April 9, 2019

LAKE PICKETT LAKE MANAGEMENT PLAN [Interlocal Agreement]

Annual Meeting – 2019

• Agenda

Lake Management Plan

- General Provisions & Scope of Services
- Community-Based Activities & Events
- Current Fiscal Year
 - o Planned Treatments & Funding
- Next Fiscal Year
 - o Projected Treatments & Funding
- Exhibits
 - Lake Bioassessment Summary
 - Historic Reports/Data
 - o Respective County Budget & Financial Summary
 - Agenda/ Annual Meeting Notes (Prior Year)
 - o Document Amendments

LAKE PICKETT ANNUAL OC/SC/OCAB/LIAISONMEETING

Date, Time & Location : April 9, 2019 3:00 p.m.

Orange County Advisory Board : Debra Parrish, Alan Ashlock, David Evans, Becky Cramer, Bonnie Rimmel

Seminole County Community Liaison : Scott Forrest Orange County : David Hansen

Seminole County : Thomas Calhoun, Joey Cordell, Gloria Eby, & Joe Saucer

General Topics & Updates

- Welcome
- Fertilizer Ordinance [Seminole County] Passed on February 27, 2017. www.seminolecountyfl.gov/fertilizer.
 - Restricted Months: no fertilizing June 1st- September 30th
 - Slow Release Nitrogen: at least 50%
 - Know How Much: www.seminolecountyfl.gov/calculator
 - Buffer Zone: 15 feet from all waterbodies
- Fertilizer Ordinance (Orange County) Adopted on June 20, 2017
 - o "Orange County Fertilizer Application Education Course for Citizens": http://www.ocfl.net/FertilizeResponsibly
 - to apply during restricted season June 1 through September 30
 - No application if National Weather Service (NWS) severe weather advisory issued: (e.g. severe thunderstorm, flood warning, tropical storm or hurricane)
- Shoreline Protection Ordinance Status
 - FWC Rule change removes permit requirements on lakes smaller than 160 acres [Orange County Lakeshore Protection Permit may still be required]
 - Lake Status Nutrients/Habitat Scores [Bioassessment Indices Refer to Exhibit C]
 - Lake remains in Healthy category
 - Post hurricane effects
 - LVI/BioBase data on Watershed Atlas website: http://www.seminole.wateratlas.usf.edu/shared/ecology.asp?wbodyid=7636&wbodyatlas=lake
- Treatment Plans Current & Proposed [Refer to Lake Management Plan]
 - Monitor hydrilla and treat as necessary (early detection-rapid response)
 - Evaluate grass carp fish effects and adjust stocking rate as necessary
 - Continue to educate on the benefits of bog moss for Lake Pickett
 - Monitor limnophila and treat as necessary
 - o Target Cuban Burhead Sedge a.k.a. Cuban Bulrush
- General recommendations for lake-community consideration [Refer to Lake Management Plan]
 - Proposed Outstanding Florida Water Designation
 - o Increase native aquatic plantings in areas devoid of vegetation
 - Promote "welcome packages" to new lakefront homeowners
 - i) Orange County Lakefront Homeowners Guide: http://www.orange.wateratlas.usf.edu/upload/documents/Lakefront Homeowners Guide Rev11-2018.pdf
 - Lakewatch samples
- 2019 Shoreline Planting Event- dates available
 - o To be coordinated via Thomas Calhoun- Seminole County
 - i) Suggested event based off Nutrient Study recommendations

- Other
 - TGC Fish Barrier/Stocking
 - o Email Address for routine communications and important announcements
 - Nutrient Study
- Financial Status Current, Proposed and Projected
 - o Refer to Exhibit C1 & 2
- Guest speaker Ann Moore provided first-hand experience of OFW designation process
 - Lake Disston 1844 acres established in 2000
 - o 70 page petition
 - o Polite Persistence Pays off
 - o Provide historical documentation
 - Old turpentine stills found on Lake Pickett
 - Named for General Pickett
 - o Get support of special interest groups- county commissioners, FWC, SJRWMD District reps, Sen.
 - State archeological significance
 - What makes Lake Pickett unique- Native plants society, Audubon Society
 - No OFWs established since 2003
- Action Items
 - OFW statutes for public review
 - o Go to HOAs
 - o Prepare FAQs and Pro/Cons list
- Next meeting July 16th
- Invasive Corbicula clams

