this is an open system where fish can swim in and out.

### **Enhancements to Regional Treatment Systems for Agricultural Runoff**

Mark Nelson stated that the Deep Creek West Regional Stormwater Treatment (RST) facility is owned by SJRWMD. The facility is located in the Tri-County Agricultural Area (TCAA) within the Hastings Drainage District, which has a lot of potato crops. The goal for the LSJR BMAP is to have 100% in-field best management practices (BMPs) with a 37% TN reduction and 15% TP reduction. SJRWMD has been studying the TCAA since the 1990s and found that more than in-field BMPs are needed to achieve the TMDLs, and RST systems are more efficient at making reductions.

Derek stated that SJRWMD conducted a subbasin study in 2002 to identify those areas that were contributing the most nutrient load to the river. SJRWMD then used this information to identify potential project areas for different RST facilities. When the LSJR BMAP started, SJRWMD had already constructed two RSTs, one in Deep Creek and one in Dog Branch (Edgefield), and had identified other options. One of these other options was the Master's Tract RST, which is now under construction. SJRWMD purchased another piece of property and they just received legislative funding for a hybrid wetlands treatment technology (HWTT) system, which is a combination of wetlands and chemical treatment. In addition to the RSTs, reductions in off-field loadings are needed. The Florida Department of Agriculture and Consumer Services (FDACS) has been enrolling growers in BMPs. Over the last two years, the TCAA Water Management Partnership was formed between FDACS, SJRWMD, Florida Department of Environmental Protection (FDEP), University of Florida–Institute of Food and Agricultural Sciences (UF-IFAS), St. Johns County, and others. This partnership is providing funding to install pilot projects on different producers' lands for new technologies and BMPs. Lucy asked what the banding technology is. Derek responded that the TCAA producers typically use broadcast fertilization, which sprays fertilizer out. This approach usually results in fertilizer in the ditches and a lot of the fertilizer cannot be used by the plants because of where it is applied. The banding equipment places fertilizer more accurately on the crop rows so that more is taken up by the plant instead of washing off. Jody Lee added that it costs between \$55,000 and \$95,000 for the banding equipment. There are about six to eight pieces of this equipment that will be used by growers this year, and another four to five that will be built for next year. Derek noted that SJRWMD has committed \$2.25 million to the partnership, of which approximately \$1.8 million has been contracted with the farmers for projects and banding efforts. FDEP is trying to bring in another \$3 million. The farmers seem to be appreciating this program.

Mark stated that about 1,200 acres drains to the Deep Creek West RST facility. SJRWMD owns this facility and St. Johns County performs the O&M for BMAP credits, based on a prorated share. Deep Creek flows to the river, and the creek has an U.S. Environmental Protection Agency (EPA) nutrient TMDL but not an adopted FDEP TMDL. Canal 1 is the primary feeder to the RST, and water from the canal flows to a pond then to a treatment wetland before it is discharged to the creek. The pump station includes two axial flow pumps that SJWMD has been working on to function most efficiently. Mark noted that this project was constructed as a design-build, so there are some opportunities for both

SJRWMD and St. Johns County to improve the facility. The pump station is one of those opportunities for improvement. The RST pond is 15 acres and the wetland is 38 acres.

SJRWMD has been conducting monitoring to determine how the facility is performing. The county has been using these data to identify a benchmark for RST performance so that if the efficiency can be improved, the county will receive the additional reductions for BMAP credit. Phyl asked what occurred that resulted in a big increase in TP removal from the RST between 2009 and 2011. Mark responded that there was great variability in the rainfall over these years, which had some effect on the RST performance. For the pond, there has been an average TN reduction of 40% and an average TP reduction of 56%. There is more variation in the removal efficiency of the wetland. Mark noted that determining a water budget for the system was problematic. The pump run times could be equated to flows; however, after the pump system, it was much more challenging to estimate the flows through the facility. This also made it difficult to determine residence time. The wetland had an average TN reduction of 26% and an average TP reduction of -6%, which means the wetland is a source of TP.

