

130th Meeting of the South Carolina Aquatic Plant Management Council

Attendance:

Council Members: Chris Page, Casey Moorer, Sara Carper (by phone), Bill Marshall (by phone), Willie Simmons, Chad Altman, Adam Leaphart, Tim Drake (representing Tammy Lognion)

Guests: Julie Holling, Lowell Hook, Matthew Puckhaber, Chad Holbrook, Bob Perry, Ernie Guerry, Carl Bussells, Allan Stack, Julie Davis, JR Brannon, Jim Smith, Dan Flint, Doug Lawson, Lila McKean, Clark McKean, Joan Audrusko, Robert Cottom, Jim Fleming, Ed LaRoche, Ed Kucharski, Sally Mueller, Edwin Geer, Steve Werbowski, Robbie Strickland, Michael Strickland, Bob Akers, Roy Mendelson (?), Harry Greisser (?), Debra Brannon

Location: Greenwood State Park, 302 State Park Road, Ninety Six, SC 29666

Call to Order: 10:06 am 02/27/19

Minutes:

Chairman Chris Page said good morning and noted some Greenwood County residents showed up. We are going to be discussing Lake Greenwood. He was hoping that Ms. Davis, head of Greenwood County's Lake Management Department, was going to be here. She has not shown up yet, but she said she was going to be here. She is your number one contact for your lake. If you cannot get her, you can always email us, and some of you have. Three or four of you have asked to speak today. Anyone else that wants to speak may do so during during the comment period, but he asked that speakers be brief, due to visitor numbers and the amount of information we have to cover. This is not the final meeting of this plan. This is just to submit the draft plan to the internet, and we probably are not going to change much on the draft plan before it goes out. It has to be posted for thirty days. It will be on the South Carolina (SC) Department of Natural Resources (DNR) web site and pretty easy to find. We ask that any comments you want to make be done by email to the address on the site, invasiveweeds@dnr.sc.gov. Please do not call us, because your comments will not be recorded that way. We like to see them in writing, so we have a copy and can track them. He will take those and send them out to the Council, for their review. At the next meeting, in a little over a month, we will probably be back up here or in Spartanburg, because of some issues at Lake Bowen from last year.

Mr. Page called to order the 130th Meeting of the SC Aquatic Plant Management Council (APMC or Council). He asked everyone at the Council table introduce themselves. Everyone at the table introduced themselves and who they work for. Mr. Page noted that Mr. Bill Marshall and Ms. Sara Carper are on the phone. Mr. Marshall is from the DNR Land, Water, and Conservation Division (LWC). Ms. Carper is representing SC Department of Health and Environmental Control (DHEC) Ocean and Coastal Resource Management (OCRM) division on behalf of their usual representative. Ms. Carper and Mr. Leaphart are new. The rest of us have been around for a few meetings, or for quite a while. We will be glad to talk to you. Mr. Page

and his staff will hang around after the meeting to answer any questions you may have personally. He introduced himself to the first few of you that came in and talked to you a little, but anything else you need, we can answer after the meeting.

Mr. Page moved to the first thing on the agenda, the minutes of the December 5th Council meeting. He sent those out to the Council for review and provided copies here. He gave the Council a few minutes to review them one more time. When ready, someone can make a motion to accept them. He asked where the sign in sheet was and asked that everyone present please sign it, so we know you came. He likes it when people come to the meetings.

While waiting for a motion, Mr. Page addressed the visitors. He said he had been doing this job for about 31 years. Ms. Holling has been with DNR almost 20 years and moved over from the Heritage Trust Section. Mr. Simmons is an old-timer, but not as old as me. Ms. Moorer has been doing this job for a long time under Larry McCord. Last year, she took over from him. Mr. McCord had more years in when he left Santee Cooper (S-C) than Mr. Page has. We have seen a lot of stuff and we have tried a lot of stuff. Some of it has been very helpful and worked. Some of it has not. The problem with aquatic plant management in the state is that we are very restricted on budget, and a lot of local municipalities are, too. We do a cost share with most of the local municipalities, counties and even some industries. We try to be efficient at the cost share, but we can only cost share up to \$30,000 per waterbody. When you get a chance to look at the plan, you will see a lot of the waterbodies are not cost shared at all, because they are paid for specifically by certain entities. DNR controls issues like grass carp stocking. You cannot stock grass carp in the state of SC without it being a triple-checked triploid with a state permit. You have some in Lake Greenwood for the *Hydrilla* and invasives. They are pretty effective and have done a good job on that. Obviously, they do not eat *Vallisneria*. I know that is your major issue. The grass carp have done a good job of lowering costs. The average cost of grass carp over ten years is about \$10/year/acre. The average cost to use herbicide is \$400-600 per acre. You can see how sometimes a budget crunch causes problems. And, we cannot be everywhere at one time. In SC, we have a limited season where we can treat with herbicides. Most submersed vegetation can only be treated when the water temperature is above 62 degrees. It will be there for about five to six months. After that, we cannot use herbicides, because they are not effective, especially the systemic herbicides. Unlike Florida, which can treat pretty much anytime in certain situations. Of course, that is a double edged sword. There is the issue of plants growing year-round. You will occasionally see some winter-time growers, like Illinois pondweed. It likes cooler water. But *Hydrilla* is a warm water species. A lot of our invasives are from South America or Southeast Asia.

Ms. Moorer made a motion to accept the minutes as written. Mr. Page said he had a motion on the floor to accept the minutes as written and asked for a second. Mr. Simmons seconded the motion. Mr. Page asked if there was any discussion. There being none, he called for a vote. The motion carried unanimously.

Mr. Page moved on to Public Comments. He had three people who asked to speak, so he put them up first. He called Wayne Renwick first, but since he just arrived, Mr. Page chose to let him get settled before speaking and moved on to Ed LaRoche.