GENERAL PROVISIONS

Scope of Joint County Aquatic Weed/Plant Control [AWC] Services

The scope of aquatic weed control [AWC] services funded by non-ad-valorem assessment (Seminole County) and/or ad valorem (Orange County) includes those services associated with managing aquatic plant communities as deemed beneficial and/or critical to restoring, developing and/or maintaining conditions that enhance the water quality and over-all health of the waterbody; with emphasis on providing public services for public purposes which by definition of public are limited to the waterbody and respective shoreline when/where noxious and/or invasive exotic vegetation could/would threaten or impede the waterbody. Management of hydrilla is the primary objective for the Joint County AWC services provided at Lake Pickett; cattail management is secondary. Owners of lake front property are encouraged to independently secure any/all permits required to develop access corridors and to maintain private shorelines in compliance with State and County guidelines.

Governing documents

- Seminole County Ordinance 96-3
- Orange County MSTU Resolution Dec 1995
- Interlocal Agreement [IA] March 2013
- FWC Permit

Methods for Aquatic Weed Control as authorized via County Ordinance/Resolution

- Chemical (herbicides)
- Biological (sterile triploid grass carp fish) Introduced in 2015 at a stocking rate of two (2) fish per acre.
- Mechanical (harvesting, cutting, etc.)

Methods for Aquatic Weed Control as authorized via Interlocal Agreement

- Chemical
- Biological (note restrictions/requirements specified in 2013 IA, Section 4 (f-g)

Aquatic Vegetation [Reason (Type)] - Status

- Hydrilla (Hydrilla verticillata) [Invasive(Exotic)] Targeted
- Cattail (Typha sp.) [Nuisance/Noxious (Native)] Targeted
- Asian marshweed (Limnophila sessiliflora) [Invasive(Exotic)] Monitored
- Cuban burhead sedge, Cuban bulrush (Oxycaryum cubense) [Invasive(Exotic)] Targeted

Frequency of AWC Treatment

AWC services are performed as per the Lake Pickett Lake Management Plan developed at annual planning sessions; and on an as merited basis as consistent with the plan scope and mutually confirmed by respective counties.

Herbicide Treatments - Service Provider

Orange County Environmental Protection Division staff; supplemented by Aquatic Weed Control, Inc. as needed.

Funding

Each respective County is responsible per the provisions noted in the IA and per the other respective governing documents for providing the funding necessary to support the Lake Pickett: Lake Management Plan as confirmed at the annual planning sessions.

COMMUNITY-BASED ACTIVITIES & EVENTS

Community-based events, such as resident-based volunteer events involving native plantings along the shoreline of Lake Pickett continue to be recommended and encouraged. The intention of such activity is to plant beneficial native aquatic plants to key areas in need along the shoreline to develop a beneficial shoreline. The presence of the recommended native plant species along the shoreline provides habitat for fish and wildlife, helps impede invasive exotics from re-establishing, and reduces erosion of the shoreline. All of these best management practices are essential to providing the conditions that promote an environmentally stable habitat to be enjoyed by generations to come. The key to success is dependent on strong participation of the Lake Pickett community. Continued recommendations for community initiatives are as follows:

- 1) Work together with other lakefront owners. Have at least one annual lake association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. Seminole County and Orange County staff would be glad to present our findings from our surveys. Continue to increase native aquatic plantings along shoreline (such as pickerelweed, duck potato, and canna) and reduce exotic species such as torpedo grass.
- 2) Increase educational outreach programs, including Shoreline Restoration Projects (planting days), Florida Yards and Neighborhoods (FYN) Workshops, and Lake Management Video mail-outs. Most importantly, share the word about reducing personal pollution to your lake by decreasing total fertilizer usage and using only phosphorous free and slow-release nitrogen based fertilizers, properly maintaining/cleaning septic tanks, maintaining a healthy shoreline with beneficial native aquatic plants, constructing a berm and swale feature along your shoreline, and keeping grass clippings out of your lake and out of storm drains that lead to the lake. All of these activities help to protect and preserve your waterbody! Orange County is developing the Backyard BMP Program to incentivize BMP (Best Management Practice) installation in individual backyards. BMPs may include a berm and swale, rain garden or native plantings. There is also a New Lakefront Homeowners Guide meant to introduce new lakefront homeowners to certain facts about maintaining a healthy lakefront and protecting the water quality of the lake. The Lakefront Homeowners Guide is currently available on the Orange County Water Atlas (above or here): http://www.orange.wateratlas.usf.edu/upload/documents/Lakefront Homeowners Guide Rev11-2018.pdf
- 3) The report titled, "Lake Pickett Hydrologic/Nutrient Budget and Water Quality Management Plan" was completed by Environmental Research and Design. A community meeting was held on September 10, 2018, to introduce the report that drew the attention of a number of residents from the area.