Phyl asked if the negative reduction for TP could be occurring from saturation of the aquatic plants. Derek responded that during times of base flow, there are high TP concentrations through the wetlands and oxidation is also occurring, which results in a TP export during low flow times. During high flow, the wetland treatment efficiency looks great and this is why SJRWMD and the county are interested in making changes to the RST. Mark added that another issue is the short-circuiting of the wetland system. When the wetland was constructed, the grading could have been done differently to help keep the wetland wet. However, the wetland is currently switching between dry and wet conditions. Derek noted that this was SJRWMD's first RST and they had a limited budget. They would have liked to add a berm around the wetlands but, with the limited budget, they had to use the existing agricultural canal. SJRWMD and the county are trying to address this now to improve the overall wetland efficiency.

Phyl asked what type of sampling SJRWMD is conducting to determine the effectiveness of the RST. Lori McCloud responded that they collect monthly grab samples at the RST inflow, pond inflow and outflow, and wetland inflow and outflow. There are also autosamplers at the facility to collect data during storm events. Eric asked how the wetlands were designed. Derek responded that the wetland area was minimally graded, and SJRWMD did some alum addition to tie up some of the legacy phosphorus in the soil. Lori added that the site was largely left for natural succession, with only some planted trees. This was designed to be a subsurface wetland.

Mark stated that most of the treatment at the Deep Creek West RST is occurring in the pond. The treatment in the pond and the wetland is affected by residence time, which is why the wetland is currently a TP source. To improve the facility there are several optimization goals including capturing more flow and more efficiently, providing more storage volume, and improving the hydraulic profile to store more water in the pond and to increase the amount of time the wetland is inundated.

There are two pipes that currently feed the forebay. Canal 1 is owned by the Hastings Drainage District so any modifications to the RST cannot back up water in the ditch. The proposal for optimization of the forebay is to remove the pipes and create a large preferential flow path from Canal 1 to Canal 2, which will bring more water into the forebay. For the pump station, the existing pumps are each 10 cubic feet per second (cfs) so they are constantly turning on and off. This is not a very efficient way to capture base flow and it also causes wear and tear on the pumps. The optimization plan is to replace the pumps with four pumps, two for high flows and two for low flows, within the existing wet well. Eric asked if the pump station is capturing 100% of the flow from the canal. Mark responded that the base flow in the canal is about 1-2 cfs and the flows can go up to a few 100 cfs, so it is not cost effective to capture all the flow. The goal of the optimization is to more efficiently capture the lower flows.

Mark noted that since a lot more of the flows will be captured with the proposed additional pumps, the pond would need to be expanded to match or increase the existing residence time. The option of raising the berm will be included when the project goes to bid. SJRWMD and St. Johns County are each contributing \$500,000 to the project so the most cost effective measures need to be implemented. From the cost-benefit analysis, they determined that there is more benefit to modifying the pond than modifying the wetland. The wetland is more complicated because a portion of the wetland was permitted as a Florida Department of Transportation (FDOT) mitigation project. The proposed optimizations for the wetland include adding ditch blocks in the header ditch and adjusting the bypass structure to help keep water in the wetland. Mark noted that improving the Deep Creek OST is a cost effective nutrient reduction project for St. Johns County for capturing and treating additional water.

Mark stated that the Master's Tract RST is a new facility that was designed by SJRWMD and purchased by St. Johns County. This project will treat 1,425 acres. The bid was awarded for more than \$3.6 million, which includes \$2.6 million from SJRWMD and \$791,000 from an EPA/FDEP Section 319 grant. The Master's Tract RST is adjacent to the Deep Creek watershed. There are three canals in this area and Canal 5 will be the primary canal sending water to the facility. The RST facility will include a pump station, pond, and a series of treatment wetlands.

