

124th Meeting of the South Carolina Aquatic Plant Management Council

Attendance:

Council Members: Chris Page, Terry Hurley, Jeannie Eidson, David Wannamaker, Bob Perry, Larry McCord, Bill Marshall

Guests: Julie Holling, Matt Puckhaber, Casey Moorner, John Morrison, Chip Davis, John Grant, Jane Hood, Carl Bussells, Scott Lamprecht, Ernie Guerry, Debra Guerry, Hugo Burbage, Jeanette Gilmetti, Jim Glover

Location: Santee Cooper Learning Center, 900 Stony Landing Rd, Moncks Corner, SC 29461

Call to Order: 10:25am 2/22/17

Minutes:

Chairman Chris Page called to order the 124th Meeting of the South Carolina Aquatic Plant Management Council (APMC or Council). He had been waiting on Ms. Eidson to arrive. Ms. Lognion was unable to attend due to some family health issues. Mr. Page thanked Santee Cooper (S-C) and Ms. Moorner for providing the space, the food and drinks for the meeting. Mr. Perry noted on the way in the gate, he received a call from Steve de Kozlowski, former Council chairman, regarding another matter. Mr. de Kozlowski sent his regards to the Council for the work that is being done. Mr. Page noted that we see Mr. de Kozlowski about once a year at the Aquatic Plant Management Society (SCAPMS) meeting. For those Council members who have not done so, Mr. Page recommends attending one to learn what is being done by public and private entities for management in the state and what tools are being used. The next meeting is in October in Myrtle Beach, and he will send a notice to all the Council members, or maybe we will have a Council meeting prior to the SCAPMS meeting. Mr. McCord feels Council members have a responsibility to understand aquatic plant management as much as possible. Although a lot of information is put out at the Council meetings, SCAPMS is the state chapter of the international organization and a lot of good information is passed on at that meeting about what is being done in the state and the region. It is very pertinent to what we are doing on the Council.

Mr. McCord noted most of the S-C lake management staff is in attendance today. As with many agencies and organizations that don't do a good job of training replacements as people retire, S-C is not hinting at who will take Mr. McCord's position on his retirement, so he is training everyone. He introduced Ms. Gilmetti, the office administrator, who also recently took the position of secretary for SCAPMS. John Grant is the supervisor of the vector management/mosquito control group. Hugo Burbage does aquatic weed control and water

quality monitoring and is also on the SCAPMS board. Debra Guerry supervises the analytical work and runs the laboratory. John Morrison is a fisheries biologist. Carl Bussells is another aquatic weed control specialist, who formerly worked for the South Carolina Department of Natural Resources (SCDNR). Casey Moorer is the supervisor of our biological services group, in charge of aquatic weed control and water quality issues. Ernie Guerry also works in that group. Mr. Page noted he brought his entire staff, too, but they could hide in a corner.

The first item on the agenda is approving the minutes from the 123rd Meeting of the APMC on December 6, 2016. Mr. Page asked if anyone needed a copy of the minutes and handed them out. He then offered to give everyone a few minutes to review the minutes. Mr. Wannamaker noted two comments that had his name on them, but he didn't make the statements. The first was on page 16, in regard to the vegetation at the Bushy Park landing. Mr. Bussells thought he made that statement. Mr. Wannamaker noted the other comment attributed to him was on page 19, in regard to the condition of sportfish. Mr. Lamprecht indicated that statement should be attributed to him, although Ms. Holling thought it was two different voices. Ms. Holling noted that it is difficult to identify the voices of the people who do not speak much. Mr. Page said that doing the minutes is generally a thankless job, and thanked Ms. Holling for getting so much correct in the minutes. While waiting on comments, Ms. Holling asked if everyone had signed in. Ms. Eidson and Mr. Glover arrived and apologized for being late. Mr. Wannamaker made a motion to approve the minutes with the noted changes. Mr. Marshall seconded the motion. Mr. Page asked for discussion. No discussion was brought before the board. Mr. Page called for a vote. The motion passed unanimously.

Mr. Page said the next item on the agenda is "Public Comments," but no one from the public was present, so there are no public comments. He said there will be public comments at the next meeting, many of which will come through mail, email, and public threads.

Mr. Page moved into the approval of the 2017 draft plan. The majority of the plan is the same as it has been in the past. We did have some changes in some areas other than the S-C lakes. We had changes on Lake Greenwood, Lake Murray and Lake Keowee. We will go over these lakes first and then move on to the S-C lakes. Mr. Page asked if anyone needed copies of the sections that needed to be reviewed. While those were being passed out, Ms. Eidson reminded the Council of her retirement in December and introduced Mr. Glover as her replacement. She asked if we could go around the room and have everyone introduce themselves at some point during the meeting.

Mr. Page noted there were some changes to acreage and correcting typographic errors in the main portion of the plan and asked if the Council wanted him to go through by waterbody noting the changes or lack of changes, or if everyone was okay with reviewing those on their own.

Mr. Page moved onto Lake Greenwood. There is a situation going on up there. We found about 50 acres of *Hydrilla* in October, and about 10-15 additional acres after that. It is all in very early stages of growth and mixed in with the most gorgeous *Vallisneria* you have ever seen. We did a Sonar treatment in late October. It looks like it had some effect, but not as much as we had hoped. This growth is an indication that we do not have enough carp in that system and we were trying to do a 1:10 ratio, since it is a Piedmont lake. It looks like we are going to have to increase that number somewhat. Over the last few years, both Greenwood and Murray have had water go over their emergency spillways. We are unsure of the carp populations in those lakes, or the S-C lakes, and have no way to accurately determine them. We are going to have to look at them and use Mr. Lamprecht's data to interpolate some carp numbers for those lakes. Ms. Eidson asked if these lakes were impacted by Hurricane Matthew. Mr. Page said Lake Greenwood was impacted the year before, with some rain from Hurricane Matthew, but not to the extent of the previous year.

Mr. Page indicated there were significant amounts of vegetation in Lake Greenwood. In addition to the hydrilla, there were a lot of indicator species, such as *Vallisneria* and naiads, popping up. Greenwood County has their own staff doing survey and treatment of problem species. They called it to our attention. We will go out and survey occasionally, but mostly rely on their information. There has been a significant increase in vegetation, including *Hydrilla*, in that system. The *Hydrilla* is showing up in all the places it was previously, but we are talking about small plants about the size of a coffee cup that were discovered mixed in with the *Vallisneria* along certain shorelines. Some areas were denser than others. We used Sonar to try and solve that problem. We will see how that worked in the spring. In the meantime, since the carp were so effective the first time, we were thinking we needed to get back up to a higher level of carp.

Mr. Wannamaker asked if there is an individual or small group managing that, or is SCDNR doing that? Mr. Page said Greenwood County has a lake management group dealing with aquatic nuisance species in addition to permitting docks and patrolling the lake for issues. Vegetation is one of their primary roles. That is a unique situation, since the lake sits on three counties. The other two counties, Laurens and Newberry, defer to Greenwood County. So, if you live on the lake in one of those other counties, you pay Greenwood County a dock fee. The other counties do not have anything to do with the lake. Mr. Perry noted that Greenwood County deals with the Federal Energy Regulatory Commission (FERC) licensing for the lake. The county leases power to S-C but maintains responsibility for weed control and lake maintenance.

Mr. Page noted the 250 carp in the last plan were the maintenance stocking for last year. We would like to add 1500 extra carp in the system for the 60 acres of *Hydrilla*, specifically on top of those areas. It would serve a two-fold process. One would be to have immediate *Hydrilla*

control by those carp. That would also increase the number of carp from a 1:10 ratio to a 1:8 ratio. This should also get us back to a stable number in the system. There is a quite vocal group of homeowners up there right now. Between the Fisheries Division and our program, there have been a good number of emails sent. One of the homeowners is convinced that there are no fish in the lake, and at the same time, he wants all the *Vallisneria* cleared out of his cove. He has no fish but wants to get rid of all the fish habitat. We get these types of comments all the time. Mr. McCord pointed out this man has no information to base his opinion on. Mr. Page was preparing the committee for the next meeting in four or five weeks, when we will get all sorts of comments from the public.

Mr. Page moved on to Lake Murray, which has been surveyed by SCE&G or Mr. de Kozlowski, their contractor. The issue in Murray is the 1100 carp as the maintenance stocking over the last few years to maintain the 1:8 ratio. Because of the issues we had with the flooding, the questions about the carp number, and the fact that Lake Murray is showing signs of vegetative increase in certain places, we felt that stock number was low, so we would like to stock 2000 carp into Lake Murray. This would be a combination maintenance stocking and a little extra to get the numbers back up. Ms. Eidson asked if this was because of all the carp that were found at Saluda Shoals Park after the emergency spillways were opened. Mr. Page confirmed that hundreds, if not thousands, of carp were found in the park.