COUNTY SERVICES - TREATMENT

Treatment Plan & General Expectations

• Hydrilla - growth in Lake Pickett has significant likelihood to continue, however, the timing and extent of hydrilla re-growth is affected by multiple natural and environmental factors that cannot be controlled or predicted with certainty. While extensive growth of hydrilla is possible at any point in time, it is anticipated that routine spot treatments of hydrilla with herbicides will be sufficient to manage hydrilla re-growth during the current fiscal year. The introduction of triploid grass carp (TGC) in 2015 and possible competition with the native bog moss appears to have had the effect of reducing the overall presence of hydrilla. The anticipation of spot treatments (using FWC permitted herbicides) for the current fiscal year takes into consideration the historic trend of hydrilla management required at Lake Pickett. As with any lake with a history of hydrilla infestation, long-term planning to include financial preparation for whole lake treatment is advised. An integrated lake management plan has been established where county biologists will continue to monitor and develop chemical and biological methods for hydrilla management.

- Cattails Treatment of the native, but potentially nuisance/noxious cattails (*Typha*) are managed in the uninhabited areas to prevent shoreline monoculture which decreases biodiversity, to promote beneficial native vegetation, and to control excessive growth that impedes navigation and creates muck.
- **Asian marshweed** a species listed on the Federal noxious weed list has been observed in several locations and will be monitored for presence, expansion and treatment needs. Management of Asian marshweed is anticipated to be generally in conjunction with Hydrilla management. <u>Additional treatment measures may need to be taken to address this species.</u>
- Cuban bulrush this invasive exotic species is present and may be expanding its coverage around the lake. It is targeted during herbicide sweeps for grasses around the lake.

JOINT COUNTY SERVICES - FUNDING

As Budgeted for current Fiscal Year [FY18/19]:

• Chemical Management of hydrilla/cattails/Asian marshweed/Cuban bulrush:

Orange County \$ 40,000.00 Seminole County \$ 40,000.00 Combined \$ 80,000.00

Assumption 1: Spot treatments will be sufficient to control hydrilla in current fiscal year

supplemented by sterile grass carp.

• Assumption 2: Hydrilla conditions will be monitored closely and any changes necessary relative to

the anticipated spot treatment plans will be quickly communicated and

appropriately addressed.

Assumption 3: Integrated treatment is inclusive of biological method [TGC sterile fish].

Assumption 4: On-going cattail management cost should continue to decrease as areas

are reduced in size.

Assumption 5: Funding impact for treatment of Asian marshweed is anticipated to be

minimal as it is has, so far, had limited presence. Any expansion or similar

development will be appropriately addressed and communicated.

Proposed for next Fiscal Year [FY19/20]:

Aquatic Plant Management - The projected treatment plans for the next fiscal year remain consistent with the plans noted for the current fiscal year as effect of TGC stocking is monitored. Each county shall budget a minimum respective cost share of \$40K. Each County is further responsible for long-term budget planning that will provide the financial means to respond appropriately in any given year to a planned or unplanned need for the equivalent of a whole lake treatment. A recent cost estimate for a whole lake treatment was performed by Orange County staff. This estimate of \$410K would require each county to be responsible for \$205K.

<u>Other Considerations</u> - The results from the Hydrologic/Nutrient evaluation included recommendations for maintaining water quality in light of on-going residential development on the lake as well as legacy issues that may bear attention. Some of these recommendations may require financial consideration during the Fiscal Year.

Refer to Exhibit C1 and C2

for

County specific budget and financial status.

Exhibits

Α	Most Recent Lake Bioassessment Summary
В	Historic Reports/Data
C1	Budget/Financial Summary – Orange County
C2	Budget/Financial Summary – Seminole County
D	Agenda/Notes from Prior Year Planning Session

Document Amendments

Ε

Exhibit A - Lake Bioassessment Summary

Vegetation Surveys: In 2018, Orange County staff conducted a series of surveys on Lake Pickett. The most recent survey was in January 2019. Notations are as follows:

- Lake Pickett has a diverse community of native beneficial aquatic vegetation throughout the lake.
- The latest survey found that no significant coverage of hydrilla (Hydrilla verticillata), Water lettuce (Pistia stratiotes) or Water Hyacinth (Eichornia crassipes) was present. The foraging by grass carp is believed to be having a positive effect on the control/management of hydrilla.
- Asian marshweed (Limnophila sp.) has been found and spot-treated in several locations.
- The dominant submerged aquatic vegetation continues to be bog moss (*Mayaca fluviatilis*).
- Cuban bulrush was not noted on this most recent survey.