Lucy asked if there is an expected lifetime for the ponds before major maintenance and/or dredging is needed. Mark responded that these systems are operated by pumps, which provide flexibility for O&M of the ponds if there is significant sediment accumulation over time. Lucy asked if an estimate of the timeline for maintenance could be made by looking at the sediment load coming into the system. Mark responded that this has been evaluated, but he does not remember the exact timeline; however, it would be about 10 to 20 years from now. Matt asked if sedimentation and capture are the only removal mechanisms at these facilities. Mark responded they are evaluating the option of adding stormwater harvesting, which would involve filters and pumps to send the water to growers for irrigation. Derek added that the designs for the Deep Creek and Edgefield RSTs included alum treatment, but SJRWMD wanted to see the results for these facilities without alum since this treatment increases the O&M costs. The HWTT project will include alum or some other chemical treatment with the wetlands.

Matt asked if there was any consideration for harvesting, burning, or other removal mechanisms. Mark responded that the county currently does not own the facility but vegetation harvesting is an option for the future. Matt asked if there is a potential for growing a commodity, such as shad, at the RST facilities. Mark responded that the biggest potential the county sees is stormwater harvesting, which could be a 100% nutrient reduction if the facility could stop discharging. There is also the additional benefit that the stormwater reuse would help reduce the agricultural communities use of groundwater, especially since there have been problems with saltwater intrusion in this area. Stormwater harvesting will be pursued at the Master's Tract RST, but not at the Deep Creek RST, since there are questions about the effects on the FDOT mitigation wetland. Lori noted that the RSTs were designed for the pond to be the main component for TP removal and the wetland was added for TN removal through the plants.

#### **Nutrient Removal Through *Phragmites* Harvesting**

Derek stated that the *Phragmites* study was completed in 2009/2010 with SJRWMD and the University of Florida. Sherry Brandt-Williams was involved in the study for SJRWMD but she was unable to attend the TAC meeting. Derek noted that if there are detailed questions about this study, he could bring them back to Sherry for answers.

*Phragmites* are found in freshwater and coastal marshes in both disturbed and undisturbed areas that are high in TP. From a management standpoint, they are considered an extractable resource and are used in wastewater treatment wetlands. Animals graze on *Phragmites*, and they can also be harvested or treated with herbicides or fire. SJRWMD looked at the option of harvesting *Phragmites* in Lake Jesup in the

MSJR Basin. Derek noted that this type of plant management for nutrient removal is common, and a lot of *Phragmites* are found in Lake Jesup. Therefore, this could be a low cost way to remove TP from the lake. In Lake Jesup, the *Phragmites* are currently managed through burning and spraying, and part of the study was to determine if these management techniques resulted in the re-introduction of nutrients into the lake.

Derek stated that one of the questions about this harvesting is when the best conditions and times of the year are for harvesting. Lake Jesup's water levels were evaluated to help answer this question because the water levels need to be high enough that the harvesting equipment can get in. In addition, an evaluation of where the TP was located in the plant, either above ground or below ground, was needed to ensure the TP was above ground at the times of the year that *Phragmites* could be harvested based on water levels. About 250 acres of *Phragmites* are located in the lake in the braided portion of the river and on the east and west sides of Lake Jesup.

The research questions for the study include: (1) what is the potential TP removal from *Phragmites* harvesting, (2) is there an appropriate time to harvest the plant, (3) what is the effect of harvesting the crop year after year, and (4) what is the impact on lake water quality of spraying and burning the *Phragmites*. The study design included harvest blocks in the lake and water quality sampling near the blocks. The sampling was used to determine the amount of nutrients running off into the lake and the extent that the plants are using these nutrients.

To answer the first three questions, monthly sampling occurred to measure the stem density; biomass density above and below ground; and TP, total Kjeldahl nitrogen (TKN), and non-structural carbohydrates. The maximum harvesting potential was determined to be in October to December, which was later than expected. Derek noted that data on the amount of dry weight and wet weight of the plants were measured to help determine how the material could be used once it was harvested. The study found that *Phragmites* grows back within five to six months after harvest. When examining how nutrients move in the plants at various times during the year, they determined that the most nutrients are in the plants during late fall, which corresponds with the high water levels in Lake Jesup. To answer the last question about the impact on water quality of spraying and burning *Phragmites*, they conducted a nutrient leaching study. This study showed an immediate release of orthophosphate and an immediate decrease in oxygen. In the long term, there was additional nutrient release. Overall, the conclusion was that nutrient losses from un-harvested litter can be high.