Mr. LaRoche said he grew up here, went to school at Clemson and then went out of state. He moved back when he retired and bought a place in Summerset. He has been there for fifteen years. We did not see a weed at his house on the main body of the lake until three years ago. It was seen before then on the cove on the north end of Summerset Bay. Ms. Davis and the lake management group have been out and put herbicide in the lake. It seems to have wiped them out when they first do it. Every fall though, it comes back when it is up in the 80s. This is eelgrass, according to Ms. Davis, and grows up 4 ½ to 5 feet and lays over at the surface. Behind the dock, where you get blazing sun in the morning and the afternoon, is where this stuff blows up. The treatment is not wiping it out and it is so bad that some people cannot get their boats out of their docks because it wraps their propeller. Some people have to get off and cut the weeds off the propeller once they get out on the lake, because they cannot go anywhere. He knows one person who sucked the stuff up into their jet ski and it was over \$300 in repairs to get it running again. He has had it behind my jet ski. You think it is gone, and then the water goes down in the fall and you see patches of this stuff anywhere from 2-3 inches to a foot high in areas where a homeowner cannot get to it to do anything to. You do not see it in the summer, so you do not know where it is. The other thing he mentioned is that it started in the cove four or five years ago, and it is going down this bank in the direction of the dam. They treated it one or two times, depending on the area, last year, with the airboat out there for hours. It is not getting it done. What is happening now is the residents are putting out various stuff to try to kill this stuff. If you guys do not want this weird stuff getting put into the water around here, we need to do something effective to this stuff. The residents cannot get their boats or jet skis out, and the kids cannot swim around the docks because the weeds are too thick. And they do get that thick.

Mr. Page thanked him and said he would give some more information once everyone has commented. He called R.W. Strickland to speak.

Mr. Strickland said he has had the same issue as Mr. LaRoche, but just last year. Mr. Strickland thinks he is further down the main body from Mr. LaRoche. It is come through in front of his property and continued on down towards the dam. It is growing around the dock, so it is going to be real difficult to get the boat off the lift this year. Whatever they are doing, it is not working because he is continuously raking.

Mr. Page thanked him and asked if Mr. Renwick was ready.

Mr. Renwick said two years ago in front of his dock, we started seeing an area about 20 by 30. He got in contact with Ms. Davis and she told me what to do. He went out there in the water in the summer and raked as much of the grass as he could. She told him to put a tarp down, which he did. That helped for a little while. Beginning in June or so, he and his wife get on the pontoon about every other day. We go down to Skipper Landing and to Break on the

Lake. Our kids bring their friends out, but over the last few years, they have not wanted to come because they do not want to swim in the grass. At the end of his dock, the water is five and a half feet at full pond. The grass is laying up on top of the water by a foot and a half. He could not get his pontoon off without backing up, dropping his ladder off the back of the boat, raising the motor, and either getting in the water or straining to reach the motor and remove the grass. Then he has to do the same thing once he pulls back on the lift. This winter, as the water went down, he physically removed 148 5-gallon buckets of this stuff and took it to a dump area. There was still a patch about forty foot square that is still there. His next door neighbor is having the same problem. Both of them have called Ms. Davis. The worst part of is that he is seeing *Hydrilla* mixed in with the eel grass. He sent pictures of both to Ms. Davis. Whatever is being done is not controlling it. It is getting worse and worse. What happened down in Florida when they did not take care of the grass, we do not want to happen here. We have bought our properties so we can enjoy the lake with our children and grand-children. He really asked for the Council's help, because there is a 20 to 30 foot band of it going down the shoreline and it is not getting any better. If you can help, he would appreciate it, because he cannot get the boat off or go bass fishing.

Mr. Page asked if there were any other comments. He recognized Mr. Bob Perry to speak.

Mr. Perry addressed the Chairman, the members of the Council, and all the distinguished citizens, noting that he worked for the DNR for 39 years, 28 years in the field as a traditional wetlands biologist and 14 years in the Executive Office. He worked with this Council. A number of you have not seen him here before. He remains vitally interested in submersed aquatic vegetation on a state-wide basis and their relationship to aquatic creatures, especially fish and water birds. He has about a dozen clients state-wide, who are also interested in those relationships. He continued to encourage the Council to use science to the best ability, based on what is available. He also asked the Council to be wise and conservative in the application of your recommendations and make sure that your recommendations are balanced for all concerned: our natural resources, our aquatic resources, and the needs of all citizens, hunters, fishermen, lake home owners, etc. He knows the Council will continue to do that. He thanked the Chairman.

Mr. Page thanked Mr. Perry and asked if there were any other comments. There being none, he addressed the val issue, because that is what most of you are here for. In the copy of the plan, we have *Vallisneria* listed as a problem species in certain areas. You will see a long list of herbicides over there as control agents. We are aware of the problem, but there is a secondary problem here, too. *Vallisneria* is one of the best species for waterfowl and fish, so we have a little bit of a balancing act to do. The balancing is to provide some habitat and to provide you relief. He does not know if that is possible or not, all the time. The other problem with *Vallisneria*, is it is a native species and it is extremely, extremely hard to kill. Unlike *Hydrilla*, which is easy to knock back or kill with a multitude of things. Val is hard to kill or keep knocked down. Of the treatments we have tried in the past, we have only been effective with one

herbicide. It is called Komeen Crystal, and it is a contact herbicide. So, basically what we are doing is mowing the grass. You all mow your grass, so you know it is only going to last so long. Normally, we get about a season's worth of control out of it. Late in the season, it will come back. So, timing of that is crucial. We tried to kick it with Sonar last year, on top of that so any exposed root crowns would have Sonar pellets sitting on top of them. Sonar is a systemic herbicide that is supposed to go through and kill the roots. But this stuff is like monkey grass a little bit. If you have ever had monkey grass in your yard, you can get some and do all your trim with it, but it spreads over a period of time. You cannot kill it. It always comes back. That is the thing we are focusing on now. He has a couple calls in to herbicide manufacturers to see what is most effective. He has got calls into places across the Southeast where they have had to deal with these issues. He has yet to get a call that has given him a hundred percent guarantee that we can kill it and keep it gone.

