

Summary of Public Comments, Responses, and Plan Modifications to the Draft 2022 South Carolina Aquatic Plant Management Plan

Positive: 9

Negative: 2

Neutral: 1

Comments:

From: russell.deal@gmail.com

Subject: 2022 Aquatic Plant Management PIN

Date: Fri 1/21/2022 6:06 PM

I urge you to consider two things. First the attempt to “manage” or reduce any native grasses in our lakes by spraying or any other techniques. Second, all stocking of grass carp should be stopped immediately as they are invasive species, and damage our native plants.

Russell Deal

From: Carl M Cagle <carlmcagle@ftc-i.net>

Subject: Invasiveweed

Date: Sat 1/22/2022 2:06 PM

The lake is so nice now we suport any and all action to keep our lake free of any invasive weeds. Thank you for any support.

From: Dale Cozart <cozartd@gmail.com>

Subject: Comments on Aquatic Plant Management Plan

Date: Fri 1/28/2022 8:33 AM

To whom it may concern:

My name is Dale Cozart. My wife and I live in the Santee Cooper Resort on the shores of Lake Marion in an area referred to as "the cove". I have resided here for over 20 years and have seen many positive and negative side effects of lakefront living.

Over the years, the main issue with our waterways has been the constant problems brought about by invasive weeds in our lakes. Seems there has always been some, but the first major problem was Hydrilla. It got so bad a few years back that you couldn't get your boat out of the boat house, you couldn't swim around your pier or launch a boat at many of the ramps around the lake. Many of our areas were basically unusable, not to mention the issue with power generation and clogging of the turbines at the dam on Lake Moultrie Thankfully, DNR and Santee Cooper bonded together and developed a workable plan to use herbicides and to stock the lakes with sterile Triploid Grass Carp. I was fortunate to be a member of the Goat Island Boat Club and donated funds to purchase the first batch of fish. Almost immediately you began to see improvement and over the years the use of this plan that includes managed stocking of grass carp has proved beneficial. The current stocking levels seem to be working really well to maintain a balance that is workable for all.

The most recent problems have been Water Hyacinth, Crested Floating Heart and Giant Salvinia. Depending on where you are on the lake, one of these will certainly impact your water usage

whether it be fishing or just recreational boating. Living on "the cove" many times these invasive weeds float down the river channel and seem drawn into the cove where they flourish. Thankfully DNR and Santee Cooper are aware of the problem and do their very best to eliminate the problem and keep our waterways clear.

I am aware that some certain pockets of interest prefer the weeds be left alone to enhance fishing and duck hunting. I'd remind them that the lakes were famous for fishing long before any invasive weeds were present and have always been a haven for duck hunters. Many of these are so called outsiders who travel here purely for entertainment and will continue to do so. Homeowners and local resident tax payers are those who have the most at risk should the weeds be allowed to grow uncontrolled. Over time the lakes will become less and less usable for recreational boaters and home values will plummet. Not good for the local populace.

I highly recommend the SC Aquatic Plant Management Council approve the proposed plan submitted by SC DNR. Continued controlled spraying of herbicides and a scientific approach to stocking levels of triploid grass carp will keep our lakes in pristine condition for all to use while keeping water quality high and clear for power generation needed by all.

Thank you for the opportunity to respond.

Dale Cozart
306 Broad River Drive
Santee, SC 29142
843 697-2103

From: [h stafford <sloopchannel@gmail.com>](mailto:h_stafford@sloopchannel@gmail.com)

Subject: Aquatic Plant Management

Date: Sun 1/30/2022 11:49 AM

Good Day Julie,

A couple of suggestions for the aquatic plant management program would be:

- a) publish some additional articles in the SCDNR wildlife magazine regarding invasive species.
- b) with the explosive building in South Carolina along with wildlife displacement a study should be started about how wildlife can be managed as they are displaced to curtail the spread of invasive species.
- c) a member of the US Coast Guard should be appointed to the aquatic plant management council regarding ballast water management.

Hopefully my suggestions will help strengthen the Aquatic plant management program and protect our beautiful state.