Derek noted that there is a high potential for TP removal from *Phragmites* harvesting in Lake Jesup, which could be up to 2 MT annually. There are distinct fluctuations in the nutrient concentrations above and below ground depending on the time of year, and the plants use nutrients from both the soils and water column. Cutting *Phragmites* without harvest releases about 1 MT of TP per year, which is about 10% of the TMDL required reduction. The next steps include comparing the results to wetter and drier years, determining potential environmental/habitat impacts of harvest, determining the ecological benefits of harvesting larger areas, assessing the effects of repeated harvests, and determining how the material could be used after harvesting. Derek stated that Europe uses harvested *Phragmites* for sweeteners, building insulation, cattle feed, crafts, and furniture.

Mary Gaudios noted that if *Phragmites* could be used to feed cattle, there would be a lot of options in the state. Derek responded that this is something that could be explored. Tiffany asked if the 2 MT reduction in TP is for the entire lake. Derek responded that this is the estimated reduction if all the *Phragmites* in Lake Jesup were harvested. Lucy asked if there is a benefit to harvesting the entire lake or if the ecological impacts are too big. Derek responded that they need to evaluate the impacts of larger scale harvesting, determine the limits for harvesting, and decide if the removal is worthwhile. Mark asked if there are any potential BMAP partners for this project. Derek responded that they are looking for

partners. In the MSJR Basin, most of the reductions needed are from nonpoint sources, which is different from the LSJR Basin. Tiffany added that the Lake Jesup BMAP is a five-year plan in which one-third of the required reductions must be achieved. FDEP is in the process of updating the TMDL model and the entities are expecting updated allocations for the next BMAP iteration. This uncertainty on their remaining requirements makes it difficult to get stakeholders to participate in the project. Errol Bos asked if there are any studies in Europe about how the byproducts could be used. Derek responded that SJRWMD has not had the chance to look into this yet.

### **Discussion: How Can the University of North Florida (UNF) Environmental Center Help the TAC?**

Stuart Chalk stated that he is the interim director of the UNF Environmental Center. Earlier this year, Radha Pyati was voted in as the new chair of the chemistry department so she is no longer the director of the Environmental Center. UNF is in the process of finding a permanent director. However, the UNF president wanted to know how the Environmental Center could be improved and Stuart was tasked with making some changes. Currently, the Environmental Center has one full time staff member, one other personal services (OPS) accountant, and a portion of Stuart's time. The center runs a number of programs on campus, such as collecting and processing waste, improving recycling, heading the sustainability committee, funding grants, and coordinating the LSJR River Report that is funded by the City of Jacksonville (COJ) Environmental Protection Board (EPB).

Stuart stated that he wanted to talk with the TAC about how the Environmental Center could evolve and what it could get involved in. Stuart noted that he thinks the center needs to do a better job interacting with the community and bringing people together from different universities in the area to help the community with any pertinent issues. Stuart was asked by the UNF president to think outside of the box for ways the center could get involved. He asked the TAC to start thinking about the UNF Environmental Center and to provide ideas to him. There is the possibility of adding more staff at the center if it is expanding.

Derek asked if the idea is multi-disciplinary, does Stuart have the ability to reach out to other aspects at the university. Stuart responded that the center does not do this now, which he believes is a deficiency. One of the actions he would like to propose is to leverage the university's staff to make sure everyone knows what the other staff is doing. Tiffany asked if the center needs ideas to build certain aspects, such as undergraduate programs. Stuart responded that the center does not have any courses, although there are environmental programs at UNF. There may be things that the center could do to help facilitate enrollment and the breadth of classes, such as funding faculty in different departments. Stuart stated that he is going to draft a strategic plan with five-year and ten-year goals. He asked for feedback from the TAC by mid-August so that he can incorporate the ideas in discussions that will occur in late August.

