

Final

**MINUTES OF THE MEETING
of the
HARRIS CHAIN OF LAKES RESTORATION COUNCIL
April 3, 2015**

The regular meeting of the Harris Chain of Lakes Restoration Council (Council) was held at 9:00 a.m. on April 3, 2015 at the Lake County Board of County Commissioner Chambers, 315 West Main Street, Tavares, Florida.

Members Present

Skip Goerner, Chairman
Robert (Bob) Johnson, Vice Chairman
Don Nicholson
Stephanie Bishop
Sid Grow

Members Absent

Hugh (Dave) Davis II
Dr. Ed Schlein
Keith Truenow, Secretary

John Stump, ex officio member

1. CALL TO ORDER

Chairman Goerner called the meeting to order at 9:00 a.m.

2. INVOCATION AND PLEDGE OF ALLEGIANCE

Councilman Nicholson gave the invocation. The Pledge of Allegiance followed.

3. COUNCIL ROLL CALL; REMINDER FOR OTHERS TO SIGN IN

Chairman Goerner called the roll. Council members Truenow, Davis and Schlein were absent. Stephen Tonjes (DOT) of the Technical Advisory Group (TAG) were absent.

4. APPROVAL OF MINUTES

The Council unanimously approved the meeting minutes from March 6, 2015.

5. PUBLIC COMMENTS

Linda Bystrak addressed the Council. Ms. Bystrak noted that she has attended Basin Management Action Plan (BMAP) meetings for the Upper Ocklawaha Basin since 2005. She stated that the Harris Chain of Lakes Restoration Council had previously sent representatives to the annual BMAP meeting as a stakeholder. Ms. Bystrak suggested the Council consider sending a member to the meetings because Total Maximum Daily Load (TMDL) allocations are being discussed. Ms. Bystrak noted other organizations attend the meeting, including staff from the Florida Department of Environmental Protection (DEP), St. Johns River Water Management District (SJRWMD), and Florida Fish and Wildlife Commission (FWC). Ms. Bystrak discussed Lake Denham and stated that it was discussed at the last BMAP meeting. Ms. Bystrak noted that Lake Denham is a very small lake in the southwest corner of Lake Harris and was formerly recognized as a major source of pollution to Lake Harris. Ms. Bystrak further discussed the need to clean up Lakes Denham, Trout, and Weir, which she regarded as the most polluted. Ms. Bystrak remarked that DEP is investigating sources of pollution to both Lake

Weir and Trout Lake, but not Lake Denham. Ms Bystrak requested that the Council ask Lake County Water Authority (LCWA) to include funding in their upcoming budget to study Lake Denham.

Chairman Goerner noted that there are nutrient budgets for all of the lakes in the Harris Chain, including Lake Denham, and inquired as to what Ms. Bystrak would require in any study. Chairman Goerner noted that he too attended numerous BMAP meetings, and that he had input at last year's meeting. He noted that the reason no one has attended BMAP meetings is that the Council had not been notified. Ms. Bystrak suggested that the Council should look at these smaller lakes because they are important to those that live near them.

6. PRESENTATIONS / ACTIONS

A. Update of Florida LAKEWATCH Data

Chairman Goerner welcomed Mark Hoyer, University of Florida (UF) LAKEWATCH. Mr. Hoyer gave a brief overview of the LAKEWATCH program, noting that he would present data tabulated for the Harris Chain of Lakes, including an analysis of temporal trends. Mr. Hoyer indicated that he is the Director of the LAKEWATCH program, which is a position he had taken over from Dr. Dan Canfield. Mr. Hoyer introduced the Florida LAKEWATCH volunteer monitoring program, which was started as a means of gathering more extensive data on lakes. It was developed following the university's land grant mission to include research, teaching and extension activities. The goal was to use citizens to collect water quality samples where LAKEWATCH or other agencies did not have the budget. The project was seen as a research project to look at spatial coverage across the state of Florida, and then temporal trends. Mr. Hoyer remarked that to keep citizens interested in the program it was necessary to provide them with information on their lakes, which is the extension component of the program. It was also a teaching opportunity as graduate students could learn from, and interact with the local residents.