Glenn Stafford
15 Tippecanoe Street
Simpsonville SC 29680
864-320-6100

From: [Justin Nawrocki <justin.nawrocki@upl-ltd.com>](mailto:justin.nawrocki@upl-ltd.com)

Subject: Santee Cooper Chain of Lakes

Date: Thu 2/3/2022 2:49 PM

I have the privilege of working with many Santee Cooper employees while researching aquatic plant management on Lake Marion and Moultrie during my graduate student years. The employees are knowledgeable about the system, plants and management practices to control both invasive and nuisance plants and algae. They are tasked to not only look after the ecological well-being of the system, for sportsman, but also preserve the anthropocentric interests of producing energy that undoubtedly positively affect significantly more people than the sportsman using the system. The 10,000 grass carp being proposed to help combat the hydrilla growth in the system is a cost effective control measure for an invasive species that has been shown to secondarily kill waterfowl by hosting toxic cyanobacteria (AVN). The desires of a few should not outweigh the need of the many.

Thanks you,

Justin Nawrocki Ph.D.
Territory Manager – Aquatics
(919) 429-2185

From: [Debra Gleaton <debgleaton@yahoo.com>](mailto:debgleaton@yahoo.com)

Subject: Invasive Weeds

Date: Thu 2/10/2022 10:12 AM

I remember the time that hydrilla almost destroyed Lake Marion and clogged up the turbines at Jefferies Power Station. It was awful. I have lived on the shores of Lake Marion for over 20 years and have been coming to my parents home since 1979. SanteeCooper in partnership with SCDNR has done an outstanding job of finding a balance that supports recreation, fishing and hunting on Lake Marion. I fully support the 2022 plant management plan to control invasive plants and encourage the growth of naive vegetation.

Debra Gleaton
Summerton, SC

From: [Kayla Horton <kaylahorton2009@gmail.com>](mailto:kaylahorton2009@gmail.com)

Subject: Invasive Weed Plan

Date: Tue 2/15/2022 9:35 AM

I grew up hunting and fishing the Santee Cooper lakes back in the late 70's and 80's. I have many fond memories of being on the lakes with my family. I recently have started taking my boys to the lakes to do the same things as I did once upon a time. What an incredible experience we had. The lakes have changed so much during the last 30 to 40 years which makes sense. Some of my old fishing holes were no longer productive like they once were. It took us some time to find the fish, mainly crappie, but when we did it was incredible fishing. Now my boys will have their own fishing holes and memories from the lakes. There was tons of vegetation in the lake to hold bait fish. The catfishing in the canal was great as well. We caught flatheads and blues mostly. I would like to thank both Santee Cooper and the SC Department of Natural Resources for the job they have done for me and my family to be able to have such great experiences on this natural resource. There is no doubt the lakes have changed but in my opinion they have changed for the better. I support the management plan as written and would like to encourage both organizations to continue to manage the lakes for conservation and preservation.

CT Horton
864 561-3640

From: [Megan Striegel <mstriegel@pestfacts.org>](mailto:mstriegel@pestfacts.org)
Subject: Comments on 2022 Aquatic Plant Management Plan
Date: Wed 2/16/2022 2:14 PM
(text of letter attached to email)
February 16, 2022
Ms. Julie Holling
South Carolina Aquatic Plant Management Council Chair
Re: Draft 2022 South Carolina Aquatic Plant Management Plan

Dear Ms. Holling:

Thank you for the opportunity to submit comments on South Carolina's 2022 Aquatic Plant Management Plan. RISE (Responsible Industry for a Sound Environment)® represents the manufacturers, formulators, distributors, and other industry leaders involved with specialty pesticides and fertilizers. Our members' products and services are vital to protecting public health and the environment, making safe places to live, work, and play.

Appropriate control and management of invasive species is important, as invasive aquatic plants can choke out native plants in our natural environment and lead to a loss of biodiversity. Invasive and nuisance aquatic plants can also impede navigation, diminish flood control capabilities, and negatively impact recreational areas.

The focus of our comments is on the Santee Cooper Lakes' aquatic plant management plan, and the complete utilization of integrated pest management (IPM) to balance the interest of all lake users by managing the threat of invasive species. We recognize the importance to use all available tools in the effective management of invasive species.

IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes health and environmental risks. It is site and pest specific, where aquatic managers consider all relevant control tactics and locally available resources. All these methods are an integral part of managing invasive species. Controlling invasive species with only one control method can be less effective and costly, therefore, it's important for all methods to be available and used when necessary.

We support the 2022 South Carolina Aquatic Plant Management Plan, and Santee Cooper Lake's use of IPM to control harmful invasive species in both Lake Marion and Lake Moultrie. Timely and effective aquatic weed management is vital to ecosystem and species health. We respectfully ask the Department to approve the 2022 Aquatic Plant Management Plan as written.

