**Lake Okeechobee**
**Aquatic Plant Management Interagency Task Force**
**Meeting Proceedings**

The following individuals attended the Lake Okeechobee Aquatic Plant Management Interagency Task Force meeting 8th August 2019 at the SFWMD Okeechobee Service Center, Okeechobee Fl.

**U.S. Army Corps of Engineers (USACE)**
Jessica Fair
Jon Lane
Chelsea Bohaty
Josh Bauer
Tyler Green

**Florida Fish and Wildlife Conservation Commission (FWC)**
Dan Roberts
Alyssa Jordon
Don Fox
Larry Davis
Steven Gornak
Brendon Hession
Beacham Furse
Barron Moody

**South Florida Water Management District (SFWMD)**
Bobby Campbell
Justin Nolte
Alex Onisko
Darrel Bagiotti
Francois Laroche
Libby Pigman

**Lee County Hyacinth Control District (LCHCD)**
Colin Lewis
Jason Cull
Ernesto Lasso de la Vega

**Other Attendees**
Jay Ferrell (University of Florida)
Shelby Oesterreicher (University of Florida)
James Leary (University of Florida)
Ian Markovich (University of Florida)
Paul Gray (Audubon)
Linda Defee (AVC)
Katrina Elskea (Lake Okeechobee News)
Scott Jackson (Syngenta)
Glen Hunter (Stakeholder)

James Boggs (Helena)
Kurtis Ramsey (AAM)
Keith Mangus (AAM)
Lauryn Gladding (Sepro)
Kelli Gladding (Sepro)
Mike Hulon (Texas Aquatics)
Mike Krause (Okeechobee Fishing HQ)

**Call to order**

Jessica Fair called the meeting to order at 10:00am. Jessica let the attendees know that the setup of the meeting has changed. From now on the public comment section will be held at the end of the meeting. During the public comment section each public member will have 3-5 minutes to speak (depending on time and participants) and then the agencies will have 3-5 minutes (depending on time) to speak or answer the questions or concerns from each public member. This section will go on for 30minutes.

The Corps of Engineers shall chair, and actively solicit participation in the Lake Okeechobee Aquatic Plant Management Interagency Task Force. The Task Force members will represent State of Florida agencies (including the Florida Fish and Wildlife Conservation Commission and the South Florida Water Management District), State Universities, the Corps of Engineers, and other Federal agencies. The Task Force will serve in an advisory capacity, providing multidisciplinary technical and scientific data from which the Corps' aquatic plant management strategy, methodology, and research planning and operational efforts will evolve. The focus of the aquatic plant effort will be to benefit the overall ecological health of Lake Okeechobee.

**Scientific paper**

This short portion of the meeting is to introduce one scientific paper that discusses relevant scientific information in order to provide valuable knowledge to the agency's and the public. Two scientific papers were discussed at this meeting. The papers were from the South Florida Water Management District.

*Havens et al. 2001. Hurricane Effects on a shallow Lake Ecosystem and Its Response to a Controlled Manipulation of Water Level. The Scientific World. 1, 44-70.*

*James et al. 2008. Hurricane effects on a shallow lake ecosystem, Lake Okeechobee, Florida (USA). Fundamental and Applied Limnology. 172/4, 273-287.*

These two papers explain the effects that minor and major hurricanes have on lake Okeechobee. Havens et al. 2001. Discusses how hurricane Irene disrupted the sedimentation of the lake causing an increase in turbidity and nutrience in the water. This hurricane also caused a great reduction of emergent and submersed vegetation. After the hurricane there was an alage bloom. Once water levels decreased turbidity started to clear, chara (musk grass) started to grow and this growth was followed by SAV including hydrilla, Illinois pond weed and Tape grass including a reduction of alage blooms. This recovery took about 1-2 years. The next paper from James et al.

2008 had very similar results except the paper talks about the effects on the lake by the three major hurricanes that occurred in 2004 and 2005 (Frances, Jeanne, and Wilma). These hurricanes caused more disruption of sediment, turbidity, and caused algae blooms. Again, once the lake level started to drop after the hurricane, chara (musk grass) started to grow and SAV grew later on. This recovery took longer since the effects from the hurricanes were much greater (2-3 years). However, both papers show a cyclic relationship; once hurricanes occur, as long as the lake level drops, the lake can have a chance of recovery from the impacts.