Mr. Hoyer noted that one of the big stumbling blocks with the volunteer program was the reluctance of professional agencies to use data collected by citizens. There were concerns about the quality and consistency of the data. LAKEWATCH undertook a comparison study in 2002 between citizen and scientist collected data from 100 different lakes, and found no difference between the datasets. There was still agency concern about the quality assurance and quality control of the data because the citizen samples had been run through the LAKEWATCH lab which was not a nationally accredited lab. In 2010, LAKEWATCH collaborated with DEP to design another study using DEP's standard operating procedures (SOPs), DEP scientists, and LAKEWATCH volunteers. The resulting comparison between the professionally and volunteer collected data for nitrogen, phosphorus, and chlorophyll was identical. LAKEWATCH was then granted a site specific quality assurance/quality control plan so that their data can be used for such things as BMAPs and TMDLs. DEP has been working with LAKEWATCH over the past 3 years to provide volunteer sample collectors for lakes that they do not currently have budgeted.

Mr. Hoyer presented a table showing the data distribution for 6,700 samples collected from the Harris Chain of Lakes between 1990 and 2014. Each sample was analyzed for three different constituents, at a cost of \$45 per constituent, or about \$1 million worth of data. This gives an idea of the cost-benefit of the contribution by volunteers. Mr. Hoyer showed a set of graphs showing the specific data distribution for total phosphorus (TP), total nitrogen (TN), chlorophyll (CHL), and secchi disk depth (water clarity) for all lakes combined. He noted a large range of TP, ranging from 5 up to 250, with large ranges also for TN, CHL, and water clarity. The median TN concentration

was about 2,000, with a median TP of about 40. This gives an N/P ratio well over 30, showing that the lakes are P limited, which is the key to producing algae in these systems. Mr. Hoyer discussed a series of graphs of individual constituent data by lake, for the whole system. The highest mean concentrations for all constituents were found upstream towards Lake Apopka, diminishing downstream at Lake Yale. All graphs showed a large range in the data for each constituent because of annual variability. A plot of the annual means of TP over time for the Harris lakes was shown that also included notations denoting linear regression results using time and concentration. A negative notation indicated a net decline in concentration; zero indicated no change, while a positive notation indicated an increase in concentration. Plots of TP, TN, and CHL showed negative regressions and, therefore, a decrease in the constituents over the period of record in Beauclaire, Dora, Griffin, and Eustis. Harris and Little Lake Harris were steady, while Yale showed a slight increase. The most precipitous decline occurred at around the year 2000, with the startup of the Lake County's Nutrient Reduction Facility (NuRF) plant and its subsequent removal of P. With regard to Lake Yale, Mr. Hoyer noted that in the 1990s there was an abundance of hydrilla, which can lower TP, yet still have overall nutrient surplus because of absorption with attached periphyton. Mr. Hoyer remarked that, with the DEP approved dataset, they can now start looking for cause and effect, such as with plant abundance, rainfall, or storm events to evaluate natural and anthropogenic impacts.

Mr. Stump questioned Mr. Hoyer on alignment of the lakes on the TP plot. Mr. Hoyer further described the alignment. In further discussion of the plots Mr. Hoyer noted that one of the benefits of the dataset is that it encompasses both a period of 100 year drought as well as 100year wet spell. A plot of CHL, a biological component, showed a large amount of fluctuation due to water color, light, temperature, rainfall. There is typically much more variability in biological components as compared to nutrients, though the plot showed trends similar to TN and TP. A plot of the CHL/P regression shows that if the amount of TP can be reduced (through TMDLs), then CHL can be reduced. A second plot of the CHL/Secchi regression shows the strong relationship between CHL and water clarity. If the concentration of CHL can be reduced, then the water clarity and light penetration will increase, allowing submerged aquatic vegetation to grow.

Vice Chairman Johnson questioned the use of Log 10 on the X-axis of the two regression plots. Mr. Hoyer responded that Log 10 helps to linearize the data. Without the Log 10 transformation, it is more difficult to view the otherwise curvilinear data. Mr. Hoyer summarized that this data is the basis for many management goals, to increase water clarity, thereby increasing aquatic habitat and plants. Vice Chairman Johnson further asked about Secchi data. Mr. Hoyer discussed metric and United States (US) units and which LAKEWATCH used in secchi measurement.