Respectfully submitted,
Megan Striegel
Staff Liaison, Aquatics Committee
RISE (Responsible Industry for a Sound Environment)
4201 Wilson Boulevard
Arlington, VA 22203
mstriegel@pestfacts.org

From: [Susan Welch <susan.welch1959@gmail.com>](mailto:susan.welch1959@gmail.com)

Subject: Santee Cooper Lakes

Date: Mon 2/21/2022 5:14 PM

I totally agree with the plan as it is written!
We rely on the experts to know what is best!
Thank you
Susan V. Welch
Moncks Corner SC

From: Rosa Lee Deavers <cofcgal@gmail.com>

Subject: Support for the draft

Date: Mon 2/21/2022 7:53 PM

I support the draft proposal for the SC Aquatic Plant Management Plan. We do not need anymore studies to follow to science. They do a great job of proving the case and I support all of their hard work. Please vote in favor of the plan.

Thanks,
Rosa Lee Deavers

From: Carl Bussells <carl.bussells@gmail.com>

Subject: APC Management Plan Comment

Date: Mon 2/21/2022 10:00 PM

For several years, council members have done a wonderful job of providing thoughtful discussion and making science-based decisions. Undoubtedly the issue that has brought the most contention to the table in years past is the stocking rate of grass carp in the Santee Cooper System, and the resulting spikes in hydrilla growth followed by mass stockings have left all parties disappointed. Carp stocking is, and always should be a method that is used very carefully. In time, a reduction in the annual maintenance stocking numbers is certainly an option, but that should be entirely based on the science brought to the table by council members including aquatic plant surveys, grass carp research, tournament results, and data collection, and the council should continue to be cautious of uninformed anecdotes.

It is understandable to argue that Hydrilla has benefits; it provides a rapidly growing waterfowl forage, harbors a variety of aquatic organisms, and is generally productive for bass fishing - but the benefits absolutely do not outweigh the consequences - especially in the shallow, nutrient-rich waters of the Santee Cooper Lakes. Hydrilla grows and spreads at an exponential rate which inevitably creates monocultures, crowds out native species, impedes navigation, blocks boat ramps, and in the early 90's, caused one of the largest fish kills in the history of the state by clogging the intake at the St. Stephen Hydro.

It is important to note that even with the addition of 10,000 grass carp in 2022, the standing population of grass carp in the system is decreasing, and the goal that the council has strived to achieve is to gracefully and carefully decrease that standing population to find the delicate balance between hydrilla control and allowing the native plants to thrive.

I can personally attest that the Santee Cooper lake management team wants nothing more for our lakes than a thriving, diverse, productive ecosystem, and we are acutely aware that the cornerstone of an ecosystem is a robust assemblage of native aquatic plants. A kneejerk decision to halt stocking for a

year is a slippery slope that will inevitably lead to repeating history with spikes in hydrilla growth and detrimental mass-stocking events.

I believe the council has worked successfully and in unison for too many years to give in to a non-sequitur, impulsive decision to halt stocking for a year, and I support the plan as written.

Sincerely,
Carl Bussells

From: [Santee Cooper Country <jpowell@ntinet.com>](mailto:jpowell@ntinet.com)

Subject: SC aquatic management program

Date: Tue 2/22/2022 3:58 PM



Santee Cooper Country

Santee Cooper Counties Promotion Commission - P.O. Drawer 40, Santee, SC 29142
(803) 854-2131 - Outside South Carolina & Canada 1-800-227-8510 - Fax (803) 854-3906

February 22, 2022

The Santee Cooper Counties Promotion Commission supports the continued stocking of triploid grass carp as a best management practice in controlling hydrilla on the Santee Cooper lakes. Biological control is, in our opinion, a much better option than herbicides. It appears from our observation and from comments we receive from fishermen, property owners and yearly tourists that the maintenance stocking of grass carp has reduced hydrilla and allowed for the return of our native submersed and emergent vegetation.

The Santee Cooper Counties Promotion Commission was created by the South Carolina General Assembly to "improve, enlarge, increase and otherwise enhance recreation and development in the area around the Santee Cooper lakes in the counties of Berkeley, Calhoun, Clarendon, Orangeburg and Sumter. The Santee Cooper lakes were ranked 3rd in the nation and 1st in the Southeast in 2021 by BASSMASTER. We believe the best way to maintain our lakes and enhance their status as a major tourist attraction and economic engine for our counties is to balance the interest of all lake users. Managing invasive species is critical to water quality. We highly support the current method of stocking grass carp.