Mr. Page realized he had skipped over Lake Keowee and moved back to it. It is a Duke Power (Duke) lake. You would not expect it, but 10 acres of *Hydrilla* were found by a boat ramp. The guys from Duke contacted Mr. Page and asked if they could do a treatment. Since the lake has been in the plan for several years, he told them to go ahead. He believes they went out there with Diquat and Komeen, which is a contact herbicide that will burn back the vegetation to limit the spread. They said they would be willing to treat it again this year and do other follow-up treatments if needed but would like to put 250 carp into that system. Keowee is a cold-water lake, so *Hydrilla* is not going to spread like it does in the Low Country and Piedmont lakes. Mr. McCord was interested to see what kind of results they get with the grass carp stocking. As a rule of thumb, spot treatments with carp are questionable as to whether those fish will remain in an area. Given the fact that Keowee does not have much vegetation otherwise, they might have better results. Mr. Page noted that the Duke staff suggested a high ratio of carp per acre. Mr. Marshall asked if this is the first-time carp have been stocked in Lake Keowee. Mr. Page does not recall carp being stocked in Keowee, at least in the last 10-12 years, but would have to research it to be sure. Knowing Duke, he would not be surprised if there had been some sort of stocking. Mr. Lamprecht asked which lake had issues with milfoil. Mr. McCord said that was Mountain Island Reservoir. They had a finding of *Hydrilla* in Keowee 15-20 years ago, but it was literally and intentionally planted in pots around people's docks. That was removed mechanically by removing the pots and possibly doing some herbicide treatments, but Mr. McCord did not remember any carp being stocked at that time. Mr. Page indicated Duke

had a proclivity for stocking grass carp. They did not believe in leaving any doubt. Mr. McCord added that if Duke did stock carp, their carp stocking policy was formed because they were extremely interested in what was going on in the S-C lakes when they were heavily infested with *Hydrilla*. That was when Duke formed their opinion on controlling *Hydrilla*. They have reason for seriously keeping it from getting started in their reservoirs. Mr. Page agreed with Mr. McCord. Duke has had *Hydrilla* in several of their lakes. It has been manually removed, because they had mosquito crews going through, who reported it when they saw it. That control method is highly effective in early stages of infestation. The same thing happened at Keowee. It is Mr. Page's understanding the Duke is cutting back on their lake management. Mr. McCord noted that the mosquito control crews have been completely cut out, which is also their aquatic weed control staff. He is not sure if Ken Manuel or Tommy Bowen are going out on the boat. Mr. Page said that's exactly who did the treatment this time. Mr. McCord feels the removal of the control crews is a bad decision, but it is their decision to make.

Mr. Page asked if there were any questions or any discussion regarding lakes Greenwood, Murray or Keowee. There were none, so he moved on to the S-C lakes.

Mr. Page noted that SCDNR and S-C met just over a week ago. The staff from S-C and SCDNR staff from fisheries, wildlife, and Wildlife Management Areas (WMA) to discuss the various issues on the S-C lakes. We discussed what needed to be done on the WMAs, in the public waters, on the Waterfowl Association work that was started, National Wildlife Refuge work, and a few other things. We got a presentation from Mr. McCord about the number of carp S-C would like to put in the system and Mr. Lamprecht talked about the issues, too. That is where we came up with the recommended numbers in the plan. Mr. Page noted that the Council makes the decision. We just put some words on a page. The verbiage did not change that much. In the S-C section, page three gets into the meat of the changes. The text that is marked out is the old stuff. The text in blue or red and underlined is the new stuff. Ms. Eidson asked what the difference in the colors meant. Mr. Page said both colors are new text but are just changes by different editors. Mr. McCord noted the text not crossed out is what remains in this draft.

Mr. Glover suggested that the filamentous algae (*Lyngbya*) be changed to cyanobacteria, since that is technically what it is. He thought it should have the proper species reference. Mr. McCord noted that it is a cyanobacteria, but it is also technically filamentous algae. It fits both categories. In order not to be confusing from the aquatic plant management stand point, most of the blue-green algae species are not multi-cellular. Because *Lyngbya* is filamentous, it occupies different areas and requires a different kind of control. We are fortunate that we do not have to deal with many of the planktonic blue-green algae that cause lots of fish kills. *Lyngbya* is bad enough, but those organisms can be devastating in water systems where there is not much flow. We think we have been able to avoid that. We have had unexplained fish kills in areas that we may not have been able to confirm algae as the causative agent, but it certainly could be.

Ms. Eidson asked if we really want to use the term control for the *Hydrilla* growth. Mr. McCord said we do, because to him, the term management is accepting some level of *Hydrilla*. We are talking about an invasive plant, that from the standpoint of S-C, we are not interested in managing it. Mr. McCord's issue with that comes from national meetings where other states are starting to use the term management and have been forced to accept a certain level of *Hydrilla* and all the issues and costs that go with it. We do not want to go down that path if we can avoid it. It is just a matter of semantics, but he thinks we still need to target control.

Mr. Perry said it is a matter of semantics and we deeply appreciate S-C's perspective, but the fact of the matter is that it is almost, if not completely, impossible to control *Hydrilla*. We know that from many years of experience. Mr. McCord disagreed with that statement. It is possible to control it. It is not possible to eradicate it, but it is possible to control it. We had it under control in the past. Mr. Perry said here we are arguing semantics again. We understand what the definition of eradicate is. That would be zero. We understand that you have a zero-tolerance policy for it. He feels and thinks that many of SCDNR and the general public believe that it is extremely difficult to eradicate it. Therefore, managing it is a better word. We understand that it should be aggressively managed, but two paragraphs below that, you do not use the same lingo for floating crested heart, which we would think is your worst enemy at the present time, since you have repeatedly indicated that it is. You use other language: Reduce crested floating heart populations throughout the waters. That might be the place to say, "aggressively control."

Mr. McCord noted that we do not say manage, because we do not believe in managing an invasive species. We believe in controlling them. And those are not the same words. They do not mean the same thing. Whether or not you are successful is irrelevant. It is whether or not you are targeting and controlling that organism or managing it. When you say management, you are leaving it open. Mr. Perry thinks that control is very relevant. Mr. McCord agreed. He is saying management is a different term. When you say managing an invasive species, you are accepting that it is always going to be there. Mr. Perry said we are almost at the balance point here of making every effort to thread this needle as carefully as possible with the right number of fish in order to not damage or cause any foraging on desirable native submersed aquatic vegetation. That is always the key. He, and the people he is representing, just do not believe that aggressive control of hydrilla is a realistic situation.

Ms. Eidson is more surprised by the term "aggressively," especially since it is front and center. We have talked about this before when we said manage, because that is what we are doing here. We are the Aquatic Plant Management Council. Control implies that we have some type of definitive control on this, and we do not. It changes from year to year. She is okay with the term "aggressively," but thinks we should use "manage" instead of "control" or some other

synonym other than control, because it seems definitive over something that has so many variables that we do not know what we are facing from year to year. Control implies that we do.

Mr. McCord said “control” is not a definitive term. That would be “eradicate.” “Control” is not stating that you are going to be 100 percent successful, but there is a difference between “control” and “manage,” and that is what I get stuck on. He is telling the Council from experience with other state agencies that have accepted a certain amount of *Hydrilla*. He is sure that is going to happen in this state, but he would like to keep it from happening as long as he has a say-so in managing the S-C system, because once we determine that we are going to manage it to a certain level, then we are going to end up losing control of it again. He is telling the Council from experience, and he is not talking about our constituents.

Ms. Eidson said she was just looking for another word that would have similar meaning to “control” and “manage.” She was not trying to stir the pot. Mr. McCord said we still have significant opinion on the part of members of the public, not large numbers, but those who are heard, that *Hydrilla* would be good to have in the system and managed at a certain level. That is what he is trying to get away from, because as soon as we accept that, we will lose control. We cannot manage *Hydrilla* to a certain level in the S-C system, with grass carp and chemicals included. We have tried that, and it does not work. We have to target controlling *Hydrilla* at every opportunity and hope that we maintain total control. He will argue again that we had total control over it, but we lost it because we did not properly manage the correct number of grass carp, allowing for native vegetation that we all want in the system. We keep going back to all the stuff about eradicating native vegetation. He noted that Mr. Perry mentioned that we don’t want to give the impression that we are controlling native vegetation at the same time. Of course, grass carp are going to eat some native vegetation. That is very well understood and accepted. Our effort is to get to a level of grass carp in the system to control *Hydrilla*, while allowing for some level, hopefully the target level, of native vegetation. That is all he is trying to say with the verbiage, is to say exactly what we are trying to do.