Vice Chairman Johnson inquired as to whether Mr. Hoyer had related the data to water level and rainfall. He responded that he had not done that analysis yet on the Harris Chain of Lakes, but he had done the analyses on other lakes in the state. He has seen a relationship between the Atlantic oscillation, temperature, and rainfall, as well as relationships to rainfall and nutrients moving into estuaries. In further discussion, Mr. Hoyer noted that he sits on the Florida Water Resource Monitoring Committee, which is tasked with organizing monitoring in the state. One initiative that he has started is a long-term trend analysis working group. He would like to look at all the lakes including the Harris Chain. He wants to put it into the perspective of rainfall and groundwater. He also noted use of a 20 year record of land use changes from agriculture to urban and accounting for rainfall, to see if there are changes in the chemistry of the lakes with land use changes. Mr. Hoyer commented that had a PhD student did a long-term trend analysis with 27 years of data. He

reported that both the Florida House and Senate had written in appropriations to further the LAKEWATCH work.

Vice Chairman Johnson noted that the plots show significant changes with nutrients and that there was much data to consider. He further commented that the TN plot has many ups and downs. He thought it would be interesting to know how they related to rainfall and lake levels. Mr. Hoyer noted that after hurricanes in 2004, there was an actual decrease in P, but that it could be dilution, pointing to internal recirculation of nutrients in those lakes. Vice Chairman Johnson commented that it looks like Lake Beauclaire had big changes, but not so much with downstream lakes. Mr. Hoyer continued to discuss statistical analyses, and how variations in the trends were accounted for. He noted that the data which they have is from the 100 lakes and is best on the globe. The data is being used by scientists throughout the world. Vice Chairman Johnson indicated that he would like to see the data in terms that can be easily understood. Mr. Hoyer noted that the strong N and P decrease looked very good. Vice Chairman Johnson noted that DEP listed Lake Yale as one of most polluted and that he disagreed with their findings. Hoyer noted that the data on the group of lakes he presented showed Lake Yale as the lowest.

Councilman Nicholson noted that the presented data really helps highlight trends. He indicated that lakes Beauclaire, Dora, Griffin, and Eustis seem to clump together, while Harris and Little Lake Harris clump separate from the others. It raises many questions for study. Mr. Hoyer noted that in the geographical study of water, there are notable differences of nutrients in soil, including lake sediments. Aquatic plants can change nutrient levels; flushing rates can change nutrient levels. He noted there is much limnology involved in the phosphorus nutrient zones, and that there are morphological differences and macrophyte differences. Councilman Nicholson noted that it was exceptional work.

Vice Chairman Johnson commented about modeling and that he hoped to one day ask a soil scientist if there was a way to convert phosphate concentrations in the soil back to something that can be related to water. Mr. Hoyer commented that all models are wrong, but some are useful. They rely on the best science that we have. One model does not fit whole state. The nutrient zones he developed are the best cut available, to consider natural background variance. He emphasized that each lake has a limnology of its own. One thing ignored has been groundwater. Groundwater is driving nutrient flows. He has started a program called aquawatch and is seeking volunteers to sample groundwater wells. He is working with the Suwannee River Water Management District (SRWMD) to see how nutrients are affecting springs. The push for next 3 years is to relate groundwater nutrients to lake water nutrients. Mr. Hoyer closed his presentation by noting two LAKEWATCH awards. The first award was a distinguished service award from the University of Florida School of Forest and Resources and Conservation (SFRC). The second award was the Vision Award from the National Water Quality Monitoring Council.

Vice Chairman Johnson commented that there was no data from Lake Apopka from 2006-2012. Mr. Hoyer responded that they stayed off Apopka because of DEP efforts there, and that they did not want to overlap efforts in areas where the state was already sampling. Vice Chairman Johnson noted that there was a decrease in 2010, but no change later. Vice Chairman Johnson inquired as to who was monitoring Lake Apopka now. Dr. Fulton, SJRWMD, responded that SJRWMD is sampling and has some data. Chairman Goerner remarked that Dr. Fulton could respond when Mr. Hoyer was finished.

Mr. Grow requested that if Mr. Hoyer had any additional information to forward it to SJRWMD for distribution to the Council. Mr. Grow also noted that there was no data for Lake Beauclair from 2012. Mr. Hoyer noted that they had lost the volunteers for that lake, and that there is no current funding to restart sampling. Further discussion about funding, and volunteers for the program ensued. Vice Chairman Johnson inquired about whether LCWA was monitoring P in Lake Beauclair. Mike Perry, LCWA, indicated that LCWA was not.