Santee Cooper Counties Promotion Commission

Alfred H. Kelley, Chariman

From: Jane Ochsenbein <jcducati@msn.com>

Subject: Opposition to the SCDNR Aquatic Invasive Species Management Plan

Date: Tue 2/22/2022 7:28 PM

I would like to submit a public comment opposing the SCDNR Aquatic Invasive Species Management Plan for 2022

SCDNR is not following their mission and vision statement or core values with their Aquatic Invasive Species Management Plan. From SCDNR- "Our vision for South Carolina is an enhanced quality of life for present and future generations through improved understanding, wise use, and safe enjoyment of healthy, diverse, sustainable and accessible natural resources. Our vision for the DNR is to be a trusted and respected leader in natural resources protection and management, by consistently making wise and balanced decisions for the benefit of the state's natural resources and its people."

I, along with many outdoor businesses and recreational users of SC public waterways are being negatively impacted by SCDNR's Aquatic Invasive Species Management Plan. A cocktail of herbicide chemicals are sprayed during peak water use season. My family business, along with others are forced to close on short notice, cancel tours, refund revenue & stay off the water for weeks. When businesses do reopen, the environment has seriously degraded, with dead areas and rotting plants. We see wading birds, herons, egrets, and wood storks standing in dying chemical laden vegetation, fishing. We see osprey, eagles, hawks, and endangered swallow-tailed kites eating fish from the river after spraying. We are seeing a drastic decrease in wildlife populations, particularly snakes, turtles, and frogs and birds. Dragonflies and insect numbers decrease noticeably after spraying. The closures from spraying have a much bigger negative impact on recreational users than the limited amount of invasive aquatic vegetation in many places, which does have positive impacts on water quality and provides food & habitat for wildlife. These same recreational users would volunteer for manual removal events to eliminate the need for chemical treatment and related costs in many locations.

SC state plans are not available on the SCDNR website and there is no link for public comments. The plans are vague in direction and justification, lack clear long-term goals, and focus primarily on toxic chemical spraying treatment methods. Mechanical and manual control methods are never included in annual plans. Very limited if any public notice is given for spray schedule. State law requires areas to be clearly marked for the public to avoid until safe, we've never seen a sign at boat landings and had an airboat spray right past us as we loaded kayaks at the landing. Annual wildlife surveys are not being disclosed, impact considerations are minimized. Plans are based on previous year assessments, not current conditions, minimal alterations between flood or drought years, even though conditions have changed radically. These plans are not fully based in independent research, they are guided by an organization of companies that profit off the plan, the **SC Aquatic Plant Management Society**, creating a lack of trust in these plans, goals and outcomes. Ho is this a wise and balanced outcome?

Outdated scientific data is being used to show minimal impacts. There is no independent outside evaluation of the plan. Current peer reviewed data shows these chemicals create many problems- The science showing direct negative impacts from bromide and Glyphosate in fish, reptiles, birds, and large mammals like manatees is not a consideration in the plan. All chemicals being used are being found to have negative impacts far beyond initial approval studies being used in the plan. Outdated data is being used to dismiss claims of harm and continue with the same plan, year after year.

Here are just some of the negative impacts of herbicide spray treatment methods-

Tens of thousands of lost revenue to small businesses from forced closures for safety. Loss of local tax revenue. Loss of regional tourism. Loss of recreational use for safety closures.

It damages or kills native plants and wildlife: Although some of the herbicides are designed to be selective towards non-native plant species, when those non-native plants die, their decaying matter often smothers native species and prevents photosynthesis. The decaying plants also release an abundance of nutrients that create an environment much more conducive to non-native species, which have higher nutrient requirements than native species. Kill all wide spectrum herbicides that have severe impacts on native vegetation are being used.

Aquathol K- according to their own label. “This pesticide is toxic to mammals. Treatment of aquatic plants can result in oxygen loss from decomposition of dead plants. This loss can cause fish suffocation. Water bodies containing very high plant density should be treated in sections to prevent suffocation of fish.” https://www3.epa.gov/pesticides/chem_search/ppls/070506-00176-20150423.pdf

Herbicides fuel toxic algae blooms, which have become so bad that SCDHEC now has an app for reporting & tracking.
<https://ohioseagrant.osu.edu/news/2009/fe052/researchers-study-roundup-as-possible-cause-harmful-algal>

Herbicide Selection Promotes Antibiotic Resistance in Soil Microbiomes-
<https://academic.oup.com/mbe/article/38/6/2337/6133234>