Mr. Page spoke to the *Hydrilla* issue. It is going to pop up occasionally in areas, because *Hydrilla* produces a tuber base and those tubers will remain dormant for years and then pop up. Hopefully, the grass carp that we have in the system are sufficient to handle the *Hydrilla*. You may see it sporadically here and there. He knows you are going to hear some stuff from Santee Cooper later about it popping up in certain places, moving around the lake and popping up, but once it gets to a certain size, those grass carp mow it down and you have exhausted the resources from the tuber for the year and the next year it will pop up somewhere else. He is more concerned about the val right now than the *Hydrilla*. That is unusual for him to say.

Mr. Page said he is dealing with kind of the same issue on Lake Murray. They have got some native species that are coming in. Mother Nature put that stuff there to start with and she wants it to stay there sometimes, but we are going to do what we can to relieve the problem. He may get with Ms. Davis some more about it.

Mr. Page went back to one more thing about the val. People have called him about putting stuff in the water. He has told them you cannot just put anything in the water. It is not going to work anyway and you are going to waste your money. Our treatment cost was over \$600 an acre. Komeen Crystal is a very expensive herbicide. There is one other product that we can probably use to burn it back easier. It is called Hydrothol 191. He does not use Hydrothol 191. He has never used Hydrothol 191 where he did not kill fish. He does not like to kill fish, because then the agency makes our program pay for them. We have to pay our own agency for fish when we kill them. We also have to pay our own agency a dollar for every grass carp we stock. Whatever we get cost-share wise, a dollar of that goes back to our fisheries group. It is added onto the price. We are working on it. When you are out there looking at that stuff a couple years, patience gets thin, but we are working on it. Trust me. And you are going to hear more about it later in the program, as well as some problems with other species.

A gentleman in the audience said he does not know what chemicals you are talking about, but he bought a bag of something called Harpoon. It is not advertised for eelgrass, but it is a pond and lake herbicide. It kills the heck out of that stuff. He applied it and the eelgrass was

gone in ten days. It is \$200 a bag, but one bag covers a lot of area. One bag has lasted him three years. Mr. Page asked if it was a forty pound bag. The gentlemen confirmed that. Mr. Page said he was not familiar with it. The gentleman said one of his neighbors found it cheaper. He said it is copper based. Mr. Page said that if it is a copper based product, it is similar to Komeen Crystal. Those are chelated coppers and they are all about the same. The issue is, with us, that if it does not have val on the label, we cannot use it. Ms. Moorer said it is illegal to do that. You have to be a licensed applicator to apply to a public body of water. There is a danger in that. Mr. Page said that is another problem. The gentleman said that if you are not at his house at midnight, you are not going to catch him. We are going to get rid of the grass to fish, swim, and use our boats, one way or the other.

Mr. Page said he would let Mr. Drake speak to the illegality of that. Technically, we can do some things that maybe get Harpoon labeled locally for certain things. There is a special label, a 24-C label that is a way to do it for specific things when there is no other remedy. It has to go through Clemson, so they can basically license it in the state. All the United States (US) Environmental Protection Agency (EPA) registered herbicides have to come through Clemson before they license them for use in the state of South Carolina. Back in the day, when he was doing his own farm ponds, when he owned a farm, he used all kind of stuff, but when he got a license and started working for the state, he decided he had to do it the right way.

The gentleman said he only mentioned it because he knew the copper based stuff works. It works for a while and will quick kill it. Mr. Page said the Komeen Crystal is a copper based product.

Mr. Drake said Mr. Page is correct that you can apply for a specific registration applicable to needs to the EPA. He processes those and sends them forward for consideration. He let everyone know and to spread the word, it is a serious offense to put anything in a public body of water, especially if it is not licensed for that weed, without a license. Our funds are limited, but the EPA's are not. He knew of instances where the EPA has fined up to a million dollars on the first offense. If it is an egregious offense, where there is a fish kill or anything else that results from a misapplication or an off label use, we can call the EPA in and they will take the case, especially if it is a public body of water, and prosecute it. Nobody wants to be in that position. The best case is to contact the DNR, and if there is a great enough need state-wide, which he assumed there may be, we can always apply for a special needs for this product, especially if it is related to water or emergent or submersed weeds, and possibly get a local label for it. Please let us undergo that process. And get the word out, do not put anything in a public body of water unless you are licensed to do so, because it is a serious environmental offense.

Mr. Page said he has one manufacturer that has agreed to do some testing on it in their lab. That is SePRO, who will probably work on it through NC State.

Mr. Drake said there does have to be efficacy testing and research data to back up the application, so once that research is conducted and we have the data to support that special needs

permit. Sometimes the companies that register these products have already done it, but the use is not lucrative enough to put it on the label. We can petition those companies for support for that use.

Mr. Page noted a prime example of that is a product called diquat, which is diquat dibromide. Tribune is the manufacturer's name for it. It is recently had a label revision from the EPA, which says you cannot apply submersed diquat in any water supply lake. Several states around us, Georgia and Alabama, have already gotten a 24C special needs permit for that. Tennessee and North Carolina are working on it now, as are we, to be able to use it again with certain restrictions. The old label was 1200 feet. The new label is 1600 feet for the restricted use. That is one of the things we can do. We are trying to find something that kills val, not just burns it back. The plan for this year, talking to some of the contractors, is to go out before it tops out, but you are telling me it has not gone down and senesced in some places. He asked if it above the water line.

Mr. LaRoche said it is not, with the water up where it is now. When the water was all the way down it was to the top. Mr. Page asked if the val was higher than a foot or two off the lake bed. Mr. LaRoche said some of it is, but most of it is 4-5 inches tall. You could see patches of it right along the waterline or in the shallow areas which would normally be underwater four and a half to five feet when the lake is full.

Mr. Page said he had not even talked to Ms. Davis about one plan, because he just got it finished in his brain this past week by talking to a manufacturer. It is to use a systemic on it early enough in the season where it is just starting to grow. Once again, we have to have the perfect water temperature and everything to do that. We are going to try that. We may not do everything at one time that way. We may just do an experimental plot to make sure it is going to work. Once again, we do not want to just throw money at it and it not work, which is kind of what we were hoping.