Ms. Eidson said that if the public expects us to manage, we have a little bit of leeway about us having some *Hydrilla* in there. Her concern is that if we use “control,” the public is going to think we have complete control over what happens, and if there is increased growth in an area, someone is going to say you are not doing your job. It is the public perception. She just wanted to bring that up for discussion. You met before and agreed on the language. Mr. Page said we didn’t agree on all the language. We agreed on some numbers. He wrote it up, and they edited it. Ms. Eidson did not want to spend a great deal of time on it, but when she first read it, it did cause some concern.

Mr. Page noted that in most of the other places in the plan where we talk about *Hydrilla*, we say “Keep hydrilla growth suppressed to minimize its spread within the lake, help prevent its

spread to adjacent public waters and minimize adverse impacts to water use activities.” He read several of the statements from the different waterbodies, which had similar language. We do not use the more aggressive language in much of the rest of the plan. Mr. Perry said on first blush on hearing you read those phrases, they sound a lot better to him than “aggressively controlling” *Hydrilla*. He simply believes that it is impossible to eradicate it and we need to admit that we will never eradicate it, but our objective is to manage or control it. He thinks manage and control are pretty similar words. We are talking about semantics and he does not see a whole lot of difference there. When you start a paragraph with the word “aggressively,” that speaks strongly to Republican constituency that uses the lakes. Ms. Eidson commented that “control” speaks volumes, too.

Mr. McCord asked if the Council would be more comfortable if it said “control” but not “aggressively.” He said something needs to be given to S-C, because the other waterbodies that Chris just read about have assistance from the state, and the state is involved with them. The individuals that voice their opinions have nothing to do with the cost of managing the S-C system. Until they do, we should manage the system with the Council’s approval and not worry about everybody else’s opinion that is not backed up by any scientific facts. If we manage it on their opinions, we will be managing a system that is mostly *Hydrilla*, because the opinion of a lot of people around the state is that we should allow it to come back into the system. Mr. Perry argued that the state doesn’t support that opinion. Mr. McCord noted that those people, nor the state, do not contribute any money for control when the *Hydrilla* when it gets out of control. He observed that Mr. Perry stated a minute ago that “control” was okay. He does not care if we put “aggressively” in there, because that is up to the people doing the work. Ms. Eidson said that she was the one that had an issue with “control.”

Mr. Perry said that if you are not going to use the “aggressively” toward crested floating heart, why would you use it against *Hydrilla*? Mr. McCord is fine with just saying control for both of them, and we will determine how aggressively we control them based on money and the techniques we have available. Ms. Eidson agreed that was acceptable.

Mr. McCord noted there was a brief break in the discussion and introduced Ms. Jane Hood, who just walked in. She is the new Vice-President. She took over the position Tom Kierspe was previously in. Most of the Council met Mr. Kierspe and he is still with the company but is in a different area. Ms. Hood is here to experience the entire situation. Ms. Hood noted that she had met most of the people present at the last meeting, and it was good to be here.

Mr. Perry asked if we were all in agreement that we would use the same wording, “control,” to start both the *Hydrilla* and crested floating heart paragraphs. He does not think that “reduce” crested floating heart is the wording you really want. Mr. McCord said he did not think that was appropriate either. We were looking more carefully at the wording on the *Hydrilla* than

anything else. As we said earlier, the crested floating heart has been named an invasive plant, even though we already knew that. We want to treat it as such, so the wording should be similar for both of those. Ms. Eidson said she is still concerned about the word “control,” but because Mr. McCord is so passionate about it, she is willing to go with it. Mr. Page didn’t want to defend Mr. McCord, but he has been to several of the meetings with the Army Corps of Engineers (Corps) at Lake Thurmond and they always want to use the word “manage” and their idea of manage is to do nothing. We always try to push control. Mr. McCord noted that the Corps management of *Hydrilla* on Lake Thurmond is directly responsible for killing over 29 pairs of bald eagles. Mr. Perry noted that bald eagles are doing fabulously otherwise across the state. Mr. McCord said we were controlling *Hydrilla* in the rest of the state.

Mr. Page asked if there was anything else that needed to be addressed on page one. Ms. Eidson asked about the second paragraph and if we just wanted to reduce water hyacinth. Mr. McCord said they were controlling that species, too. Mr. Page said he liked using control on all of those. There was general agreement that should also be changed. Mr. Page asked if control should also be used for giant cutgrass but noted that is more of a reduction effort. Mr. McCord was more concerned about using “control” for the invasive species. Giant cutgrass is not an invasive species, but it can become a problem in certain areas. There was general agreement to keep “reduce” for giant cutgrass.

Mr. Page moved on to page two of the S-C section and noted some changes to the acreage figures, as well as some rate changes at the top of page three. There were no additional comments on those sections.

Mr. Page wanted to talk about the meeting between S-C and SCDNR before moving on to the changes in the section about grass carp. When we met, we talked about the adaptive management plan and being fluid with that plan. We need to be able to look and see if the treatment was effective or not and then be able to move the needle if we have to. All through the section, it talks about surveying vegetation and surveying fish. We made a point of putting that in there. We need to have those grass carp numbers done every year. Mr. Lamprecht was talking about someone having to pay for that. Until we found out it was only \$250, we were freaking out. When Mr. Lamprecht informed them in the meeting that it cost about \$250 for the boat, we realized we could support it.

The plan talks again about the reduced number of carp. Looking at the historical data, we sat down with the graphs. We manipulated and played with the data to determine where things were the last time there were problems and where we stand now. We need to know what is going on out there in a timely manner. It still says we will do adaptive management. If we see a problem during the year, we will reassess as a group, as a Council. The group may reassess and bring a recommendation to the Council. That is some of the stuff that was talked about in the

meeting. There were wildlife staff, who deal with waterfowl issues, fisheries staff, WMA staff, and Mr. McCord and his staff. These numbers and thoughts are what we came up with. We did not word-smith it at the time. Mr. Page was asked to write something that represented what they said, which he sent out for review. It was one of the easiest things he has done in a while. After all the discussion, we agreed on most of the stuff. It was not adversarial at all.

Ms. Eidson noticed that the mortality rate was removed. She thinks that is useful to have, as that is a question that is asked on a regular basis. Mr. McCord said that should have been included and was left out in error. Mr. Page said that when edits like this are done, there are usually a few things that get omitted by accident. Ms. Eidson didn't see any other issues with the carp section.

Mr. McCord went back to the grass carp survey work that we all agree is important information to have along with the survey work we are already doing each year. The rough cost of that is actually \$2500, which is not enough money for us to be concerned about. If we all feel it is an important part of the process of getting the right information to make the right decision, the survey cost can be taken care of with no problem. Ms. Eidson asked if the SCDNR would be able to fund some of that work. Mr. Page said it is highly likely we could cover that. Mr. McCord noted that S-C could cover it if SCDNR could not.

Mr. Page noted the plan states "Annual data should include estimates of hydrilla acreage, estimates of native vegetation acreage, and fall-based triploid grass carp surveys. Grass carp surveys should function to further assess the relative condition of the population and aid in yearly stocking decisions." Mr. Perry asked how we got to the 43,261 number of carp. Is that based on the curve? Mr. McCord said that is based on the model that we've been using and on mortality rates. Using those calculations, that is where we were at the beginning of 2017. Mr. Perry said there is no way to know but asked if we think there are less fish than that. Mr. McCord said there is an educated assumption that there are less fish than that. The fact of the matter is that we do not know. It is hard for him to believe there are more fish than what we are estimating, but we have never known that for certain. The fact is we know fish have left other reservoirs. There have been significant spills following to the 2015 flooding, but we have had more significant spills at other times during the time period of stocking of grass carp. We never went back, and adjusted numbers based on those spills, so it is hard to estimate. Mr. Perry said that just because we have not done it before maybe is not a good reason to do it in the future. He asked if there anything in the literature suggesting a methodology for estimating the number of fish that were lost due to spillage events based on the duration of the spill. There was a non-verbal indication that there was nothing in the literature.

Ms. Eidson noted that she had asked for the spill information during the last meeting and asked if that was available. Mr. McCord said he had it and asked if she wanted a copy. She

responded affirmatively. He provided a copy and asked that she label it S-C spills at Lake Marion, as the title page didn't print. Ms. Eidson said what she was thinking it would be good if we could overlay this information on the carp stocking and *Hydrilla* growth data, so we could see where there were spills. We could see how or if it relates to growth we saw on the lake and possibly determine if it might be a factor that we attributed to something else.