Diquat dibromide is causing Vacuolar myelinopathy in a growing number of species The latest research is showing Bromide as the culprit in Eagle deaths across the southeast and the condition is found in other species. Vacuolar myelinopathy (VM) is a neurological disease characterized by widespread vacuolization in the white matter of the brain. Study summary- “Notably, integrated chemical plant management plans to control *H. verticillate* should avoid the use of bromide-containing chemicals (e.g., diquat dibromide). AETX is lipophilic with the potential for bioaccumulation during transfer through food webs, so mammals may also be at risk. Increased monitoring and public awareness should be implemented for *A. hydrillicola* and AETX to protect both wildlife and human health.”
<https://news.uga.edu/international-investigation-discovers-bald-eagles-killer/>
<https://pubmed.ncbi.nlm.nih.gov/33766860/>

Hydrilla and AVM-affected watersheds in the U.S. southeast include Lake Waccamaw and Lake Murray
https://www.google.com/maps/d/viewer?mid=1Y6yVlj_S-z7zilfzjSml8YRez8Q&ll=33.55055693992773%2C-75.78906563132708&z=6

Glyphosate was present in 55.8% of the sampled Florida manatees' plasma. Based on study results, Florida manatees were chronically exposed to glyphosate and AMPA, during and beyond the glyphosate applications to sugarcane, possibly associated with multiple uses of glyphosate-based herbicides for other crops or to control aquatic weeds. We have manatees in our SC waterways being exposed.
<https://www.sciencedirect.com/science/article/pii/S0160412021001185#:~:text=Glyphosate%20was%20present%20in%2055.8,the%20sampled%20Florida%20manatees'%20plasma.&text=This%20chronic%20exposure%20in%20Florida,red%20tide%20or%20cold%20stress>

2,4-D generally has moderate toxicity to birds and mammals, is slightly toxic to fish and aquatic invertebrates. <https://www.epa.gov/ingredients-used-pesticide-products/24-d>

Human Health concerns: A major concern due to lack of public notice. The main ingredient in the herbicide that is being used for aquatic plant spraying is glyphosate—a chemical increasingly linked to cancer according to a growing number of studies.

The impact reaches hundreds of thousands of acres statewide, with aquatic spray hitting soil and transmitted by water, tidal freshwater pushes contaminated plants on land at high tide. Many have a half-life of 2-10 weeks in water, but years in soil. This doesn't just disappear in a few weeks, it builds up, every year.

Millions of tax dollars are spent, and thousands of gallons of chemicals are being sprayed on SC waterways to remove a beneficial plant that has been part of the ecosystem for over 100 years. Alternative, more sustainable management methods need developed and implemented. Water hyacinth is proven to remove heavy metals, sewage and contaminants from water. It provides habitat for fish and a variety of macroinvertebrates. It provides food for manatees and wading birds, can be managed manually if done early in the season or over winter before growth restarts. Mechanical for large areas, with collection. There is a growing demand for this plant, textile, paper, fish food, fertilizer, compost or biogas uses are an option if not chemically treated.

<https://link.springer.com/article/10.1007/s11356-020-09221-1>
<https://www.ajol.info/index.php/jasem/article/view/57834>

The clear and proven negative impacts and risks are not included as considerations in this management plan, making it impossible to achieve even the loosely defined goals. While these same chemicals are impacting our environment from agriculture and industrial sources, SCDNR is choosing to add tons more, compounding these issues. The reliance on using the same ineffective methods and plans annually are having severe impacts on our environment, wildlife, and economy. I respectfully ask that this, and future plans follow SCDNR's mission and core values, taking into consideration the most recent science, use wise and balanced decisions, and consider the sustainability factor. The current plan does not reduce or eliminate the problems caused by invasive plant treatment with tons of toxic chemicals dumped into our waterways by state officials every year.

Sincerely,
Jane Ochsenbein
Myrtle Beach SC

Response:

1) Grass carp stocking objections.

All triploid (sterile) grass carp stocked in South Carolina waters, private or public, are required to be tested to ensure they are triploid before being released. This is done to prevent breeding, which has caused problems with other carp species in other states. If the load being tested shows any evidence that all the fish are not triploid, the whole load is either dumped in a pit at the test site or escorted back to the state line by law enforcement.