Another gentleman in the audience had a comment on height. When he was raking it out, he had some that was at least three feet tall. He had some pictures, if they are needed. Mr. LaRoche noted that in the last few days, as the water started coming back up, there were fronds of this stuff that had broken off and were just floating down the lake with the current along the shore. That surprised him because some of them are several feet long. He does not know where those are coming from. It may be from someone cutting it with a weed rake. Mr. Page said it is not only going down towards the dam, it is going upstream. Mr. LaRoche would not doubt it. There is one point between us and Skipper's Landing that is mighty thick with it, but it is only one house on a big lot.

Mr. Page noted ten years ago, there was one patch of val on this lake on the opposite side of the lake from you, in a small cove that we did treat. He does not know how it got over there. A gentleman in the audience said if it broke off, the west wind will blow it to the other side of the lake. Mr. LaRoche said the water flow of the lake goes from the State Park across to our

area. Mr. Page believes that is how it got there. He took one last question and then we are going to move on.

A gentleman in the audience asked how it spreads. He wanted to know if it seeded off the two to three foot reeds Mr. LaRoche saw coming through.

Mr. Page said val has a seed head on it, which is very distinct. It is a spiral shape. *Hydrilla* will spread by fragmentation. It can land somewhere and actually root. With eel grass being a native, it is basically built for this climate and it is going to take off in some places. He wished we had it in some other places. He needs to figure out a way to go plant it in some places. He has planted it in a couple other lakes and it did not take. Turtles eat the heck out of it. Grass carp will not eat it. He thinks there are not enough turtles in your cove. We need to get you some good turtles that are hungry.

Mr. Page moved on to the plan. He gave the Council a separate packet, broken out from the main plan, to make it kind of easy. We will get to Lake Greenwood in a second, but the very first one is Lake Bowen. Lake Bowen is on this list for one reason and one reason only. Lake Bowen had a major fish kill last year. Some of you around the table have heard us discuss this before. It was not a fish kill for treating our typical species that we work with. It was a fish kill based on treating algae that create methylisoborneol (MIB's), geosmins, and other things that cause water taste and odor issues in their intake plant down in Reservoir 1. That made everybody scramble a little bit to get our ducks back in a row because DHEC was not talking to DNR, DNR was not talking to DHEC, and Clemson was talking to everybody for a change. But the agency and DHEC were not talking to each other really, and the proper protocols were not followed. He made a point to put some information in here about the fact that we do not do that type of work. That is more of a water quality issue than an invasive species issue. He has also been working with them, looking at their plan and trying to determine how they can improve some of their applications. They have come a long way. They actually resubmitted a bid process for that this year, to see other applicators involved. That was copper application, too.

Mr. Page said we do not have all the details for that yet. Clemson's necropsy lab still has not gotten all the information back out to all the agencies involved. Mr. Drake said it has not and we cannot discuss it until the case is closed. Mr. Page said we do not know if it was a dissolved oxygen (DO) issue or a copper poisoning issue. Normally, it is not the herbicide that causes the problem, it is the dissolved oxygen of the plants dying. In here, it is broken out. They did ask for some more grass carp to control some of the bladderwort, which we used quite successfully a couple years ago after a chemical treatment and they have kept it down in Lake Bowen. This stocking will be in Lake Bowen for a maintenance control stocking and Reservoir 1. Lake Bowen is a maintenance stocking is a percentage of what we put in there based on the acreage of the lake. Reservoir 1 is based on the actual acreage of bladderwort they determined through surveys. He thought we put 15 per acre in the plan. He could not remember what he did, because it is been so long since he wrote this part of it. He was working hot and heavy on it a month or so ago. That is Spartanburg Water. As a matter of fact, my plan for the next meeting is

get up there and talk to those people, and have the next meeting around Spartanburg so we can get comments from their public about some of the issues they have had with things. We are probably going to hear about water quality issues, which do not really affect the plan that much.

Mr. Page said Lake Greenwood is the second one on here. If there are any questions, just ask. *Vallisneria* is listed on here. He already saw an error in it. Val is not listed down here in the problem species with the control agents. What we are looking at in there is the fluridone, which is Sonar, and we are also looking at the copper products. He has also got endothall listed, just in case we have to go that route. We may have another listing, based on the earlier comment. We may have to start using that, with approval from Clemson. He will correct that error before we post it. The other species in there are slender naiad, *Hydrilla*, and water primrose. We have also got some other types of naiads out there, too, that have been problematic in the past. He asked if there was anything in there that anybody sees and has a question about. He gave everyone a second to digest each section, because when you write it, you kind of know what is in there a little bit.

Mr. Drake said he would be happy to work with you to get that 24C paperwork done

Mr. Page said that while you are reviewing it, we would pull the plan up on the screen, so everyone can see it.

Ms. Moorer mentioned that we have treated val in small areas, like swimming areas, with diquat and copper. She do not know if you want to add diquat to your control agents.

Mr. Page took diquat out because it is a drinking water supply lake. Hopefully, by the time we start treating, we will have that problem taken care of, especially with diquat. He thinks they have got all the research ready to give him to send to Mr. Drake. He will put diquat back in there once we have the approval from Clemson. He asked if there were any questions on that section. He is just kind of covering the highlights. We will go through the whole plan in a second. If you have any questions about that, we will address them, but there is no way we can cover the whole plan at one time. Most of this is the same old rote stuff that is in there every year.

Mr. Page moved on to Lake Murray. It is almost the same again this year. We do have Illinois pondweed out there now, that we found last year. We were not aware of it until last year. Southern naiad, we have been aware of for a couple years. We added Illinois pondweed. The drawdown may have taken care of that Illinois pondweed because it was relatively shallow, about 2-3 feet. The drawdown was about seven feet. He is not sure he would necessarily call that a drawdown. But, that probably took care of the Illinois pondweed, especially in the wintertime when it was dewatered during the time it likes to grow. The southern naiad, I do not know how much it did for the southern naiad. Grass carp will not eat that either. They will eat the Illinois pondweed a little bit. That is another issue we are going to have to deal with. Nothing is real effective on it, except fluridone or Clipper. Clipper is a flumioxazin, as listed on

the sheet. It is a contact herbicide. Fluridone will hopefully be long term control, but it is hard to get the timing right on it.