Chairman Goerner thanked Mr. Hoyer for his presentation. Chairman Goerner then requested Dr. Fulton to come forward with his information on Lake Apopka.

Dr. Fulton showed a plot of Lake Apopka TP concentrations and lake water levels for 1995 through 2014. He noted a major effect of water level on TP concentrations. In the 1990s there was a decreasing trend, but in 2002 during a drought the P levels increased, followed by normal water levels where P decreased. In 2008 there was another drought and P again went up. Dr. Fulton indicated that it is apparent that there is a significant effect of water levels on P concentration. Dr. Fulton suggested a better way to look at changes in the P in lakes is to look at P mass, rather than concentration. The P mass is calculated by multiplying the P concentration by the (estimated) volume of water in the lake. Dr. Fulton presented a slide showing the P mass and water level over time, in which a decrease in P occurs from 1990s to 2000. It has remained low despite varying water levels since then. It appears that P concentrations are varying with lake water volume.

Vice-chairman Johnson asked how the P mass was measured. Dr. Fulton discussed the calculation, noting that lake volume was estimated from bathymetric data on the lake. Vice Chairman Johnson noted that the higher the water level, the lower the P concentration. Dr. Fulton indicated that he agreed.

Mr. Stump asked if the samples were unfiltered. Dr. Fulton said since they were TP, they were unfiltered. Most dissolved P is very low, in a particulate form and will vary with mixing. Data for dissolved P is also available. Dr. Fulton noted that he thought TP is a good measure of what is available for algal growth. Other agencies are measuring TP as well. Mr. Stump agreed that it is the P that is available for algal growth that is important.

Vice Chairman Johnson noted that the blue line on the plot is the target concentration for P for the lake. The line was derived partly from modeling and partly from a biogeographic approach to look at geographically and hydrologically similar lakes. Vice Chairman Johnson asked about the goal of reaching the target P level. Dr. Fulton responded that it will take time, noting that during high water times the TP level is getting close to the target. Vice Chairman Johnson commented that IFAS (UF Institute of Food and Agricultural Sciences) speculated that it could take 100 years to reach the target.

Councilman Nicholson commented that during times of drought, the locks are not flowing water from one lake to the next. He inquired as to the relationship between stagnant water versus flowing water on the data, given that water levels are generally the same. Dr. Fulton noted that water flow through the locks does not have immediate effects on P levels in the lakes and does not affect water quality that much. The flow is more important for tributaries and the Ocklawaha River, than lakes. Long periods of low dissolved oxygen (DO) are seen in the tributaries with low discharge rates. During high discharge rates, there is more of an impact on water quality. There is high nutrient loading in downstream lakes, such as Griffin and Eustis, coming from upstream lakes.

Councilwoman Bishop referred back to the P mass calculations, and inquired as to whether the target P level is also calculated based on volume. Dr. Fulton noted that the target is actually a concentration. He used an average volume of water to calculate the target as a simplification for presentation purposes. Councilwoman Bishop noted that she agreed that the target level was more meaningful on first graph presented.

Vice Chairman Johnson asked for copies of slides, and asked how many samples were used each plot point. Dr. Fulton reported that each plot point (diamond) is average for a year. Samples were previously collected two times monthly. Now, sampling is monthly at one lake station and bimonthly at two lake stations, basically monthly. Dr. Fulton remarked that data trends between LAKEWATCH and SJRWMD are similar. Chairman Goerner noted one point in the 1990s that exceeds 250 mg/l closer to 265 mg/l, but is currently at about 175 mg/l. In comparison, the LAKEWATCH graph shows much less. Vice Chairman Johnson noted that if both data sets were plotted together it would allow for a better comparison. Mr. Hoyer indicated he could prepare a comparison graph.

Vice Chairman Johnson noted that LAKEWATCH had four data points for 2012, and that the data shows a drop in P, while the SJRWMD graph shows an increase, and an upward trend from 2010-2012. Dr. Fulton noted that both show increase with a peak in 2013. Chairman Goerner noted that it shows a similar trend but different concentrations. Councilman Grow inquired as to what happened between 1985 and 1995. Dr. Fulton noted that there were muck farms surrounding the area that were discharging water at that time. He indicated that the large decreases in nutrient concentrations occurred when discharge levels dropped from the muck farms as restoration began. Vice Chairman Johnson noted that farmers also greatly reduced the amount of P used on crops.