Mr. McCord said we probably lost some fish due to spills. The configuration of the S-C system is such that it is not as likely as you might think. There is not much vegetation around the dam, as it is in the deepest part of the lake. There is a lot more shallow water habitat that is vegetated, which is where grass carp tend to hang out. It is not the same as Lake Murray or a pond, so someone would have to do a whole lot of research work to figure out a rate to use in terms of loss of grass carp during a spilling event or flood, because it would be like everything else we talk about, tremendously different from one reservoir to another. Mr. Page said even then, it would be a guess. Mr. McCord said we kind of why we have not applied that before, because we do not want to be guessing about too many things. We have data to support going from 22% mortality early on, to 32% mortality. We have never really had any reason to adjust that mortality rate further. Everyone understands that it is a guesstimate of the number of fish, but he is not sure how many more variables we want to introduce into the equation, because it makes it a whole lot more complicated.

Ms. Eidson said she could see that point, but just to have it included as being addressed by the Council would be beneficial if the public asked about it. Mr. McCord noted that, looking forward, if we put that information in or use it as a predictor, how that information could be used. We cannot predict spill events. It would just be a matter of reacting to a spill event. How does that data change what we are already doing? Ms. Eidson noted a spill event in 2016 that lasted 25 days at 90,000 cubic feet per second (cfs). That is substantially longer and higher flows than any of the other events. Mr. McCord pointed out a spill in 1993 of 50,000 cfs for 71 days. We made no adjustments, and that was right after the last of our grass carp stocking. We had 775,000 fish in there and we made no adjustment based on that amount of flow. We did not see any evidence of any grass carp downstream. We did not have an area similar to Saluda Shoals below Lake Murray where there were dead grass carp all over the place. There are other large spills in there, such as 39 days at 61,000cfs in 2003. There are other long periods at slightly lower cfs rates where the cumulative amount of water flowing out was greater than what we saw in 2015.

Mr. Perry asked for confirmation that these numbers do not include water used for power generation. Mr. McCord said this is Lake Marion spill numbers only. Mr. Perry asked for confirmation that these numbers do not represent a total outflow for the system and if it was theoretically possible for grass carp to move through the power generation turbines. Mr. McCord confirmed both statements. Mr. Perry asked if there was any confirmation of fish

mortality in the turbines. Mr. Lamprecht said he wasn't aware of any, but that grass carp are so large that any fish would likely be killed by the turbines. We know they will go over spillways, but we do not have any documentation of them going through turbines.

Mr. Page noted one other thing that was discussed during the meeting. We have changes in the system and it has not been normal for several years now. One of the issues we looked at was "How do we get to a level and stay there long enough to see if it is effective before we lose 32% of the fish?" or "How do we keep a point before we get too low and have to shoot back up with a bunch of carp again?" This is one of those things. This is the first plateau we talked about. Once we get to this plateau, we need to keep it here and see what happens to the system with hopefully a couple normal years with the fish. If we see significant degradation of aquatic habitat, we can push to reduce that number somewhat. If we do not see that, but see increased habitat and increased *Hydrilla*, we might adjust the numbers up a little bit. Instead of having this downward curve and a constantly moving target, we need to plateau somewhere and wait and see what happens. Science is an educated guess. You know how it is. You are going to get all your data and try and figure out a point where that balance is. If we are shooting at a moving target, we are never going to hit that balance. If we can back into that target, he thinks we can do what we need to do. There is some indication that the 1:8 ratio has been too low at times, and sometimes it seems too high. We are not trying to reinvent the wheel. We are trying to take the wheels off the car for a few days, so we can patch it instead of trying to patch it while it is moving. That may be a bad analogy, but that is what we are looking at. We see the curve, where the natural fallout is on the graph.

Ms. Eidson asked if 40,000 fish was the number discussed last year. Mr. McCord said that was roughly the number. Mr. Page said this idea of getting to a plateau or slowing the curve down is something he has been trying to push over the last few years with the suggestions he has been making. It was not getting to a point where he felt like he needed to fight for it, but he wants to slow the curve down. He does not want this steep curve. It is like skiing. He does not want the double black diamonds anymore. He wants the nice little bunny slope.

Ms. Moorer pulled up the presentation with the graph of the carp numbers and *Hydrilla* growth to refresh everyone's memory. Mr. McCord noted you cannot just look at a graph. You need to know where the information came from. This is what we talked about previously. At the Council last meeting, he showed a slide of areas where we had found *Hydrilla* during boat surveys. This has both the previous information plus additional areas where boat surveys have been done. Almost everything we had found at the time of the last meeting was found on the north shores of Lake Marion and Lake Moultrie because of turbidity issues and high lake levels, which we are still seeing. On the southern sides of the lakes, we were not able to see more than a foot down due to the turbidity.

Mr. McCord said things have started to clear up a little, but still not enough to see what we need to see, either from aerial photography or direct eyesight, but we added a number of locations that were found during the ground-truthing of the aerial photography. The yellow areas are *Hydrilla* signatures from the hyperspectral imagery we do every year. All of those have not been ground-truthed. You can see all the yellow dots inside the red dots, which are areas where *Hydrilla* was found during the ground-truthing of the hyperspectral imagery where we were actually able to see the vegetation under the water. If you follow the red line, which is acres of *Hydrilla*, to the end of 2016, there are 237 acres. This is up from the arbitrary base line of 100 acres. We have been down at that base line for the last few years, following a large grass carp stocking. What we really want to point out is the blue line of grass carp numbers coming down significantly, down to 43,263, which is coming directly off the model. You see the *Hydrilla* starting to tick up. If you go over to the left of the graph, you see basically the same thing started happening in the 2006-2008 time frame. What is not shown is the historic drought that occurred in 2007 and 2008. Most of the areas where we are documenting *Hydrilla* now were high and dry during those years. We did not do surveys during that time and were not able to survey what was in the dry ground. The numbers did start to go up in 2008. Very shortly thereafter, they skyrocketed, which is the situation we are trying to avoid. We would like to get to that magic number, which we have talked about before. On this system, it is not 20,000 fish, which is one per 8 acres. We have seen that, if you look at the graph before. The vegetation does not stay under control with only 20,000 grass carp.

Mr. McCord noted that currently, we are not only seeing *Hydrilla*, but also *Vallisneria* coming back as the water starts to clear up. Our survey documented 800+ acres of *Vallisneria* in areas where the photography could identify it. We have been able to identify more than that by boat survey. It is really small stuff right now. It is starting to pop back up, because it does not grow under high water or high turbidity conditions. Our interest is to pick a number that we feel pretty comfortable with. *Hydrilla* is starting to progress again. We want to try to level off at a higher number and, like Mr. Page said, continue to do intensive surveys both on grass carp numbers and vegetation to see if that is the right number or if we need to adjust it up or down. Rather than continuing to watch this go the way it has in the past, let us look at trying to see if we are close to that level we have all been trying to achieve. We are seeing recovery of native vegetation. We are seeing advance of *Hydrilla* and we think that 43,000+ number is pretty close to where we need to be on the overall population of fish.

Mr. McCord stated our recommendation is essentially to maintain that 43,000 level of grass carp. We will continue to do all of our surveying and see if we are indeed at a point where we can maintain control of *Hydrilla*, while allowing the native vegetation to prosper. Mr. Perry asked if the data of 237 acres of *Hydrilla* is based on the imagery or the imagery and the ground-truthing. Mr. McCord said it was both. Mr. Perry asked if what you have not been able to ground-truth, but is identified by imagery, may mean you have more *Hydrilla*. Mr. McCord said

that what is seen on the map is included in the total, but the imagery is limited by how far it can see under the water surface, just as visual observation from the boats. His opinion is that there are more acres of *Hydrilla* than that, but how much more is unknown. It is kind of like trying to figure out the exact number of grass carp. Obviously, *Hydrilla* is capable of growing at lower light conditions than any of the native vegetation. When the lake does clear back up to more normal turbidity levels, he fully expects to see *Hydrilla* in a lot of these areas that did not show up on either the boat surveys or the aerial imagery. Mr. Page thinks we will see significantly more native species show up. Mr. McCord said we already know that is the case, because the imagery showed over 800 acres of *Vallisneria*, which was the main one we were looking for. We also saw pond weeds and naiads out there, growing in with the *Vallisneria*. We did not do an acreage figure on those, since they are not as much of a concern. We know that *Vallisneria* is the stable native plant. When we get established beds of it, the other plants will start growing mixed in with it. *Vallisneria* is a stronger plant, which grows in higher energy conditions in these reservoirs than any of the other natives do and provides protection for the more tender vegetation of those species. It also tends to be where *Hydrilla* gets started, too.