### **Technical Updates and Announcements**

#### **SJRWMD**

Tiffany stated that John Hendrickson (SJRWMD) received the Richard Coleman aquatic resource award from the Florida Lake Management Society for his extensive work in the LSJR Basin. Lori stated that SJRWMD is in the second of three years of fisheries monitoring with Russ Brodie and FWC. A new phytoplankton contract will be awarded this year and SJRWMD is looking to include other basins. The water quality monitoring in the basin will hold steady and possibly increase because the bureau that conducts the monitoring was authorized to hire two additional staff. Walt noted that they would be continuing with the shad harvesting in Lake George and starting a new project in Lake Apopka in October.

#### **U.S. Army Corps (USACE)**

Mike stated that USACE held a meeting last night on the Jacksonville Harbor deepening supplemental environmental impact statement (SEIS). About 160 people attended the meeting. The draft SEIS is posted online and USACE is soliciting comments, in addition to those received at the meeting. There are still some outstanding parts of the draft SEIS and some of the comments at the meeting noted that key parts of the SEIS would not be ready until after the public comment period ends. This timeline was set by people in Washington D.C., so they are trying to figure out how to address this issue. Mike stated that they are using a lot of the data and models that John Hendrickson developed, as well as information collected by SJRWMD, FDEP, and COJ. Mike requested that the TAC members review the draft SEIS and provide comments. Mike noted that based on the modeling, they are seeing less impact from changes in salinity in the main stem of the river than they were originally anticipating. However, in the tributaries, there are a lot of freshwater wetlands that could be potentially impacted. USACE will be adding new tributaries modeling to assess this. Mike noted that Russ has been helping with fish analyses to determine the impacts of the project.

### **Fisheries Independent Monitoring**

Russ stated that the fisheries monitoring has been continuing and the second year is going well. FWC has been working on an analysis of juvenile fisheries for the USACE modeling to determine the potential effects from the deepening, and this report was sent to USACE earlier this week. FWC also partnered with FDEP on trips to the St. Marys River every other month until the end of next summer to increase the water quality sampling for a proposed TMDL. Tiffany added that the St. Marys River is one of the remaining estuaries that need numeric nutrient criteria, and the criteria have not been established yet due to a lack of data. This is likely why FDEP is trying to collect the additional data.

Russ stated that during the past few years, FWC has been trying to increase the reef shore monitoring from the northeastern Florida border to Cape Canaveral. They are continuing the red snapper tagging program, which has had good participation from fisherman. The typical tag return rate is 2%-3% and this program's return rate is 5%-6%. This information is provided to the National Marine Fisheries Service (NMFS) for stocking and movement patterns. In September, FWC will start another cooperative research grant on spawning of several reef fish species, and they just completed the final report for a past cooperative research grant for offshore sampling on the utility of different types of hook and line gear to create an index for red snapper. Russ stated that he would send this final report for the TAC website. They will also be working to prepare the final report for the SJRWMD fisheries monitoring for the end of the second year.

### **Other Member Updates**

Betsy stated that COJ is continuing the routine monitoring in the LSJR, quarterly sampling in the tributaries at 120 sites, and monthly BMAP monitoring sites. COJ is also conducting monitoring in the Middle Trout River for the proposed site-specific alternative criteria (SSAC). COJ has been collecting monthly water quality samples and FDEP has continuous dissolved oxygen data sondes in the river. COJ is working on a bacteria control plan for Ribault River as part of the stormwater permit. A Walk the Waterbody was conducted in March to help with this plan.

Betsy noted that there have been a lot of discussions about the shellfish harvesting areas in Duval County, which have been closed since 1996 due to poor water quality from bacteria. The city has been receiving questions about whether these areas can be reopened, but there are not enough fecal coliform data to determine if water quality has improved. The Jacksonville Waterways Commission asked for information on what would be needed to conduct a study that would meet the requirements to reopen these areas. Betsy stated that COJ provided a cost estimate but even if the full study could not be completed, they are planning an interim study. COJ is looking for volunteers and coordinating with other agencies to conduct this sampling. Stuart asked if they could use UNF students to help with the sampling. Betsy stated that this could be an option. Previously, 22 sites were monitoring for the shellfish harvesting areas and COJ

needs to determine if these are still appropriate. The associated data, including rainfall and salinity, also need to be collected to help manage the beds.