Mr. Page stated the grass carp stocking in Lake Murray this year was 1800, we are trying to keep the density at one carp per six acres. We are still playing catch-up from when they opened the spillway up one year and all of the carp ran out. This is about the last year of that. He thinks in the future, that drops down to about a couple hundred less. We still have not found any *Hydrilla* in Lake Murray, but we do have some of the native vegetation coming up. Diquat would work on that, too, and we have that on there. Ms. Moorer suggested adding ProcettaCOR on there for *Hydrilla*.

Mr. Page said most of the waterbodies in here are still on the plan, we worked on them in the past. We do not have to work on them in the present time. We leave them in the plan some times because some waterbodies will come back and bite you, like the Ashepoo River. We went 15 years without having to treat the Ashepoo River, and then we got inundated. That is where we spent most of our money last year. The budgets are listed down at the bottom of the sheets, when you get to the bottom of each area, we estimate the budget. Notice that we had \$28,000 dollars for grass carp, not anything for herbicide work. I do not foresee any herbicide work being effective, but that could change. He still have not talked to anybody at Dominion. They still have the same staff, but when he calls and asks, they say they do not know what Dominion is going to do. We have a change of ownership on that lake.

Mr. Page stated that Ms. Moorer has a slideshow and will talk about Lake Marion and Lake Moultrie. Before she does that, he wanted to cover what is in the plan. Lake Marion and Moultrie are basically the same as it has been. We really did not changed much of anything, except we added *Salvinia molesta* to it. You have not seen a bad plant until you have seen *Salvinia molesta*. It is invasive species number one as far as growing. It can double its biomass in as little as seven days. It grows exponentially. We thought water hyacinth was bad, because it can double its biomass in two to three weeks. This stuff does it in less than seven days. It is a fern, so it has spores. You cannot tell if it is producing spores or not. That is in the plan for this year.

Mr. Page noted the stocking of ten-thousand grass carp is the same this year as we have done in the past on Lake Marion and Lake Moultrie. Our fisheries guys, Chad Holbrook and his team, have been doing a research project for us. If Mr. Holbrook has anything to add to Ms. Moorer's slides, he will let him slip that in. Mr. Holbrook studied the grass carp health to determine if the grass carp were starving to death or if they had enough to eat. If they were starving, that means we had too many. If they were relatively healthy, that means they are consuming enough food for them to stay relatively healthy. That is the project in simple, layman's terms. There has been no real change to S-C except for the concern of *Salvinia molesta*. That is all he had highlighted, but we can go over the full plan later and answer any question anyone may have.

Ms. Moorer said this is pretty much the same update as we gave at the last meeting, but since there are some new people here, we will slide through it real quick. She stated the first slide is just the summary of what we treated in 2018. This is just to give you an overview and

show that most of our program is based on invasive plants. We treated about eighteen-hundred acres of invasives. You can see that by comparison to 2017, we treated about five-hundred seventy-five acres of crested floating heart, and this year, we were down to about four-hundred acres. Mainly, that can be attributed to the high water and high turbidity we have had over the past several growing seasons. At one time, we had about six-thousand acres of crested floating heart on the S-C system. We did a lot of work, with a lot of aerial and airboat work. Most of our crested floating heart now is in upper Marion under the tree canopy, so we cannot get to it by air anymore. We do a lot of work with our contract airboat crews, as well as our in house airboat crews.

Ms. Moorer said salvinia is on the uptick from 2017. This 145 acres is not solid giant salvinia. Most of the acreage had hyacinth mixed in. Thankfully, one of the chemicals we use to target hyacinth can also be used to target for salvinia. A lot of that 145 acres is a mix of water hyacinth and giant salvinia. In 2017, we treated about 250 acres of *Hydrilla*. In 2018, the new chemical, ProcellaCOR, hit the market. It is very selective for *Hydrilla* and protects our val. Unlike Lake Greenwood, we promote val growth on the S-C system, except in areas where we have homeowner access impeded, commercial facilities, boat launches or anything of that nature. We are excited about being able to treat *Hydrilla* on the system this year and be very selective, so we can protect our naiad, pondweed, val, and other native species.

Ms. Moorer stated that 1800 acres on the S-C system were treated this year for invasives and about 238 acres around residential areas for other species, which would include water willow, primrose, alligator weed, and *Lyngbya*, an algae that can cause some issues. Primrose and alligator weed are invasive, but we do not treat those in areas that are not causing navigation issues. Some of our fisheries friends do like primrose and alligator weed for fisheries. We do leave that for habitat, as long as it is not an aggressive grower. Primrose and alligator weed are not as aggressive as giant salvinia, water hyacinth or *Hydrilla*.

Ms. Moorer gave a quick overview of *Hydrilla* for 2016, 2017, and 2018. Two years ago, the council decided to start doing this ten-thousand grass carp a year total for the S-C system, Marion and Moultrie together. The first slide shows points on the map of where stands of *Hydrilla* are located across the system. They are not necessarily topped out plants. Most of it was on Moultrie, but we had some on the lower side of Marion. In 2017, we have polygons, which are stands of topped out *Hydrilla*. We do an aerial survey. We fly that using a third party out of Florida. They fly the system with a fixed wing plane with infrared photography. Each species gives off a different wave length, so they can determine the species. Then we go out and ground truth that by airboat. Our goal is to do this yearly, but sometimes Mother Nature does not always have that in mind for us. Hurricane Florence popped up this past year at the same time we had the flight scheduled, so we did not fly. All the surveying in 2018 was done by airboat. You will see the same polygons along the lake edges. The stars are points where we have seen stands of *Hydrilla* popping up across the system. We did have an uptick in acreage. We went from 250 to about 550 acres. We are going up a little bit on our *Hydrilla* acreage.