Mr. Perry asked Mr. McCord if he was making an argument for 43,000 carp, plus or minus, being as close to the magic number as you think it can be. Mr. McCord confirmed that. Mr. Perry asked how we know that number is not 30,000 or 25,000. Mr. McCord said we do not know. We do know that 20,000, which is where we got before, *Hydrilla* got completely out of control. Mr. Perry said that when he sees 26,000 over there on the left side of the graph, he also sees fish declining precipitously down to maybe 10,000. That tells me that is definitely where we do not want to go. Mr. McCord agreed. Mr. Perry feels that somewhere between 26,000 and 43,000 probably is that magic number. He is concerned about erring on the conservative side for native vegetation and wondering if that magic number is less than 43,000, but certainly no lower than 26,000. Mr. Page said that could very well be the case. If we err down to the side of putting 26,000 in and we have to start chasing again, we will likely have that same spike of 100,000 fish before we can get to that magic number. Mr. McCord pointed out the carp population number of 30,000 fish in 2011 and noted that the *Hydrilla* population continued its spike of growth through that year. Mr. Perry noted that the control was lost somewhere between 2010 and 2011. Mr. Page said we lost control when the *Hydrilla* acres surpassed the carp numbers.

Ms. Eidson said we are guessing between 26 and 43 thousand, and we are not accounting for any loss by spillage. She thinks that what they are proposing is we move forward with 43,000. She knows we want to err on the conservative side, but because the number is not being adjusted for spillage, we kind of are leaning to the conservative side. In the next few years, if it does not look like we are not getting major vegetation back, we will know that the number is a little high and we can tweak it down. Mr. McCord said we are erring on the conservative side anyway, because the target of 43,000+ is the level at the beginning of 2017, but the number at

the beginning of 2016 is actually the level of fish at which the hydrilla started coming back. However, we need to keep in mind that all that turbidity and lake level issue is an important part of this as well. That just makes it more confusing, because we do not know the exact number of fish present when *Hydrilla* started to make its comeback, because some of it is dictated by turbidity. That is what makes the 43,000 number conservative versus the 60,000. That will keep us a little more aggressive and keep us from getting into the situation we got into when we were considerably conservative.

Mr. Glover said he needs to educate himself, and will continue to do so, but what is the information prior to what is on the graph. What is the worst-case scenario, in terms of acreage? Mr. McCord said it was about 40,000 acres. When we started stocking grass carp in 1989, there was about 12,500 acres of *Hydrilla* known in isolated pockets in upper Lake Marion. That was the only place it was being targeted. Hurricane Hugo came through that year, which caused some fish kills, but also broke some of the vegetation loose and spread it throughout both lakes. At that point, it started expanding quickly, and we increased the number of grass carp. By 1996, the decision was made to discontinue stocking grass carp because we had a large number of fish and *Hydrilla* had been controlled. People still argue whether the grass carp or the *Hydrilla* reduced the native vegetation, but it was probably a combination of the two. At that time, we had very little submersed vegetation in the lakes. There are also arguments about the effects on fisheries, waterfowl, and other animal species. A decision was made by the Council that carp stocking was not going to be done until there was significant regrowth of *Hydrilla*. The definition of significant was debatable. To S-C, we saw it in 2006, when we saw the regrowth very similar to what we are seeing now. That was when the grass carp population dropped. We did not start doing grass carp stocking until a few years after that. They were very small stockings, and we were being very conservative. That is where you see the *Hydrilla* getting out of control, to over 7,000 acres. We had to stock over 200,000 grass carp over two years to get that back under control. That is potential damaging to native vegetation and other species. It is also very damaging to his group's budget. That was well over a million dollars to do that stocking and we do not want to get back to that point economically or biologically.

Mr. Glover said he just wanted to get his mind calibrated to the 7,000 acres. He asked if there was a number where you start seeing problems. Mr. McCord said they see a significant problem when we see *Hydrilla* start to come back in particular areas of the lake. It has nothing to do with acres. It has to do with locations. Having it come back in multiple locations, as seen in the map, indicate a problem. It does not matter whether it is in a residential area, wildlife area, or drinking water intake. We are immediately going to push for maximum control of that vegetation, because we know how quickly it can get out of control. Mr. Glover wanted to know what the problem is, from an operational stand point. Mr. McCord said *Hydrilla* overtakes all of the native submersed vegetation in the system, and it blocks navigation, recreation, water intakes, and hydro power production. Essentially, it affects everything S-C is mandated to do

through their FERC licensing, and their cooperative agreements with the United States Fish and Wildlife Service (USFWS) and SCDNR.

Ms. Eidson noted that there are several fairly new members. Most of the longer-term members have a lot of historic knowledge about what occurred in the past. It would be good for all the newer members to have the spreadsheet of all the historical data. She requested that be distributed to them. That is what she thought was going to be shown. Mr. Page said we have it, but it is very large.

Mr. McCord is not going to argue a bit. The data is very important. He feels it is exceptionally important for the members of the Council, when making decisions on lake management issues, that you see the system you are making decisions on. We have tried to organize tours of the S-C lake system multiple times, and we could have done a better job of organizing them and making them happen. As he indicated before, attending the SCAPMS meeting is helpful. If you are not interested enough in learning more about the systems you are making decisions on, you should not be part of the Council. We need to organize a tour and take at least the new people out and see all the issues we are dealing with on the S-C system. If Duke wants to do that on their systems or Mr. Page wants to do that on some of the other areas, Mr. McCord is willing to help out and bring airboats. The S-C system needed to be understood better by the members of the Council, and you are not going to understand it by looking at maps and spreadsheets.

Ms. Eidson noted that the Council used to go out on the S-C system on a regular, almost annual basis. She said it would be great to get back out there one more time before she finished her tenure on the Council. Mr. McCord said that it would be good to have both the old and new members out there at the same time, so there could be some discussion about history. Mr. Glover noted that he has been out on the S-C system numerous times for a variety of projects, so he is very familiar with them. Ms. Eidson said she had told Mr. Glover about the trips, which usually included the S-C system, but would like to be included if a trip is scheduled for this year. Mr. Page noted that the conditions of the last couple years have not helped with planning these trips, since it was difficult to see anything because of the turbidity.

Mr. McCord noted that he is in charge of organizing all sorts of tours for all types of people, and most of the other groups will reschedule if the original date does not work out for some reason. Those people are not making the decisions this Council is making. Mr. Page can understand some of the issues, because even scheduling these meetings a month or two in advance is a pain in the behind. And we still have members that choose not to show up. He thanked the Council member present for coming. Mr. McCord noted that while data is good, and you can often get a lot of it on your phone, it is good to go out and see what is going on in the real world occasionally.

Mr. Page said both he and Mr. McCord have the information from the graph, including the historical data, and can get it to the Council members for their review and contemplation. He said that it is interesting because the original plan was to come in and do maintenance stocking before we got to a level of significant regrowth. We, as a Council, abandoned that plan, but he hopes we learned a lesson. Those decisions were based on what we were seeing and the pressure we were getting from constituents and other people who really did not have a good idea of what was going on. When you look at the more historic data, you get a different perspective that you do not get from this graph alone.

Mr. Glover said he'd probably never see the 40,000 acres and possibly not 7,000 acres, but he is trying to calibrate his mind to what level is a problem. Also, as DHEC, we sometimes focus so hard on a value, we sometimes forget why that value is there, so he wants to have an idea of what is bad. For S-C, it is what is bad for your operation, whether it is problems with hydro-electric power generation or home owners complaining. Mr. McCord said it is all of the above, including wildlife management, which we do in cooperation with SCDNR and USFWS. Large acreages of *Hydrilla* is not beneficial to any of us. Mr. Perry said it is not beneficial to any of the Council members of the organizations we represent. It can be, undeniably, important for waterfowl habitat. Mr. McCord noted that it is an illegal plant, and you cannot use an illegal, invasive plant as an attractant for waterfowl.

Ms. Eidson said there is a financial difference that is important here, even though it does not drive the decisions. That is that when the stocking of 200,000 carp occurred last time, there were no federal and state dollars available to match the money that S-C was spending. So, there is an economic standpoint, because S-C was footing the bill. She is not saying that is a driving force. Mr. McCord said it is a driving force for S-C. Ms. Eidson said the Council needs to be aware of it. There was a shift between the 1990s and now.

Mr. McCord noted that although it is a driving force for S-C, those constituents who have a single focus issue, it does not matter to them how much money it will cost S-C. Some of them would like to see 40,000 acres of it back out there. What is not understood, or not understood clearly in this group, is S-C has a mandate to manage the system based on their FERC license for multiple uses, not just for waterfowl or fish. We do manage for those and we do a good job managing for those in cooperation with our partners at SCDNR and USFWS, but these folks think we should be managing the system as if it is a waterfowl impoundment or a fisheries pond. It is not either of those. It is a drinking water supply, a hydroelectric power producer, and a recreational area. Those recreational opportunities include hunting and fishing. The system cannot be managed for a single issue, because that is not what our mandate is. We are mandated to have control over the S-C system. As long as that is the case, we have to focus on that and all the issues have to be taken into consideration.