B. FertHaul's Cavitation Technology

Chairman Goerner welcomed Nick Szabo of Ferthaul cavitation technology. Mr. Szabo provided an overview of the Ferthaul company, a strictly natural fertilizer producer. Ferthaul specializes in marketing, selling, hauling, and applying manure and biosolids to agricultural land. Mr. Szabo gave a history of some projects including one on Lake Apopka. He indicated that in 2013, Ferthaul presented a plan to restore Lake Apopka by remediating the lake through land utilization. He noted that this was, essentially, harvesting the flocculent material and applying it to adjacent land to grow hay. He noted that for every acre of land, Bermuda grass for example, would remove approximately 100 pounds (lbs) of nutrient per acre. He discussed the use of corn fields, weed harvesting from a lake, and how the spreading of the composted weed on land as fertilizer could remove nutrients from the water. He also noted that sludge could be removed from the lake, and how grass (hay) could be grown and taken out of the area. He reiterated that there could be millions of pounds of P being transported north. He indicated that an issue with his proposal was the quality of water going back to the lake. He expected a 1% return of P back to lake, which was too high for the Environmental Protection Agency (EPA).

Chairman Goerner noted this was an original proposal and that no one bid (on the contract) as it was not cost-effective because of the requirements.

Mr. Szabo presented a slide showing nutrient removal amounts via plant uptake. He noted that all the elements listed are in the lake, in right concentrations. He then showed a slide of the marsh flow-way which he said is removing about 6000 pounds of P annually. Mr. Szabo then discussed

water hyacinths over several slides. His studies found hyacinths growing fast, about five 5 times faster than corn. He suggested that by adding hyacinths to the flow-way, and then removing them later that we could go from removing 6000 to nearly a million pounds of P removed per year. And, that ground hyacinths would be a good fertilizer for grass or corn. Mr. Szabo then discussed the Mitton Valve. The valve produces massive amounts of cavitation. He showed a slide explaining how cavitation works by producing powerful bubbles that release energy as they collapse. At the point of cavitation, bacteria and hydrocarbons are destroyed. He indicated that he thought that cavitation, when controlled, could be used for water remediation. He noted that he suggested to DEP the idea to run unconsolidated flocculent material from Lake Apopka through the machine to see what happens. He discussed a letter from DEP which he said indicated reductions in P for 8 mg/l to 0.25 mg/l and N from 150 mg/l to 4.4 mg/l. He discussed how they used a suction pump from the lake to move water through a machine into a second tank for testing. They also performed a drinking water test and which said that they had water clean enough to drink. The only issue was with the water was color, which was over the limit because of chlorophyll.

Mr. Szabo reported that they were now undertaking an aquifer recharge project with the SJRWMD in Palatka. They are taking river water, agricultural runoff water, and grey water from the local sewage treatment facility to see if the same nutrient reductions can be met. He reported going to Lake Apopka and informally studying the flocculent levels in the lake. He noted that he thought that if someone could remove the flocculent layer, that aquatic plants would then grow. Chairman Goerner remarked that because of there is so much flocculent, that even if it is removed, that there will still not be sufficient light penetration for plant growth. He indicated that the under layer itself will become re-hydrated and unconsolidated. Mr. Szabo discussed re-oxygenation as a means to increase bacterial growth. Chairman Goerner asked about the kind of oxygen rates was he suggesting. Mr. Szabo reported that the rate was about 7.8. Chairman Goerner noted that in some cases there was no oxygen coming from the flow-way. He remarked that the process sounds great and he wants it to work. Chairman Goerner asked whether any of the other council members knew of this technology.

Councilwoman Bishop noted she was not aware of the technology, but was interested to know if it was being used elsewhere. Mr. Szabo responded that it was not being used elsewhere, but that he was interested in looking into using it in Texas. He thought that starting with a lake project would be the most simple. Chairman Goerner discussed mechanisms and issues for removing the sludge, including pumping and dredging.