These papers were related back to the lake's current situation after hurricane Irma in 2017. This major storm removed a mass amount of vegetation in, increased turbidity and input nutrience in the system. A major algae bloom occurred. This year (2019) the lake level started to drop, and the turbidity is clearing. Chara (musk grass) is also growing all around the lake and other SAV are starting to grow back as well including tape grass. The algae bloom this year have also decreased.

A couple of the agency members think we should get a notification letter out to the pubic after a hurricane or tropical storm event to explain the effects that will happen on the lake including increased turbidity, algae blooms, reduced vegetation, etc. and what to expect for the next couple years until the lake can recover.

**Interagency Flight Report**

Brendon Hession from FWC gave the Interagency flight report update. The current lake level is 12.07. He reported that at the last interagency meeting there was an average of 1600 acres of floating plants in May. In June there was an average of 1100 acres. In July there was …… As the lake level is going up, and the weather is getting warmer the plants are growing faster and there was an average of 870 acres in August's flight. The majority of the plants found were in the monkey box and eagle bay island areas. He mentioned they are going to try and go after areas that are prime waterfowl habitat now so when duck season starts, they can hopefully stay out of those areas.

Chelsea Bohaty gave a report on the average floating vegetation during spring season from the interagency flight data starting in and going to 1988- 2019. This graph shows the negative effects that the spray pause had on the maintenance control of these floating plants. Green and red bars- total count of floating vegetation in the spring. The dotted lines are the average lake level during the spring months. The graph shows that over the years when the lake level average during the spring is around 11.5-12 ft, the invasive floating vegetation is also low, except this year. Biologist Bohaty says "what this tells me is that this spray pause made us miss a really good opportunity for controlling that vegetation; we could have been really really low this year." The graphs show that we are actually five times higher in floating vegetation abundance when previous years at these lake levels. Bohaty mentions "It just goes to show just how big of an impact something like this can have on the control we have on the lake with invasive vegetation." FWC member asked if the higher water levels gives the plants more room to spread out or that the low water levels under the maintenance control philosophy has a much more condensed areas for efficiency? Bohaty mentioned that there are a lot of variable that go into this

but we won't know what if could have looked like if we continued to treat. Another big factor to this graph is the regulation schedule which changed throughout the years. This schedule affected the water levels, with higher levels the plants were a little easier to treat compared to low levels where spray boats are not able to reach invasive vegetation before it grows faster than it can be controlled. With the current regulation schedule lake levels are lower than the previous so this has allowed marshes to expand and much more native vegetation to grow but this has also allowed more places for invasive vegetation to grow. Jon Lane mentions "it makes it more complicated to treat because all the plants get intermixed between bulrush and other plants." Don Fox stats that "LORS 2008 was designed to enhance plant growth; native but exotics are taking advantage of that situation.; it was designed to improve and enhance the ecology of the lake starting with primary production." So, with lower lake levels designed by LORS' increases vegetation (native and invasive) so more maintenance is required now more than ever for the health of the lake. Also, flight reports are more frequent now than back in the 80s and 90s so this also could affect the graph results. This graph helps shape how small things can effect the lake in the long run "it is such a dynamic lake."

**FWC**

Brendon from FWC gave the status report for treatments on the lake. Since the last interagency meeting on May 30th, a total of 1138 acres have been treated on the lake. Brendon has also been surveying for SAV abundance around the lake. Hydrilla, chara, and eel grass has been found. Most of the chara is found down near Clewiston. Observation shoal down toward Moore Haven is primarily Eel grass. Some reports of pepper grass has been found down in the south end as well as observation shoal. Tin house cove and north of the Indian prairie canal has a ton of eel grass and mixed in hydrilla. The blades of the eel grass are about 4-6inches. "we are mapping these areas so that when it comes to floating plant treatments we know where the desirable SAV are so that when we treat in those areas we can treat with a very light hand and be cautious." "We want to also let everyone know where these areas are and let everyone know what is happening on the lake." Jessica mentions there is an area near Ritta that has a lot of chara and can be added to the list. So far there is 3500 acre of eel grass 1500 acres of hydrilla and 1000 acres of chara found on the lake. However, the entity of the lake has not been surveys.