Mr. McCord noted the fact that we are no longer involved in the cost-share program is still an issue for him. The amount of money available is not important. The principle of the fact is that we are still being controlled, in terms of what we are allowed to do, against our better judgement, and we have no monetary assistance what so ever to improve the aquatic plant management program. He said there is no reason for that to be the case. The argument has been made in the past for what the reasons are, and they are bogus. That is not a driving factor here, because the amount of money we are talking about is insignificant. It is the principal of the matter. Put yourselves in the position of being responsible for managing the S-C system in terms of aquatic plant control. Look at the statute and the way it was written for the creation of the Council, and the creation of the aquatic plant management program. He asked if anyone can explain why the largest component of that is separated out from reimbursement arbitrarily.

Mr. Page offered to explain it. Mr. McCord said Mr. Page could tell him what has been told to him in the past and he would tell Mr. Page why that is incorrect. Mr. Page said for every other waterbody in this state, we have a private contractor that does the work. We are reimbursed by those entities. SCDNR does not give money to South Carolina Electric & Gas (SCE&G). They give money to SCDNR. The work may be cost shared, but for the past 10 years, SCDNR has not paid anything for work done on Lake Murray for SCE&G. They had money sitting in our trust fund, which we used to pay for all their control work. It is a matter of who does the work. We do not pay out money. We take money in as a cost share. That is the bottom line. That is how we do it. If we work on Charleston Public Works (CPW) and SCE&G's Back River Reservoir, we tell them what we used and split up the appropriate dollars. They send us their reimbursement. We do not hand anyone money.

Mr. McCord noted that you cover the cost of some of the operations, which was done for S-C until 2010. Mr. Page said he has told Mr. McCord before that if S-C finds projects that SCDNR can do on the S-C lakes, we will be glad to cover that. We will put our contractor's airboats out there and make it work. Mr. McCord said that is a completely separate issue. That is an agreement we came up with to augment the fact that you do not cost share with us. The reason that was given to us before is that our costs were higher than the cost you were paying. Mr. Page said that at the time, according to state law, you have to justify giving money to another state agency by proving that they can do the job cheaper than you can do the job. Mr. McCord noted that Mr. Page just said you are not giving money out. Mr. Page said Mr. McCord was talking about the cost share going back to S-C. At the time, you had to justify it to the S.C. Budget & Control Board.

Mr. Perry asked if we could move back to the matter at hand. Mr. McCord said he is more concerned with the decision we make on moving forward to control *Hydrilla*. As he said before, the amount of money we are talking about is not making or breaking anything, but it does

need to be further discussed in another venue. Mr. Page said we needed to move on. He asked if there was any additional discussion. He reminded everyone that this is not the final plan. You will have a chance to dicker about this later on. This is the plan that will be put out for public for a 30 day review.

Mr. Perry read from the bottom of page 3, “Herbicide treatments may be utilized to provide temporary control of hydrilla when necessary.” He asked why the wording was “temporary control.” Mr. McCord thinks that was their wording because the available chemicals only provide temporary control of *Hydrilla*, so we put that in there for clarification. Mr. Page said there are no systemic herbicides that can be used in flowing water like that, so contact herbicides are used. If we had a magic systemic herbicide that might not necessarily be true. Mr. Perry suggested adding a clarifier to help the public understand. He suggested adding “, because chemical can only provide temporary control.” Mr. Marshall said anything we apply is temporary control. Mr. Page said there are places you can use systemic herbicides. Mr. McCord said there are some chemicals in certain situations that provide longer temporary control. He said he is okay with adding some verbiage as long as it still says “temporary.” Ms. Eidson suggested rewording it to “Herbicide treatments that provide temporary control may be utilized on hydrilla when necessary.” Just move the words up so the “temporary control” is linked more to the herbicide treatments. Mr. McCord does not think that is going to be a statement that anyone who responds to the draft plan would point out. He is fine with wordsmithing that statement.

Mr. Perry said the bottom line is 13843 fish is what is estimated to keep us at a status quo. Mr. McCord said that would keep us at the level we were at, in theory, at the beginning of this year. He said, for informational purposes, based on his phone calls to potential supplies of grass carp, we are still talking about between \$90,000 and \$100,000 for stocking that number of carp. It is still a significant amount of money. Mr. Page said the numbers are off a little bit because of the way we are rounding inside of our systems. His system has a slightly higher number of total fish and stocking numbers. It is just how the numbers have been rounded over time. Mr. McCord thinks everyone, at least the folks that have been on the Council for a while, realize that when we get the fish, they won’t have the exact number of fish we request. That is what we hope to pay for, but the actual numbers will probably be closer to 14,000 fish. That is just the way it works with fish deliveries. We do not count every fish, and neither does SCDNR or anyone else. If any of the constituents would like to come count the fish, they are welcome to do so, but they cannot touch them. They will have to do a visual count as they come out of the pipe. Mr. Page noted that we have counted some of the lower numbers of fish, and they are pretty darn close. Mr. McCord said they have two grass carp experts on staff and when we stock carp, we are going to make sure they are not sending us 10,000 fish and claiming it is 14,000. We are there when we stock and take a close look at the fish. These are guys that have

experience with putting fish in transport trucks and can get a pretty good estimate of what is being put in the system.

Mr. Page asked if there was any other wordsmithing that needed to be done. You know that we are going to discuss this again in about 35 days. Mr. McCord knows that based on public comments that there will be some other potential wording issues, but we shall see. Mr. Page said we can do more wordsmithing later, but we are getting the gist across of what is out there. He was waiting for Ms. Eidson to come back before he tries to wrap this up.

Mr. Glover wanted to go back to the chart. He is trying to figure out on the acreage of hydrilla, what the comfort level is here. It shows low levels of 200 or 100 acres. Mr. McCord said we have never been at zero. Mr. Glover wanted to know when people are going to see it and when is it going to cause real problems for some of these things we have mentioned, the waterfowl, the turbines, and navigation. He knows you want zero, but where is it going to affect these things.

Mr. Perry offered to answer. The real problem obviously occurs probably in the neighborhood of above 7000. You are going to have all sorts of problems with navigation. All the dock owners are going to be complaining. You could have breakups of floating vegetation mats that approach the hydropower facilities. There will be all sorts of problems. That is not the issue, that high level where you have all those problems. The issue is keeping the levels down so low that you do not have to worry about that high ascending growth rate. Mr. Glover said you do not want 7,000 going to 30,000. Mr. Perry said you do not want 5,000, because when you get there, you probably lost control two years before. Then you have this steeply ascending growth rate that you have to chase with a huge number of fish that are very likely to have a detrimental effect on native aquatic vegetation. So, if you want to talk about the problem, some people see it at the high acreage numbers where the material problems are, but the real problem is at the low acreage numbers, so you never let it get out of control. Mr. Glover can see how fast those number went up, but he also sees how fast they went down.

Mr. McCord agrees with everything Mr. Perry said, but wanted to add a little more. Even 500 acres, or even 100 acres, can be exceptionally problematic, depending on where it is. We had the single largest fish kill in the state of South Carolina, because the St. Stephens generator clogged up. The amount of vegetation that clogged it up probably would not have covered 100 acres. It broke loose due to storms from where it was, and there was a great deal more vegetation in the system at the time, but it shows that 100 acres in the wrong place can clog up drinking water intakes or stop navigation in a given spot. As Mr. Perry said, it is more the potential for it to go from any given level to an exceptionally high level in a very short period of time. That is the nature of the plant. It grows at an incredibly fast rate when compared to any native species. It has no natural controls.

Mr. Page gave a simple example. Say I have 10 acres of *Hydrilla* and I want to kill half of it. That is not possible. There is a threshold level that the carp have to achieve to be able to outgrow the inch and a half the *Hydrilla* grows each day. You would think that if you put in half the carp you needed, that you would see a significant mow down and you would lose half the biomass. It does not happen that way. Until you get to that threshold level, which is more than you need, you do not control that plant. Then once it takes that precipitous dive, you are really stuck with too many fish. That is the problem with it. The COE has done studies over time trying to figure out how we could place rotenone capsules in these fish's bodies to time out. It sounds funny, but it is because of that threshold issue. Ms. Eidson noted that there is about a three year delay from the stocking to control and the public may not want to wait that three years. Mr. Glover said he would do some additional research, but that is a great explanation.