Exhibit B - Historic Reports/Data

Lake Pickett

Lake Pickett is 762 surface acres in size, with a mean depth of 12 feet, maximum depth of 35 feet, and is located within the Big Econlockhatchee watershed. Approximately 8% of the lake is located within Seminole County; 92% in Orange County. In 1995, at the request of property owners, the Orange County Lake Pickett Municipal Service Taxing Unit [MSTU] was established for general lake cleaning maintenance and aquatic plant control. In 1996, at the request of property owners, the Seminole County Lake Pickett Aquatic Weed Control [AWC] Municipal Service Benefit Unit [MSBU] was established via Ordinance 96-3 to provide funding for aquatic weed control - primarily for managing hydrilla (an exotic/invasive aquatic plant). Since that time, Seminole and Orange Counties have coordinated the ongoing management of hydrilla in the lake. The revised Interlocal Agreement [IA] established in 2013 provides a 50/50 cost sharing arrangement for hydrilla management services, and defines the working relationship and the responsibilities of each respective county on behalf of Lake Pickett. To be most effective, lake management requires community cooperation and participation. The IA established in 2013 includes provisions for an annual planning session to include participation of staff and community liaisons from both Seminole and Orange County. Lake management plans are reviewed and updated on an ongoing basis. At least once a year, a meeting is held during which time the plans are reviewed, discussed and updated with participation of Seminole County, Orange County and community liaisons from each respective county.

Bog moss, a beneficial native submersed aquatic plant that is often misidentified as hydrilla, is present in dense mats along the perimeter of the lake. Due to being a beneficial native plant, bog moss is not a part of the treatment plan as it plays a significant role in providing a healthy ecosystem for Lake Pickett. Comparison photos of bog moss and hydrilla is provided below.

Bog moss (photo on left) has an appearance very similar to hydrilla (photo on right).





Property owners with recreational access issues due to bog moss can apply for a free aquatic plant removal permit through the Florida Fish and Wildlife Conservation Commission (FWC) at http://www.myfwc.com/license/aquatic-plants. Some access corridors have been successfully treated by individual homeowners since their permit was issued. Additional information specific to managing bog moss and assistance with applying for a permit is available via your local FWC regional biologist, Kristine Campbell, at Kristine.Campbell@myfwc.com or 407-858-6170.

Orange County lakefront property owners are allowed to clear 30' or 20% of their shoreline - whichever is greater- without an Orange County Lakeshore Protection Permit. This would normally be done as a corridor around a dock. Additional information and assistance with applying for a permit is available via EPD Environmental Permitting and Compliance at 407-836-1400.

Note: The management of bog moss is not financed through the MSBU/TU assessment. Adding bog moss management to the current MSBU/TU would yield a significant increase in the annual MSBU assessment. Property owners interested in adding bog moss management to the MSBU service scope are encouraged to contact their lake liaisons to discuss financial implications and the process for adding this plant to the scope of funded services.

Use of biological control methods via stocking the lake with sterile triploid grass carp [TGC] fish was initiated in 2015 in response to recommendations by both Orange and Seminole Counties to advance hydrilla management strategies – and with communitywide support for integrating biological methods with the chemical methods. All of these best lake management practices are essential to providing a more environmentally stable lake for generations to come. The key to success in lake management projects is dependent on strong participation of the Lake Pickett community.

Additional information for Lake Pickett can be found on each county's Wateratlas website at:

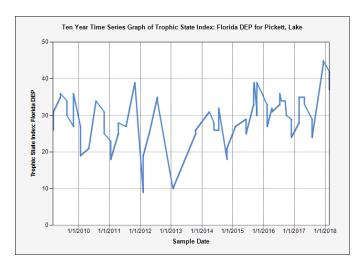
http://www.seminole.wateratlas.usf.edu/lake/?wbodyatlas=lake&wbodyid=7636

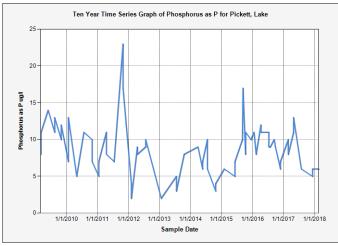
http://www.orange.wateratlas.usf.edu/lake/?wbodyid=7636&wbodyatlas=lake

<u>Lake Pickett Water Quality Report: How Does My Lake Rank?</u> <u>TSI SCORE: 37 GOOD</u>

The Trophic State Index (TSI) is a classification system designed to "rate" individual lakes, ponds and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is by its assigned TSI number. A "Good" quality lake is one that meets all lake use criteria (swimmable, fishable, and supports healthy habitat).