Brendon mentions that in all the areas where he has been seeing SAV growth is when there is a line of bulrush or cattail and then a ban of Kissimmee grass or knot grass and then SAV growth. He believes that an area in Harney pond that historically has had SAV growth in the past but no longer does is because the bulrush line was taken out by hurricane Irma so the area is not protected enough to allow regrowth of SAV in that area. Jessica wanted to know if there are any planting projects that could potentially fix this area. Alyssa from FWC has projects in mind. Paul Gray mentions that SFWMD goes out in August every years and does an SAV estimate. Alyssa mentions that have been doing quarterly sampling of SAV in select areas as well. Zach welsh and Chuck Handland are running point on these projects.

Dan Roberts reported on the herbicide projects they are preparing to do. One project is within the Indian prairie canal. This project is apart of a snail kit research project. Cattail blocks will be treated in October and hopefully burn in the spring (March). The project will help determine if

snail kits will move into this area after a burn has been performed and the area is restored. FWC has funded a three year research project for positive snail kit response to burned areas. The other project is treating phragmites around king's bar in October and burn that area in the spring as well.

Alyssa Jordon mentions they are preparing a tree planting project in September on Gourd Island near Indian prairie canal. FWC is also looking at doing a staff and or volunteer project to plant Illinois pondweed around the lake. Pond weed would be taken from east Lake Toho and also nearby ponds and see how it will do in the lake. This will be a pilot project to see how well these plantings do before a mass planting takes place. There has been some bulrush planting in the past and its something that should be looed into. However, funding is low so volunteering and staff will be a viable way to get that project started. Lake conditions need to be correct including a time outside of hurricane season and low lake levels.

Some more low lake level projects including two muck removal projects are being proposed. One project is near Indian prairie, its 126 acres and will include removal of noxious vegetation such as cattail and willow, and also 6-13inches of deep muck. This will be disposed of along the Indian prairie canal berm that has been previously used as a disposal site. The timeline will depend on a lake level of 11ft or below to start the project and 90 days at this level to complete the project. If lake levels remain low January is a time frame that may be good to start the project. All the permits have been obtained for this project and it is estimated to be about $610,000. The other muck removal project is next to the Pierce canal and connects to the project that FWC completed in 2007 and 2008. The area is 197 acres of cattail and willow and 7-11 inches of deep muck. The material will be trucked to Yankee point for disposal. All the permits for this project have also been obtained. The project is estimated to be ~1 million dollars.

Another project is to remove a section of the Pierce canal berm. Some of the material will be taken to Yankee point and the rest of the material will be used to create an in lake island for shore birds. This project is estimated to be about $250,000. This project will increase water flow to the inner marsh area and will support wildlife. All the permitting for this project is still being obtained.

In 2001 six islands were created in the lake. "Corp island" near Indian prairie will need to be reshaped to better support wildlife and tree plantings. The reshaping of this island is estimated to be about $55-85,000 and will have to be completed at 12.5ft or lower. Another berm removal project will be completed if lake levels get lower than 11ft for 90 days.

Alyssa asks is anyone knows of any pots of money that could be available for these project. It would be appreciated since funding is low. These projects depend on low lake levels and funding. Paul Gray mentions that there have been major droughts in 1961, 71, 81, 91, 2001, 2011. So the next drought may not be until 2021.

**USACE**

Jessica Fair introduced an interagency flyer that they have been creating to send out to the public once a month to help spread the work on projects that are happening around the lake. The first

flyer will be sent out on September 1st. She asks that agencies members to email her at the end of every month with bullet points of what projects they will be working on in the upcoming month and if they would like to add or change contact information. The flyers will be sent out via email to the interagency group and all parties that would like to be added to the list. For the first flyer the agencies members would like to see the flyer before it gets sent out on September 1st.

Jessica also gave an update on a harvesting demonstration that occurred on Monday August 5th. This demonstration had a great turn out with 28 people that consisted of 3 agencies including FWC, USACE, and SFWMD and also attendees from UF and Applied aquatics management. The type of harvester used for the demo was a WEEDDO and was able to harvest water hyacinth in low water levels (16inches on this day) but is said to be able to harvest in 8inches of water. This harvester was also able to successfully harvest hyacinth around a small bulrush stand. The next steps are to figure out costs and effeminacy of harvesting.