Chairman Goerner queried whether any TAG members or anyone in the audience had any experience with this technology. David Whiting, DEP, noted that DEP did some analytical work on the water from the lake and that he was aware of different kinds of acoustical cavitation, such as ultrasound. He noted that the Ferthaul technology is mechanical cavitation to create microbubble bursts of pressure and temperature. The concept is not new, but this application is new. Mike Perry, LCWA, agreed that no one has used this application in this manner yet. He urged caution in adapting technology from different industries for use in lake cleanup. Chairman Goerner noted that this technology sounds a little different than what they had seen before.

Councilman Grow requested Mr. Szabo to walk through the timing for one pass through lake. Mr. Szabo noted that they tested for organochlorines (toxins) and could not find any toxins in the lake that could be harmful to the soil. He indicated that he speculates that any chemicals will have been removed by 20 years of flushing of the lake. Chairman Goerner noted that most of the problem

chemicals do not migrate and that they stay in the marsh area. Dr. Fulton reported that there was no toxaphene in water column, but that toxaphene and other chemicals in sediments could, however, move within the sediment layer. Pesticides would be tightly bound to the bottom sediments, not in the water column. Chairman Goerner noted that Mr. Szabo said there were no chemicals in the sediments. Dr. Fulton remarked that pesticides seem to be isolated to the north shore, not distributed throughout the lake. Chairman Goerner discussed the dredging performed in Lake Beauclair and whether any sediment analyses were performed. Mike Perry, LCWA, responded that there were some spikes in certain chemicals, but none were high enough to create any concerns. Chairman Goerner noted that Ann Griffin was concerned about arsenic. Mr. Perry reported that the arsenic levels were normal for the soil type.

Councilman Nicholson queried Mr. Szabo as to where the previous cavitation tests had been done. He responded that the largest water body to date was a 3-acre test and that they are now working on a 46 million gallon lagoon in Missouri. Chairman Goerner noted that Lake Apopka would be quite a project. Mr. Szabo remarked that the limit on the process is the amount of land to grow grass. He noted that if he was limited to 10,000 acres that it could take maybe 100 years.

Chairman Goerner asked if Mr. Szabo was still working on projects on Lake Apopka. Mr. Szabo replied no, but indicated that they are now working on a recharge project with the SJRWMD. Mr. Szabo requested the Council's endorsement, and suggested they undertake a 5,000 acre project and set some milestones. Chairman Goerner discussed some of the needs for Lake Apopka, including more submerged aquatic vegetation (SAV) and backfilling the north shore area to re-connect the historic marsh, which can act as a filter. He noted that dredging Lake Apopka, and placing the material on the north shore, would not be sufficient to raise the north shore. He indicated he was not a proponent of removing material from area. He noted that the timeframe for restoration is important and a 100-year plan is not sufficient because there are shorter term options.

Mr. Stump noted that one of the limitations is capacity. He inquired whether water quality standards can be achieved on a large scale and whether cavitation works on both organics and inorganics. Mr. Szabo offered to provide more data to the Council. Chairman Goerner noted that information should be sent to SJRWMD, who will get it to the Council. He remarked that he hoped to see Mr. Szabo again once more information has been received.

C. Perspective from Robert Hendrick of Lake Apopka dredging

Chairman Goerner reported that the presentation from Robert Hendrick of Lake Apopka dredging had been moved to May 2015.

7. COUNCIL AND AGENCY QUESTIONS AND ANSWERS

Mike Perry, LCWA, reported that, currently, Lake Griffin and the middle lake levels are at regulation schedule, but that the schedule will start bringing lakes down in the next month. Mr. Perry remarked that Lake Apopka was a half foot below regulation schedule and that Apopka would have been brought down a month sooner otherwise.

Chairman Goerner asked about current rainfall amounts. Mr. Perry noted that February 2015 rainfall was good, but that we do not expect more than average rainfall through June 2015. Mr. Perry discussed LCWA's ongoing budget process. LCWA has kept \$5,000 in the budget for the Council, and they are still carrying \$10,000 from the legislature allocation. Mr. Perry discussed the

Lakes Academy and noted that this past month they had 70 people attend two functions for the Harris Chain.

Chairman Goerner thanked David Whiting (DEP) for attending the meeting .