The two graphs below indicates nutrient levels (measured by TSI and/or Total Phosphorous [TP]) for your lake. A TSI score of 60 or above is considered impaired (or polluted) lake. Continued reduction of TP sources (personal pollution, run-off, landscaping practices, shoreline erosion) can help reduce phosphorous in your lake that is abundantly available, potentially creating algae blooms.





Lake Vegetation Index Bioassessment (LVI): How Does My Lake Rank? 70 Healthy

The Lake Vegetation Index is a rapid bioassessment tool created by the Florida Department of Environmental Protection (FDEP) to assess the biological condition of aquatic plant communities in Florida lakes. The most recent LVI bioassessment for Lake Pickett (sampled on September 27, 2018) scored a **70** which is in the **Healthy** category; prior score was **68**.

Aquatic life use category	LVI Range	Description
Category 1 "exceptional"	78–100	Nearly every macrophyte present is a species native to Florida, invasive taxa typically not found. About 30% of taxa present are identified as sensitive to disturbance and most taxa have C of C values >5.
Category 2 "healthy"	43–77	About 85% of macrophyte taxa are native to Florida; invasive taxa present. Sensitive taxa have declined to about 15% and C of C values average about 5.
Category 3 "impaired"	0–42	About 70% of macrophyte taxa are native to Florida. Invasive taxa may represent up to 1/3 of total taxa. Less than 10% of the taxa are sensitive and C of C values of most taxa are <4.

Vegetation Biovolume Heat Maps

Biovolume (BV) heat maps give us a look at the aquatic plants under water. These maps represent the ratio of plant height to water depth. Areas with no vegetation will appear blue, and areas where the vegetation reaches the surface will appear red. The data is collected through a combination of GPS and acoustic sonar instrumentation. Percent area coverage (PAC) is another index used to measure plant communities. FWC recommends at least 30% of a lake's area be covered with submersed aquatic vegetation. The PAC for Lake Pickett on February 7, 2018 was 22.1%. Seasonal variability impacts these measurements.

Vegetation Biovolume Heat Map

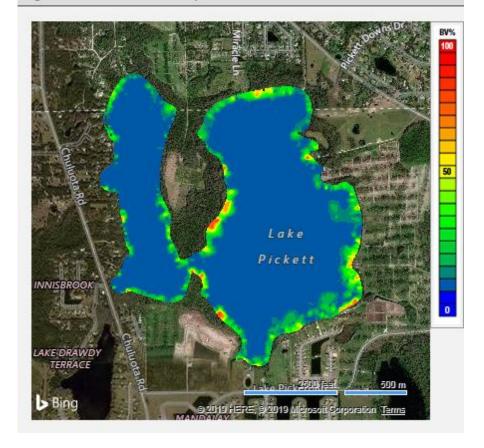


Exhibit C1- Budgetary/Financial Summary - Orange County

The approximate MSTU account balance as of 2/19/2019 is \$ 292,482.00 of which \$ 90,000.00 is presently budgeted for chemicals and pesticides. The Orange County MSTU is beginning to generate more funding due to the additions of subdivisions to the properties assessed. The amount to be budgeted for cost shared AWC services in FY18/19 will be per the consolidated Lake Management Plan confirmed at the March xx, 2019 planning session.

Exhibit C2 - Budgetary/Financial Summary - Seminole County

The amount designated for cost shared AWC services in the current fiscal year is \$40,000.00. Assuming current FY cost share expenses are \$40,000.00 per county [\$80,000.00 total]; the Seminole County Lake Pickett AWC MSBU contingency fund to be carried forward would be approximately \$275,000.00. The SC MSBU Budget also includes routine barrier cleaning and maintenance services in association with TGC fish permit requirements. The assessment for 2019 is proposed to remain constant at \$90.00 per assessed property.

Exhibit D – Agenda/Notes from Prior Year Planning Session

Date, Time & Location : March 1, 2018 xxx p.m.