Mr. McCord reminded him that we were giving you a really small amount of information, because we have a small amount of time. There is a whole lot of information out there, but imagine that you are a member of the general public. You have never been exposed to this type of information and you have a single issue, say you like to fish. Your main question is "What is the problem with letting it grow over this entire open flats area where there are no houses?" As hard as you try, you cannot educate the entire general public. That is the issue that you run into. You will see the public comments. Some are great, and some are awful.

Mr. Page asked if there were any other comments on the S-C section or on any other part of the plan. Currently, he has noted several changes per our discussion to this point. Mr. McCord has one more note. On the fourth page, right before we start talking about dollars and cents, there is a statement underlined in blue that says, "No fee will be charged for ploidy testing." The only thing that got scratched out was the smiley face behind it. That was sort of done in jest. Mr. Page left that in there in jest. Mr. McCord said S-C would appreciate it if there was no fee charged for ploidy testing, but that is not really an issue. Mr. Page informed the Council that there is a \$1 per fish for ploidy testing. S-C pays it. We pay the fisheries section of our own agency that fee when we order fish for stocking.

Mr. McCord wanted to mention something for history purposes. Another issue took place during that whole process when we agreed as a Council to stop stocking fish. At that time, due to the plan to continue with maintenance stocking, S-C had a hatchery, where we were growing triploid grass carp for the express purpose of doing maintenance stock. He didn't know what the hatchery's capability was, but it probably would have been in the range of 20-30 thousand fish per year. As a result of the decision to discontinue maintenance stocking, we had to close that hatchery completely. So, now we are subject to buying grass carp, mostly from out of state, although there are a few companies that bring fingerlings into the state and grow them out. That has been a factor also. He wishes we still had the hatchery, because we would have

enough fish to cover this number. Someone asked if there was any consideration to reopening the hatchery. Mr. McCord said no.

Mr. Perry noted that this chart is tremendously instructive. The more you study it, the more you learn. It would be good for everyone, especially the newer members, to extend that chart back into the 1990s, because there are some other peaks in there that offer some additional insight. When he looks at this, he has to ask himself, when we saw the lines cross in 2005, why didn't we do something. Mr. Page said we did. We came back in one of those years and tried to chase that number. Mr. McCord said that the first year that the Council agreed to stock fish, we stocked 2651 fish in the S-C system. We were still being governed by public opinion almost exclusively. Mr. Perry asked if that was in 2003. Mr. McCord said no, that stocking was in 2007. Mr. Page noted that some of those years were drought years, and we could not justify stocking during those years. Mr. McCord said stocking was not done in 2008 because of low water conditions, but we should have stocked.

Ms. Eidson thought we had made an agreement to having at least 10 percent of native vegetation coming back into the system. Although there is 100-300 acres of *Hydrilla*, we were not seeing a huge amount of native vegetation. Although it crossed, we had to think about when other vegetation is coming back. She remembers that as being one of the driving forces. Mr. McCord said not at that time. He went back to the 10 percent coverage. That is the goal that we have established, and we are having discussions about revising or revamping that number. That 10 percent is total vegetation, not just submersed vegetation. Ms. Eidson noted that you are not seeing total vegetation on this chart, just *Hydrilla*. Mr. McCord said we are looking at *Hydrilla* numbers because we are talking about grass carp stocking.

Mr. Page remembered the drought being very specifically part of the discussion. Mr. Perry recalls that, too. He also remembers being out in areas that used to be 14 feet deep, which didn't have *Hydrilla* in the past, but now have it because the lake had receded so much. It is quite possible that water clarity succeeding that drought was a big factor in the spike in growth. Mr. McCord said that the water level receding to about 10 feet below full pool elevation in a system that averages 15 feet deep was responsible for a change in hydrilla location as well as a change in *Vallisneria*. *Vallisneria* will normally only grow in about 8 feet of water. It caught on in those areas around the shoreline when the lake came back up. A lot of that stayed there because we had clear water and not a lot of heavy inflows for quite a while after the 2008 situation. That is when we started seeing an explosion of *Vallisneria*, based on the clarity of the water and the water depth at that time. It has a tremendous impact on what goes on.

Mr. Page said that with the stocking, we were trying to be very conservative, and we were probably overly conservative, looking at historical data. We got behind and could not catch up until we actually stocked another 200,000 fish in that system. Mr. Glover said it looks like

the 130,000 is what did it. Mr. McCord said turbidity also played a role in the reduction of *Hydrilla*, as it has played a role in the reduction of native vegetation during that time period as well. Carp played the most important role, but you cannot discount the high turbidity levels. Mr. Page noted that *Hydrilla* is a little different from native species. Native species require a high level of sunlight. *Hydrilla* can function at lower levels of sunlight than our natives and is more aggressive.

Mr. McCord noted that grass carp do not control it right away. It takes about three years for that control to take place. It is kind of hard to target the exact number of fish. Mr. Glover said that those two lines on the graph make it appear the carp did the job. Mr. McCord said there is no question that they play a big part in it. Otherwise, we wouldn't be talking about stocking carp in the system. Turbidity does play a role in vegetation growth. Ms. Eidson said there is data on total vegetation and turbidity levels, so there are a lot of other factors that could be included in this graph. Mr. McCord said we could include that all that data in our graphs. Then the general public would not have any questions because they would not know what we were talking about. That might be a good idea. Mr. Page said that he would get confused from seeing all that data together. Ms. Eidson just wanted to let Mr. Glover know that all of that information was available, if he wanted to look at it.

Mr. Page asked if there was any other discussion about this and reminded everyone that they would get another chance to discuss it again. Mr. McCord made a motion that we accept the changes in all of the reservoirs that you passed out in the draft plan. Ms. Eidson seconded that motion. Mr. Page said he has a motion by Mr. McCord to approve the draft plan with the changes discussed today and be released for public comment. And he has a second from Ms. Eidson. He asked if there was any discussion. He called for a vote. There were six ayes and one nay, so the motion passed. Since there was only one nay vote, a show of hands is not required. Mr. McCord asked if Mr. Page was sure of that. Mr. Page affirmed that and reminded everyone that this vote is just for the release of the draft for public comment. This is just a simple majority vote.

Ms. Eidson knows it is a little late to be doing this, because she and Mr. Glover went to the wrong location and were late but asked if everyone in the room could introduce themselves for the benefit of Mr. Glover and some of the other newer members. Everyone did so. Mr. McCord made note again that most of his staff was here because he would be retiring soon and there had been no indication of who his replacement was going to be, so he's training everyone.

Mr. Page had another new item for the Council. We discussed this before, but he wanted to go back through it. Mr. McCord, Mr. Page, and our staff at SCDNR have had some meetings with the South Carolina Waterfowl Association(SCWA) about some habitat improvement work on the S-C system, with promises of repayment in the future of some of the funding that went

toward that. This past year S-C and SCDNR kind of undertook the initial cut of that without any promise of funding from SCWA. We did approximately 400+ acres in the main lake and some work on the Santee National Wildlife Refuge. This was all cutgrass control work. It was done under the caveat of the cutgrass work in the plan, so it was already approved. We did, along with our waterfowl and fisheries biologists, pick some specific areas both inside and outside the WMAs. The SCWA had provided maps of some areas they wanted done. Between SCDNR and S-C staff we picked out some areas where we thought we really could make some improvements. We did some work this past year and plan to continue it this year, so we can keep cutting away to that. We are trying to reach out to some of the people who have made comments on the plan in the past regarding improved habitat. He will be providing them with a map of what has been done. Areas have been worked on in both Lake Marion and Lake Moultrie.

Mr. McCord noted that although giant cutgrass is a native plant, it does develop a very thick monoculture in areas. In waterfowl impoundments, it is not conducive to good waterfowl management. Even in areas out in the main lake, where both fishing and waterfowl hunting are done, it is not the best vegetation to have out there. Our control measures in the past have produced pretty good recovery of other native vegetation when we remove that cutgrass. It also opens up those acres for actual habitat enhancement by going in and planting more beneficial vegetation. That is the reason for targeting that, but we were requested to do that by SCWA, Pintail Partners, other waterfowl groups, and SCDNR staff. Mr. Page said this would open up some water for both waterfowl and fish. The SCDNR waterfowl and fisheries biologists were on board with the plan.