Dennis Renfro, FWC, noted that many volunteers participated in the installation of 700 fish attractors in the Harris chain. He indicated that each attractor will have a six inch marker to identify it. The project is making news and a summary will be forthcoming at the next FWC commission meeting. He noted that FWC staff spoke at the Lakes Academy, and thanked LCWA for a fine event. Mr. Renfro noted that, unfortunately, the event overlapped with FWC's open house at the new Tavares facility. The event drew about 160 stakeholders, with 140 cards signed with emails. The event will again be planned for next year, but will not to overlap with the Lakes Academy.

Chairman Goerner asked whether the fish attractors will be identified with some kind of GPS coordinates. Mr. Renfro reported that the identifications should be available in about a month and that FWC intends to have signs at all facilities.

Mike Allen, UF, provided an update on several projects. He noted that one project looks at the potential impacts from fishing during the spawning season for bass. He indicated that there is a concern in the state that catching spawning fish could hurt the population by disturbing nests and the loss of juveniles. The questions is does the loss of nests have a population consequence. Dr. Allen indicated that he is currently near the end of studies with graduate students and FWC. Experiments were conducted at the Florida bass hatchery and at small lakes by Hawthorne. He explained that Brandon Thompson had just completed a creel survey of Lake Eustis and estimated what fraction of bass are disrupted by fishing. Dr. Allen said he could present those results in the future and noted that there is unlikely to be a population effect because there is some much cannibalism in the first year. There are still plenty of fry for same year classes. Dr. Allen then discussed a new study at the hatchery looking at bass handling techniques during tournament. Most fishermen hold bass by the lower jaw and there is some evidence of damage to these fish. Dr. Allen indicated a study is going to test improper holding at the hatchery using brood fish to see how feeding is affected by handling. Because there is no funding, a student is going to do the study as a project. They intend to do a video to try and get funding from the public. Chairman Goerner requested that Dr. Allen speak about the bass spawning study next month.

Chairman Goerner discussed how there had been little talk from the TAG agencies about MFLs, except by SJRWMD. He indicated that he would like to hear feedback from the other TAG members on their experiences and involvement with MFLs.

Mike Mr. Perry commented that Lake Harris is heavily fished, and that the Council needs to know that the lakes are being used; so much so that some anglers are illegally caging bass for use in competitive tournaments. Chairman Goerner commented that they lived through a time when there was no bass fishing and that we all worked with LCWA to bring the fishery back. Dr. Allen noted that Lake Eustis has one of the highest fishing rates in the state.

8. COUNCIL MEMBER COMMENTS

A. Comments

Chairman Goerner asked if there were any further public comments. Linda Bystrak reported that, downstream at Silver Springs, SJRWMD and DEP is considering removing 30 million gallons a

day from the Ocklawaha River. She indicated she was not sure if it would affect Moss Bluff regulation. Chairman Goerner noted that it is well below the Harris Chain and part of the minimum flows and levels process.

Councilman Grow discussed an article in the Orlando Sentinel about SJRWMD and the cleanup of lakes. Mr. Renfro responded that there was some confusion related to the article and that FWC is working with the state agencies to consolidate their permits for exotic plant management on all lakes in the region. He noted that the article misinterpreted this work as water quality cleanup.

Councilman Nicholson requested more information on the Ferthaul presentation. He noted that he would like to see a project done on a Florida pond or lake, and to see results from within the area.

Councilwoman Bishop asked if there were any white papers on the Ferthaul studies. Mr. Szabo responded that there were none.

Mr. Stump complimented Mr. Szabo on his project and looked forward to seeing more.

Chairman Goerner introduced Denis Frazel, who will be taking over administrative support duties for the Council. Mr. Frazel provided a brief overview of his experience and background.

B. Discussion of Next Scheduled Meeting

Chairman Goerner set the next meeting for May 1.

Steve Fitzgibbons, SJRWMD, discussed the upcoming agenda and noted that Mr. Hendrick's presentation would be moved to May. He also noted that Mike Allen would make a presentation on bass spawning.

Chairman Goerner reiterated the inclusion of a discussion of MFL activities by TAG members.

Vice Chairman Johnson reported that he would be able to attend the next meeting.

Chairman Goerner complimented Lisa Allen, SJRWMD, on providing excellent minutes and he was hoping for a seamless transition.

9. ADJOURNMENT

The meeting adjourned at 11:35 a.m.