Ms. Moorer wanted to point out that with the ten thousand a year grass carp stocking, we are slowing down the reduction in our grass carp stocking numbers. We are not doing this quick drop off. In years past, when we stopped stocking, there would be a dramatic drop in the carp,

then the *Hydrilla* acreage would take back off. Then, we are chasing it. The idea is, we have this *Hydrilla* coming along and we have our grass carp populations and we want to hold those lines. We do not want to chase the *Hydrilla* population. We cannot make kneejerk management decisions like has been done in the past. That is our joint recommendation. We got together with the biologists at DNR, and our biologist at S-C. We sat down at the table and looked at Mr. Holbrook's research on grass carp. We came together and said we need to continue with the ten thousand grass carp a year. We will keep a close eye on our *Hydrilla* population. If something happens, then we will get back together and talk about it. That is our joint recommendation, to continue to stock ten thousand grass carp a year on Marion and Moultrie. She asked if Mr. Holbrook or Mr. Bussells had anything to add.

Mr. Holbrook said we are really just trying to hold a consistent number of fish in there versus losing those fish, losing the ability to stock, crashing again and having to chase the *Hydrilla*. That just gets us into a really bad situation. We are also excited at the prospect of being able to continuously do maintenance stockings, which we have not been able to do in the past.

Ms. Moorer wanted to add something. We do not ever want to have to stock two hundred thousand grass carp ever again. We do not want to ever have that many fish in the system. It is a detriment to the system. It is a detriment to our budget, and a detriment to the native vegetation and the ecosystem of the lake system. Our goal is to never have to stock that many grass carp again. The goal is to maintain a population that will help us control *Hydrilla*. We cannot run a solely grass carp program on *Hydrilla*. We cannot run a solely herbicide program on *Hydrilla*. It has to be an integrated pest management program. That is our goal at S-C and we feel like we have the support at DNR as well.

Mr. Page pointed out something that might alarm some people. We had a little dip in carp numbers and the *Hydrilla* took off. We stocked fish trying to catch up with it, but we stayed behind it. We got ahead of it here, but it was already in the process. The issue is this 568 acres. That does not bother him the way it used to, simply because of the advent of the new herbicide ProcellaCOR. ProcellaCOR is so effective on *Hydrilla*, it is almost like a magic bullet. With effective treatments of those sites, he thinks once we keep a limited acreage number down there like that we can get those knocked out. Timing of the treatment is going to be important, too, to get it before it lays the tubers again. In S-C, the tuber production time is sometime between August to October, according to the weather. Any treatments will be done before that time in some of these spot areas. Ms. Moorer will tell you that the aerial surveying is pretty sensitive to cloud cover and you know we have not had many sun shiny days in the past few months. They did not get the opportunity to do that. Ms. Moorer said they are trying to schedule for August of this year, but the growing season is hurricane season, so there are no guarantees.

Mr. Page noted that they have had the opportunity to go down and do a little more surveying to ground truth that work. He added that Mr. Perry was on the Council when this ten thousand got put into effect. Mr. Perry was one of the ones who suggested we use this adaptive management approach to get this process going and hold with it for a little while to see what was happening. We do not want to be reactionary. We want to be ahead of the curve and ahead of all of it. You cannot be reactionary with this plant, because it grows an inch and a half each

day during regular growing season. When you are being reactionary with it, you spend a lot of time trying to catch up and you cannot do it. Ms. Moorer said that attempt to catch up is detrimental to native species. Mr. Page said it is true that it is not the intent of DNR to stock two hundred thousand grass carp in any waterbody again.

Mr. Page moved on to the rest of the plan. This plan has thirty major water bodies and rivers in it. Then we break out the S-C area WMA's, and the SC Department of Parks, Recreation and Tourism (PRT) lakes, which are public lakes also. DNR's State Lakes program does their own thing. No budget is included for them, because we do not contribute to any of that. He listed the border lakes just so you would know what was happening in other states. We have no real control over Lake Wylie, because the majority of it is in North Carolina and Duke Power is pretty proficient at managing plants. Lake Thurmond also has *Hydrilla* problems, but that is an Army Corps of Engineers (Corps) lake. We try to have jurisdiction in it sometimes and they talk to us for some things, but for other things they quickly tell you it is a Corps lake. We give them our input. We have meetings with them. They are in the process now of determining that integrated approach of grass carp stocking and herbicide management. They are going through the whole process instead of looking at the research out there.

Mr. Page said our other problem last year was the Ashepoo River, with water hyacinth. Like he said, it is been 15 years since we have had to treat that area, but it feels like we caught up with 15 years of work in one year. We extensively worked on that to get it under control. We are like S-C, in that we like to be ahead of things, be proactive in our management, and not wait until we have a major problem to do something about it. We try, but it has not been effective for some of you in Greenwood right now, but we try. Some of them stump us. There are listings on the plan from the Ashepoo on down through Prestwood Lake, the Little Pee Dee, Lumber River and the Waccamaw. The Waccamaw River has a quite an extensive problem with hyacinth. The Santee Coastal Reserve's problem is phragmites.

Mr. Page noted, for the newer Council members, that it is a European variation, *Phragmites australis*, of the standard phragmites. It grows like crazy. At one point, when we first started working on Santee Coastal twenty years ago, we had some of those experimental use permits to use Arsenal and we found that it worked. Since then, it has been labeled as an aquatic herbicide called Habitat, or imazapyr, and it is off patent. Recently, we have gotten across to the Santee Coastal staff, and they have had the money, resources and the personnel, to actually do maintenance on those areas. That is an area that we flew, with a helicopter, quite extensively. About the time we finished a five year cycle of spraying all of it, it had grown back where we sprayed it in the first year. It was a never ending cycle of helicopter work. Since that time, they have gotten quite proficient at doing maintenance control work, of going out on an airboat, to do a search and destroy missions to knock it back. We have gained ground big time. But it is like when you do not put weed control in your yard every year. The weeds come back. You cannot do it once and walk away. You have got to do maintenance. That is a big issue there and it is been resolved.