Orange County Advisory Board : Debra Parrish
Seminole County Community Liaison : Jay Zembower

Orange County : David Hansen and Melissa Lavigne

Seminole County : Thomas Calhoun, Joey Cordell, Gloria Eby, & Joe Saucer

General Topics & Updates [Meeting Notes]

- Welcome
- Fertilizer Ordinance [Seminole County] Passed on February 27, 2017. www.seminolecountyfl.gov/fertilizer.
 - Fertilizer containing nitrogen or phosphorous cannot be applied to turf during the restricted season from June 1st September 30th. Fertilizers containing Iron, Manganese and other "micronutrients" also referred to as "summer blends" can be applied during the restricted.
 - Fertilizer containing nitrogen that is used during the non-restricted season (October 1st May 31st) must contain at least 50% or more slow release nitrogen. This slow release nitrogen content will increase to 65%, three (3) years after adoption of the Fertilizer Ordinance, to allow time for educational outreach to residents and retailers.
 - Fertilizer containing phosphorus cannot be applied to turf or plants unless a state certified soil or tissue test verifies that there is a phosphorus deficiency.
 - Use of deflector shields is required when applying fertilizer with a broadcast or rotary spreader.
 - No fertilizer may be applied within fifteen (15) feet of any pond, lake, stream, canal, or other waterbody, including wetlands.
- Shoreline Protection Ordinance Status
 - Awaiting FWC Rule changes
 - Lake Status Nutrients/Habitat Scores [Bioassessment Indices Refer to Exhibit C]
 - Lake remains in Healthy category
 - LVI/BioBase data on Watershed Atlas website: http://www.seminole.wateratlas.usf.edu/shared/ecology.asp?wbodyid=7636&wbodyatlas=lake
- Treatment Plans Current & Proposed [Refer to Lake Management Plan]
 - Monitor hydrilla and treat as necessary (early detection-rapid response)
 - o Evaluate grass carp fish effects and adjust stocking rate as necessary
 - o Continue to educate on the benefits of bog moss for Lake Pickett
 - o Monitor limnophila and treat as necessary
- General recommendations for lake-community consideration [Refer to Lake Management Plan]
 - o Increase native aquatic plantings in areas devoid of vegetation
 - o Promote "welcome packages" to new lakefront homeowners
 - Lakewatch samples 3 months collected in 2017
- 2018 Shoreline Planting Event- dates available
 - To be coordinated via Thomas Calhoun- Seminole County
 - i) Suggested event based off Nutrient Study recommendations
 - ii) Liaisons expressed interest and date set for 10/27/2018
- Other
 - o TGC Fish Barrier updated post storm
 - o Email Address for routine communications and important announcements
 - Nutrient Study- Draft report and community meetings dates discussed. Emphasis on benefits bog moss provides, per study, in protecting the water quality of Lake Pickett
 - IA revisions (carried from prior meeting notes)
 - Provided update from Joint OC/SC meeting that included:
 - i) Additional revenue from OC due to ~200 new lots being developed. Discussed revisiting IA percentages and to re-visit next year
 - ii) Backyard BMP program funded by OC MSTU

- iii) Lake Pickett Advisory Board will host a 1-on-1 presentation of the Nutrient Study with Dr. Harper
- iv) OC MSTU millage will be same to keep funds for possible nutrient study projects recommended
- v) Critical importance of bog moss and the pristine quality of Lake Pickett
- Nutrient Study- Draft report and community meetings. Discuss potential water quality projects generated from the Hydrologic/Nutrient evaluation. How will these projects be funded? Will responsibility be shared or limited to geographic boundaries? Amendment to IA and percentages?
- Financial Status Current, Proposed and Projected
 - o Refer to Exhibit C1 & 2

Exhibit E – Document Amendments (from prior year to this report)

- Annual Updates (2015, 2016, 2017, 2018, 2019) Lake recommendations, bioassessment information, cost
 estimates and County specific funding was updated throughout document as applicable to reflect current
 year status.
- Agenda 2019 Addition
- Exhibit A 2017 Updated with 2016 treatment information
- Exhibit B 2017 Updated for current fiscal year status
- Exhibit C1 2017 Updated with OC MSTU information
- Exhibit C2 2017 Updated with SC information
- Exhibit D 2019 Added notes and agenda from prior year planning session
- [For Seminole County Only] Seminole County Addendum 2019 Updated annual liaison meeting agenda and notes, budget information, and notes from prior year's planning session.