James Richardson stated that the COJ EPB is seeking nominations for awards, which are due by July 29<sup>th</sup>. The nomination information is available at [www.coj.net/epb](http://www.coj.net/epb). The EPB Environmental Symposium is still being organized, and the registration information and agenda should be sent within the next week or two. The symposium will be held on August 23<sup>rd</sup>.

Lucy thanked the TAC members who are reviewing the River Report. The plan is to distribute the brochure before the full report. Lucy noted that comments are appreciated as soon as possible. There was no time for an internal review before the report went out for peer review, so they would like feedback on whether the conclusions in the report are solid before they start drafting the brochure. Other minor comments can be submitted later. The deadline for comments is July 12<sup>th</sup>. If anyone else wants to review the report, they should contact Stuart.

Angelo Speno stated that Putnam County is planning for the Palatka trail opening on August 17<sup>th</sup>. The county is looking for volunteers to help with the event and a planning meeting will be held on July 3<sup>rd</sup> at 12:00 PM at the Putnam County Chamber of Commerce. Eric asked if this is a multi-use trail. Angelo responded that it is a multi-use trail that goes over the Palatka bridge. This trail is the middle segment of the Lake Butler to St. Augustine Rail Trail. Errol added that this trail is a critical connector for the East Coast Greenway and the St. Johns River to Sea Loop, and will provide economic benefits through ecotourism opportunities. As part of the trail opening, a 23-mile bike ride is being planned.

Cicely Pontiflet stated that they are planning for the Timucuan Symposium on January 24, 2014. One of new features of the event is that this will be the first time that the scholarship recipients will be presenting on their research. One of the goals at the park is to help support student research so they work with local universities. The call for proposals for the symposium will be in the fall. Cicely stated that they are also planning for Timucuan Adventure Day, which was first held in January. This event had about 700 families in attendance. They are hoping to make the second annual event more science related, and they are looking for ideas and experts for this event. Cicely stated that one of the activities they hope to include is data collection by volunteers. If anyone has ideas for data that are needed for management decisions, they should let Cicely know.

Matt stated that the state of the river presentation will be held this afternoon at the FDEP Northeast District office, and the Riverkeeper will be speaking. Matt stated that he is new to managing the surface water group and wetlands permitting group, and he is always looking for partners on projects. FDEP is available to partner with other agencies to help seek efficiencies because there are limited resources to address problems.

Ed Cordova noted that EPA approved the LSJR main stem TMDLs as SSAC, so the TMDLs will apply instead of the general numeric nutrient criteria for peninsular Florida. This is the final assurance that stakeholders needed for what standards they will be held to for nutrient-related water quality.

Lucy asked if the FDEP Tallahassee bacteria laboratory is open yet. Marcy Policastro responded that FDEP is still setting up the laboratory, so it is not open yet. Betsy noted that FDEP is considering using the laboratory to evaluate bacteria in Miller Creek since there have been ongoing issues there.

Ed stated that JEA is looking for an aerial map of the current algal bloom extent. Tiffany responded that there is satellite imagery available. Lucy added that the satellite with the better resolution has been down and she believes the resolution on the other satellite would be too rough to see the bloom extent. Eric noted that USACE has a drone that they use to collect aquatic information and they are thinking of adding

Light Detection and Ranging (LIDAR) data collection. If anyone is interested in gaining access to the drone, they can contact Eric or Mike, although it is easier to authorize use to another federal agency. Stuart asked if the data from the drone are just photographs or if there is also a Geographic Information Systems (GIS) layer. Eric responded that the topography and photography information could be incorporated into GIS. Mike noted that there is a website with this information and he will send the link to Tiffany for distribution to the TAC.

**Next Meeting Date**

Tiffany stated that the next meeting would be held in September 2013 and hosted by UNF. Any ideas for topics or presentations for this meeting should be submitted. In addition, items that the TAC members would like to post to the website can be sent to Tiffany.

**Adjourn**

The meeting was adjourned at 12:15 PM.