Mr. Page said Santee Delta is on there, as well as Samworth. We have not done a lot in Santee Delta over the last few years, but he thinks we are probably going to be pushing over that way once they get Santee Coastal set up. He thinks they have got a couple places with phrag.

Samworth has been a bear, because of dike work down there, and dikes busting for two years. Last year, we got lucky and none really busted, but they overtopped. They could not find a contractor to rebuild the dikes for several years. We have been trying to help them a little bit, but we probably have not done as much in there as we should have on water hyacinth and giant cutgrass or white marsh grass.

Mr. Page said the S-C area WMAs got the benefit a few years ago of working with the SC Waterfowl Association, where we sprayed some cutgrass in the S-C system. We talked with them, and they showed us some areas. Ms. Moorer graciously ground truthed a lot of those places, and we put a helicopter in there to open up that habitat back to more open water. Cutgrass is kind of like cattails, for those of you that do not know. It will take over an area and you will not have any open water. The treatments have been quite useful and have done a lot of good. Now, we have been maintaining and S-C has sprayed some of those areas down there, and some of the open water areas. We sprayed some of the impoundments.

Mr. Page asked the Council if there was anything in there that they wanted to talk about. Everything is pretty much about the same, to be honest. He is happy not to have any controversies and not have to deal with new things. Our big issue is how to deal with val and how are we going to provide relief to the property owners. Keep in mind too, like Mr. Perry said, it is a conservative balancing act. We do not want to harm the waterfowl and fish habitat, but at the same time, we have to give the people access. If they cannot get access, they cannot fish and enjoy the resources either.

Mr. Page asked if there were any questions on the draft plan today. He said he would entertain a motion to accept this draft plan with the minor changes and post it for public review. Ms. Moorer made a motion to post it for public review. Mr. Altman seconded the motion. Mr. Page asked if there was any discussion. There was none, and he called for a vote. The motion passed unanimously.

Mr. Page described the process for the new council members. Once we get this back to the office we put this out and we post it on the DNR website for 30 days. We will take comments in the form of email. We do not take petitions, or other stuff like that. We need emails, so we have record of who, where, and what. He will compile those and send them to the Council a couple days before the meeting, so you have time to look over them. He will probably send the response that he has worked up after consulting with a few of you, so you kind of know what we are looking at and what we are thinking. Feel free to make any comments on that plan. If we need to change something, we will change it. He does not want people to think we ignore their comments. We never do. We always take those into consideration, but sometimes we stick with what we got, based on science. We do everything like Mr. Perry said. We do everything with the science we have on hand. It is an evolving science. We are trying to add to that science every time we do something a little different.

Mr. Page noted that the science is going to be added to at Greenwood regarding val control. Nobody in three states that he has talked to knows an effective way to control val for a long period of time. We may even ask for your patience and use your ramps to come and move some of that val. We would like to dig it up and transplant it to some other lakes, since it is very

hardy up here in Greenwood. Ms. Moorer said as long as there is not any *Hydrilla* in it. Mr. Page said we will check the *Hydrilla* maps. If we cannot get yours, it is because it has *Hydrilla* in it.

A lady in the audience said she had lived on Lake Greenwood for 21 years, and it was not until the late summer of 2016 that this popped up. She asked how it got there and if it was brought in on people's boats. We never had a problem with this before in our cove. Mr. Page said there are a variety of ways the plants can be translocated. One of them is people moving them around intentionally or unintentionally, waterfowl, beavers, all sorts of wildlife can bring it in. There are multiple ways.

The same lady asked if it had been here before. Mr. Page said there was one spot that he can remember. You would be amazed how far some of those plants can travel on the bunk boards of your boat trailers. Some species are still viable after two weeks of sitting up on dry land. He do not know specifically about val. If the plants or seeds are sitting down there and your boat trailer has that carpeting on the boards, they do not dry real fast. It may take a week or so, depending on conditions and whether the boards are wood and soaked up water.

Mr. Page noted that out west and up north, they do some different things that we do not do. They have boat inspection stations and specific fines for people that drive out of landings without cleaning their boats. The lady said maybe we need to implement that. Mr. Page said it is kind of hard to implement, because to man those things 24/7, you have to have personnel. The state is still recovering from three to four years ago, when we had a big downturn in tax money and had to cut a lot of people. Five to six years ago, we had a bunch of reductions in force. We are not even back up to full manpower yet. DNR's Law Enforcement division was down to one officer per county in some situations.

Another lady in the audience spoke about having her granddaughters over the summer and she asked if they went swimming and they said, "No, the grass." She said, "What grass?" She went down to the dock and sure enough.

Mr. Page said you can only police the major ramps. You cannot police the private ramps. Say you took a vacation somewhere and you took your boat. You might come back and instead of going to a public landing, you might put that boat back in you put it in a private area. That can be an issue, too, and you cannot police that.

Mr. Perry asked to comment, from a plant ecology stand point. As indicated, *Vallisneria* is a native, and most oftentimes preferred aquatic vegetation, that grows in a variety of habitats, particularly upstream of Lake Greenwood. It is a good indicator of high water quality, good water. He strongly suspects that various mechanical means of moving it are not the reason its showing up. It is growing better upstream. Sediment moves around. There is a seed bank associated with it where it occurs, and I think those seeds are coming downstream with normal flow events. When you have high flow events, you have greater levels of sediment transport. You have had several high flow events over the past few years, statewide. When you have sediment transport, you have seed transport, too. A lot of things spread themselves as the good Lord intended them to do. He strongly suspects natural methodology is what is causing val to

take over at a high rate in Lake Greenwood. As Mr. Page said, there is nothing to really be done about that, it is just going to have to happen.

Mr. Page said he did not get to that point, but that is a great point and Mr. Perry is absolutely correct.

A gentleman in the audience said it seemed reasonable to have a chemical that is approved by SC, whatever the approval process is, that the homeowner could individually purchase and put it around their own dock. You are not going to have DNR come out and treat one dock, you know you are going to have to do it yourself, he would think.