Mr. Page saw a news item the other day. The Great Lakes now have a carp problem. It is not a black or silver carp problem. It is a grass carp problem. You may see some headlines about that, and some of your constituents may see headlines about this issue. Of course, we all know that certain states do not use sterile grass carp. They used diploids instead of triploids, which can cause major problems. Just be advised, if you get any feedback regarding that, those carp in the Great Lakes are not sterile. That is not what we use in South Carolina, and we never have. We should not have a problem with carp ever. Mr. McCord asked if there was confirmation that they were grass carp. Mr. Page said it was a story on Fox News, but he believes it came from a viable source. Mr. McCord said he does not recall any literature about large scale grass carp stocking in the Great Lakes. Mr. Page said they did not stock them. They escaped from somewhere. Mississippi and Alabama used to only allow diploid carp stockings. He does not know how that state law got passed. Mr. McCord noted that there have been breaches of hatcheries and people have dumped fish. Mr. Page said that this is an issue of diploid carp moving up the Mississippi River. It is a possibility that it will make it into the comments on the plan.

Mr. Page asked if anyone else had anything new for the Council. Mr. Perry asked if there would be any value to have Marcy included as a technical advisor. We have a number of internal technical advisors already present. He does not know if she was included in the meeting you held a few weeks ago. Mr. Page said he asked Mr. Perry if she needed to be included in the meeting and the response was negative. Mr. McCord said she would be a valuable asset to this Council and that group. Mr. Perry would like to see her, or her representative, be invited as a technical advisor to the Council. David Wileki's name was mentioned in partnership, and he has a lot of valuable knowledge about the system and waterfowl issues. He might be another person, or his representative, to invite. Mr. McCord is fine with Marcy but is not so warm and fuzzy about that one. Mr. McCord noted that we are leaving out the person who has the most knowledge about aquatic plant management on the S-C lakes, which has been declared in previous comments. That would be Clarkie McClarey. He knows more about the system than all of us. We might want to consider never bringing him in. Mr. Perry said he is included to invite people who have strong technical training and professional status.

Mr. Perry noted that there are two council positions that are absent today and asked if Mr. Page had gotten any response back from the one that had attended the last meeting by phone. Mr. Page said he did not get any response from that individual regarding this meeting. Mr. Perry said now that we have a new governor in office, it might be a good idea to have someone write the governor's office. He asked if Mr. Page had requested SCDNR Director Taylor to send a letter to the governor. Mr. Page said Director Taylor had sent a letter to Governor Haley's office, but one had not been sent to the new governor because all of the staff positions were still being filled. Mr. Perry feels that because the new governor is a lawyer and former Attorney General, he would be more inclined to follow the law. The law says his office is supposed to have a representative on this Council.

Ms. Eidson noted for the new members that there are seats for the Office of Coastal Resource Management and the governor's office. Mr. McCord said it is probably a procedural matter for SCDNR, but it seems to him that the Council chairman should write that letter to the governor's office to put someone on the Council. If that requires Director Taylor's approval, we need to do whatever needs to be done. Mr. Page said that he technically writes the letter, but it has to come from Director Taylor. Mr. McCord wanted to make sure that no one misunderstood that the Council is a separate entity from SCDNR. Mr. Perry stated that it would be cumbersome to get all the agency heads who are represented at this table to sign a single letter to make that request from the governor's office. Mr. McCord said whatever works to get a representative from the governor's office here is fine with him. Mr. Page said we have a letter to send that just needs some minor adjustments.

Ms. Eidson asked if there was anything she could do in regard to the representative for OCRM. Mr. Page said he thinks we have done everything possible to get the OCRM

representative to attend the meetings. He did call in two meetings ago but did not even offer to call in this time. That was when we were putting pressure on his bosses to have someone at the meeting. Mr. Page agrees with Mr. Perry, in that it would be nice if we could twist their arm and make them come, but we cannot. The governor's office seat has traditionally not been filled during the last ten years. Ms. Eidson noted that with so many of us moving off the Council, this would be a good time to let ORCM and the governor's office know that they need to step up to the plate, because it would be good to transfer some of this stored knowledge. Mr. Page noted that OCRM used to attend meetings, when they were not truly OCRM. Mr. McCord said that was when they were Coastal Council. Mr. Page said there were a lot more state employees at that time, too.

Mr. Page explained, for the new folks, what is required to be a Council member is for the director of the agency has to appoint the person to the Council. Mr. Glover asked if a formal letter was required. Mr. Page said a one is required. There was additional discussion regarding who the letter needed to be from in their chain of command, but it was unclear of the details because of the number of people speaking. Mr. McCord read a portion of the statute for clarification: "The council shall include one representative from each of the following agencies, to be appointed by the chief executive officer of each agency." Keep in mind that it says one representative from each of the following agencies and goes on to mention divisions of different agencies. Mr. Page said we are not going to get into that discussion. Mr. McCord said the wording is kind of cloudy anyway. There was a little more multiple person discussion. Mr. Glover asked that Mr. Page let him know what is needed.

Mr. Page noted, for the new people, we try to follow parliamentary procedures, but we do not always do that. He kind of believes in free and open discussion sometimes and do not shut people down or make them ask permission to speak. There have been instances where we probably needed to do that, but we have always had a good group of people that could talk to each other. Open discussion has always seemed, to him, a better way than shutting people down with parliamentary procedure. We will use that if needed.

Mr. Page said that on any minor issues, a simple majority of the Council votes things up or down. Those minor issues include the approval of a draft for public review or approving where we are going to meet. The chairman does have a vote. In the past, the chairman has abstained, because in most other organizations, the chairman was the tie-breaker. However, he is a short-timer now, so he is going to vote on everything.

Mr. Page said the next time we meet, he will have the plan and the comments we have received on the plan. He will try to send them to you ahead of time, so you can see what we are talking about. He will try to have all the comments in one document. You will see a variety of things. You will see comments where people threaten us, to comments that have some very good

information. You may not see comments on any other waterbody than the Santee Cooper. When we go through that process, which will be a long meeting because we have to hammer out some issues. What we do at that meeting will be making the decisions for the rest of the year. At that point, we vote on the final plan. It is a two-thirds majority of members present must approve or disapprove the plan. The way the law reads, if a two-thirds majority of the members present do not approve the plan, it falls back to SCDNR to decide what is in the plan. It sucks, but that is the way it is set up. It was set up years ago, when there were multiple agencies, not multiple entities within agencies. The new folks may think it seems a little biased toward SCDNR, since there are three representatives, but we do not necessarily agree as much as you agree with each other. We have had some pretty heated battles within the agency.

Ms. Eidson said that when the Council was set up, it was Water Resources and Land Resources, which later got merged with other agencies. Mr. Page said technically, in the old days, Mr. Marshall would be the Land Resources representative and he would be the Water Resources, which is always the chairman, and Mr. Perry would be the SCDNR representative. It is a similar situation with SCDHEC and OCRM.

Mr. Page asked if there were any other questions or any other new Council business. Mr. Perry asked when Mr. Page thought the draft plan would be published, a week or 10 days. Mr. Page thinks he should be able to have this corrected and on the web site by the middle of next week. Mr. Perry asked if Mr. Page would then do a Doodle poll regarding the next meeting, because the draft has to be out for 30 days. Mr. Page said he needed to find out where it states 30 days. Mr. McCord read in the law that “the department shall establish procedures for public input into the plan and its amendments and priorities.” It does not stipulate anything about the amount of time. Mr. Page said that by law for public notice we have to send stuff out a minimum of 10 days. Mr. Perry agreed, but said the historical record has been the 30 days.

Mr. Page said this was a weird year. If we wait 30 days, it is going to be the middle of April before we make a decision. He is already going to be treating before then. He will be treating on last year’s plan, but he is already treating. Mr. McCord went back to the grass carp stocking. We are basing the number on what we had at the beginning of 2017, and we are moving toward the end of the first quarter. So, we need to get things approved from the standpoint of doing the stocking as soon as possible. Mr. Page said that if we get this approved in the middle of April, and we have to bid fish out, we may not get that bid done before the end of the year. Mr. McCord said S-C can get things done faster, but we would still like to stock fish earlier for both control purposes and for the health of the fish as water temperatures rise.

Mr. Page confirmed to Mr. Perry that the draft would be posted next week. Ms. Eidson asked if the time frame for the next meeting would be the first week of April. Mr. Page said no, we have to wait 30 days after posting. Mr. Perry said we are looking at 35-40 days from today.

Mr. Page said we have to include the 30 days plus a few days to compile comments. The next meeting will likely be closer to April 15th. Mr. McCord asked that we pick a day as close as possible to that 30 days, so we would not have much additional delay. Mr. Page said he would try to compile comments as they come in and keep a running tally of them and send them to the Council members ahead of time.

Mr. Perry said it would be nice to meet in the mountains again. Mr. Page asked if that would be acceptable to everyone. Both Paris Mountain and Table Rock would be good choices.

Mr. Wannamaker made a motion that we adjourn. Ms. Eidson seconded the motion. Mr. Page called for a vote. The motion passed unanimously. The meeting adjourned at 1:05.