**Public Comment**

Jessica reminded everyone that this section will be set up different. Two public members wanted to speak so each member was allotted 5minutes and the agencies were allotted 5 minutes to respond to each stakeholder. Mike Krause from Okeechobee fishing HQ spoke first. He mentions that one of the main things that he believes it not being considered is the amount of population explosion from interstate 4 all the way to key west. "everything that happens up there comes down here." He would like to ask "what's the residual effects of what's being done on the Kissimmee chain of lakes; have on Lake Okeechobee." He understands and wants the public to understand that some harvesting and spraying projects need to be done. He would like to know why we can't create more habitat islands on Lake Okeechobee when the water levels are down. Mike also mentioned that the grass lines were growing and healthier back in 2010, 2011, 2012 and 2013. "Down along observation shoal you had an 8th of a mile of nothing but eel grass after the Kissimmee grass line, we don't see that now." "What's causing the 22 inches of muck behind Kings Bar? He said we don't have a filter on the lake. Glen Hunter a stakeholder on Lake Okeechobee discussed his concerns about taking care of the invasive plants before they flow into the lake. He would like to see conveyor systems at the locks and structures that gather the plants before they make their way into the lake. He is concerned about the nutrient load that the plants put back into the lake. "It's in the figure of the millions of tons.' He is ok with spraying as long as it is concerned. Glen is concerned about the hyacinth that is coming in from the agricultural canals. "The hyacinth is coming from the highest nutrient water you can find; from the agricultural canals." "I have nothing against agriculture." He believes the plants are getting into the lake by water movement. He wants the hyacinth to be taken care of before it gets into the lake. Don Fox responded to some of Mike's comments and concerns. "2004 and 2005 were devastating; Jeanne and Francis tore up the north end in 2004 and Wilma tore up the south end in 2005. SFWMD has excellent data that shows how the mud sediments moved from the south end to the north." "The hurricanes put mud on the north end where mud has never been before." Don continued to explain how the high water events after the hurricanes effected the mud sediment and eel grass (vegetation) abundance. With the low water we are experiencing now we hope that it will help reset some of these effects caused by hurricanes such as Irma which had huge

negative impacts on the lakes vegetation. Glen wanted to also know about harvesting hyacinths. Brendon from FWC reported "that's something we actively look at; every time we find floating plants that we want to get treated, from our division, we have to look at the viability of harvesting of every single one of these sites." Glen replied with said "we don't let them in the lake." Jessica from USACE mentioned that there is already a seed bank in the lake; the plants are already growing within the lake system. "The seed bank can be viable for 20 years with water hyacinth." These plants are already being treated before they get in the lake as much as possible but his main problems are from the hyacinth that is "already within the lake." He still believes that these hyacinths should be harvested before they get in the lake. Ernesto from Lee Hyacinth Control District wanted to answer a concern of Glens about the nutrients that the hyacinth puts in the water after spraying. He said they have been taking nutrient samples of the canals before the plants are there and then samples after they spray plants that come to the areas. They want to see the nutrient load that is caused by the spraying and death of these plants. "It's very minimal." "Where did the nutrient go? They have been absorbed by other organisms." He wanted to clarify that the system he is referring to is the canals and that every system is not the same. Brendon also mentioned that during our monthly flights we are seeing as the lake levels go up the plants have more room to move around so that's why the will get into more places. "We do actively treat the hyacinth before they get into the lake." Chelsea also wanted to mention that the conveyor system is insightful however that type of harvesting could be dangerous and has proved to have a lot of bicatch. Alyssa brings up that there are some conveyor systems at some pup stations around the South Florida. Mike said he has never seen one in action. Francois from SFWMD mentioned that the conveyers at the pump stations are used and they are used in the canals where they get a backup of vegetation. He also goes on to talk about how it's expensive to run that type of harvesting system and is only used in the canals where herbicide does not work because the water is always flowing and dilutes the herbicide before it can be affective. Also a downside of harvesting is the disposal. It's expensive and very difficult to dispose of the material. Jay Ferrell from the university of Florida mentions there has been a multitude of studies performed to try and come up with a product from the harvested material including biofuels however, the plant product is of low quality. "It has no market value." This could help cheapen the price of disposal but as of now no ways of utilizing the harvested material has been found.

**Adjournment**

The meeting was adjourned at 11:55 AM. The dates for the next interagency meeting will be announced at a later date.

**Attachments-**

Agenda
Flight reports
Two scientific papers
FWC projects