Mr. Page said the way the law reads, to apply to a public water body, a subdivision water body, or a multi-owner waterbody, you have to have a certified applicator that is licensed in category five. There is another caveat that is approved by the county or the state.

Mr. Drake said the way to get around that is if you had a lake association, where you had someone that was licensed in aquatic applications. They could supervise homeowner application, or they could supervise another employee to put it out at the request of the homeowner. That would be the best way to go about it. There are very few things that a homeowner can purchase and legally put in water anyway, especially a public water body. If it is off your absolute property line, and he does not know how far into the lake your property lines go, that might not cover you considering it is a public body of water. Ms. Moorer said it is probably a marginal lease and the water belongs to the county. Mr. Page said he thinks they have a buffer around the high water mark.

Another gentleman in the audience asked if there is someone available we can call that is licensed to apply that for an individual homeowner, if they would like.

Mr. Drake said there are aquatic applicators who can be employed to apply, but they are still limited, like Mr. Page said, to products that are labeled for that species. The key here is to get the product that you mentioned, if possible, a special local needs for SC. The kicker there may be, because it is a native plant, if there are other similar native plants that are endangered that may be damaged, or if there is an endangered animal species that may have habitat or food reduction due to the application of the herbicide, the EPA may not approve it. There are a lot of things this hinges on, but we are going to apply for it. Mr. Page noted that it is also a public water body issue. Ms. Moorer pointed out it is also a drinking water intake issue as well.

Mr. Page said that is technically not your property anymore, it becomes a property of the state at the water line, technically, and the land under it becomes the property of Greenwood. Mr. Drake said Greenwood County would have to employ the applicator to come and make applications if you do not own into the water. It being a public water body is another complication. Mr. Page said a homeowner association would work better than an individual homeowner. He is not a lawyer, but there are a lot of legal ramifications for applying an herbicide or a chemical to a drinking supply lake.

Mr. Drake noted that we are in a world where a lot of folks, who do not understand herbicide use, are out there watching and monitoring you. If something happens that is not even a result of your herbicide application, they can implicate you in that. We would have to come out and investigate, and you may get drawn into a lawsuit. Even if we found you were not guilty, you could be drawn into a civil lawsuit. You have got to be real careful, especially in public areas applying anything nowadays. Even if you are doing it with a license and correctly, you can undergo specific scrutiny. Mr. Page said civil lawsuits are a whole other animal. You are not innocent until proven guilty in a civil lawsuit. You have to prove your own innocence.

Mr. Perry offered a piece of advice to the citizens here. There is a federal energy regulatory commission license for Lake Greenwood. It was at one time an investor owned utility and hydroelectric project, but Greenwood County is the licensee now. Assuming all of you are from Greenwood County, you might petition Greenwood County for assistance as well. As the county is the licensee, it is responsible for the entire lake. Mr. Drake said he believes the county has people licensed in category five.

Mr. LaRoche said there are not plants on this side of the lake, and they know where their citizens are. We are on the Newberry County portion of the lake. The strange thing is that the weeds are on that side of the lake and not on this side, from what he has been told.

Mr. Perry said the residents have a voice then, too, at the Federal Energy Regulatory Commission (FERC) level. Do not think that they are too big to listen to you. If you represent yourself correctly and politely, they will tell the county, which is responsible for the entire lake and the shoreline management plan, through a FERC order to take corrective action. Ms. Moorer is familiar with this, as the S-C lakes are licensed lakes under FERC. SCE&G manages Lake Murray. Keowee-Toxaway and Lake Jocassee are managed by Duke Energy. All these utilities, that have that license, have a responsibility to manage the lake properly. Ms. Moorer said the licenses vary from utility to utility.

Mr. LaRoche said their experience working with FERC on this lake is not good. They may be good at some things, but it took us forever to change the rule on the lake drawdown. You had to prove to them that they were wrong about what they thought.

Mr. Page said the lake drawdown was a very contentious issue on Lake Murray and it took a lot of people and public meetings to solve that issue. DHEC, DNR, and everyone involved were way outnumbered in those public meetings for the FERC licensing at Lake Murray.

A gentleman in the audience said that Ms. Davis, with the Greenwood Lake Management, has come out and looked at our weed problem several years. It seems like her hands are tied somewhat, but she has helped us look for a positive outcome for all of this.

Mr. Page said Ms. Davis is trying. She is sitting over here, now. She has deferred to us for a lot of information, and we are trying to give her the right information, but like he said before, it is a really hard plant to kill. We have not got that magic formula yet. We are going to get there, hopefully.

Mr. LaRoche, said the issue most of the residents have is not the huge expanse of lake shore. We are concerned about the immediate area around the docks. It does not grow under the dock because of the shade. It grows where you want to get your boat in and out of the dock. It is a fairly small area you are trying to control, around the dock where it grows. He has thousands of dollars invested in boats and jet skis and he wants to use them.

Mr. Page decided to move on. We can talk more after the meeting. He asked if there were any other new items for council action, if anybody knew of hot new spots, or any new hot products. There were none. For the April meeting date, he would like to go to Spartanburg and get some of the Lake Bowen staff talk about their issues. They should have their contractor selected and be able to go over their plans and the specifics on what they want to do. He can probably get this thing posted by tomorrow and in thirty days, the council can vote.

Ms. Moorer said that would be March twenty-ninth, which would give you two days to get it posted. Mr. Page said he needed a couple days to gather all the comments. He was looking at the third or fourth of April. We need to get some of these things decided. If the weather pops back up and gets warm again, we are going to need to get grass carp stocked as soon as possible.

Mr. Page said before he entertains a motion to adjourn, he wanted to thank the audience for coming to Lake Greenwood. We do not shy away from you. You have conducted yourselves very well. He does not like people who are bullies. We run a pretty open meeting. We could stick to the meeting and not let you talk at all, but we like the open dialogue.

A gentleman in the audience thanked the Council for listening.

Mr. Page asked for a motion to adjourn. Mr. Simmons made a motion. Ms. Moorer seconded the motion. Mr. Page called for a vote, which passed unanimously. The meeting adjourned at 11:27am.