Maintenance stocking of carp in public lakes which have *Hydrilla*, even if there are low acreage numbers or it is mixed in with native vegetation and not easily observable, is being done to ensure

those acreage numbers remain low. The turions and tubers produced by *Hydrilla* can remain dormant for several years and sprout when the conditions are right. *Hydrilla* can produce up to 6000 tubers per square meter. *Hydrilla* can grow rapidly and quickly outcompete the native vegetation. If that occurs, larger stockings of carp are needed to effectively control the *Hydrilla*. Those larger stockings tend to cause problems because the fish start eating native vegetation once they have consumed the *Hydrilla* and it is almost impossible to remove the carp once they are put in a system. By doing smaller maintenance stockings, we can ensure lower numbers of carp in each waterbody to control *Hydrilla* and limit the impact on native vegetation. Carp prefer to eat soft vegetation like *Hydrilla* and *Elodea*. They will seek those types of plants out first before they will eat most of our natives, especially the more fibrous species like water lilies and Eurasian milfoil. There is no evidence of carp eating eelgrass, which is more likely to be eaten by turtles. Carp also do not eat giant salvinia, which is why Santee Cooper wants to introduce salvinia weevils. These weevils will only eat the salvinia and are unlikely to overwinter.

The 10,000 triploid grass carp scheduled to be stocked into the Santee Cooper Lakes this year are below the mortality rate for that system. The overall number of grass carp there continues to decline. This is a continuation of the Council decision six years ago to stock 10,000 carp per year to reduce the total number of carp in the system while having yearly age classes of fish to take the place of some of the fish that die each year. Having multiple ages classes in the system takes advantage of the higher feeding rate of the younger fish, which can also get into shallow water to consume newly sprouted *Hydrilla*. This will allow the population to be diverse in age while slowly reducing the total numbers. The goal is to have multiple age classes in the system with an overall coverage of 1 triploid carp for every 5-6 surface acres. At that point, we can make small adjustments to the annual mortality stocking rate to account for any changes in the *Hydrilla* population, which is being seen mixed in with native plants across the system. This decision was more favorable than introducing hundreds of thousands of triploid carp into the system periodically as a reaction to increasing numbers of hydrilla.

Large stands of *Hydrilla* continue to be treated with selective herbicides in Lake Marion, Lake Moultrie and other lakes as needed.

2) Objection to treating native species.

Native species are only treated in limited instances where water access or navigation is impeded, or water intakes are blocked. This occurs occasional statewide.

Santee Cooper treated 164 acres of vegetation in residential areas last year, but that number included two invasive species. In contrast, their hyperspectral imagery survey indicated there are 22,754 acres (14.27% coverage) of native species on their lakes, providing food and cover for fish and waterfowl. This does not account for any vegetation that was under tree cover.

One exception to this is in areas where cutgrass (aka white marsh) has taken over an area and created a monoculture which is unusable by most animals because it is extremely thick and is not a food source. In these cases, openings are created in those areas to allow other native vegetation to move back in and create a diverse habitat that will support fish and wildlife, as well as to allow access for hunters and fishermen. This type of action has been supported by the South Carolina Waterfowl Association, SCDNR, Santee Cooper and SC Chapter of Ducks Unlimited. All partners listed contributed monetarily for the Super Flats Restoration work.

Our goal is to control the invasive species and let the natives continue to grow and expand, unless they fall in the limited instances listed above. To get to this goal, an integrated management plan that includes herbicides, and biological control is needed. We do not change this goal based on how rich or influential a requestor is. We follow science in making our decisions. Santee Cooper and SCDNR have worked to expand the natives by doing plantings of native species in areas that could support it. Santee Cooper has done that the past 4 years with eelgrass, smartweed and water shield. Santee Cooper has supported waterfowl management projects on the Santee National Wildlife Refuge for many years through aerial work, donation of equipment (airboat, pumps, etc) in addition to waterfowl based projects on Lakes Marion and Moultrie for public access, including the 2022 Super Flats Restoration Project, the 2016 SCDNR Joint Cutgrass Aerial on Marion and Moultrie, the 2019 Val and Watershield Project, the 2020 Borrow Pit Project, the 2021 Watershield and Smartweed Project, and the 2021 Wood Duck Box Project. In 2022, we are planning to continue Super Flats Restoration Project, as well as start a Sparkleberry Pine Creek Project (targeting cutgrass to improve open water for waterfowl) if budget allows.

3) Concerns about herbicides.

Aquatic herbicides are safer, and far less toxic than terrestrial herbicides. There are no aquatic herbicides which are classified as restricted use, as there are with terrestrial herbicides. When used properly and according to the labels, including those that are copper based, they are safe and effective. All aquatic herbicides undergo extensive research before the EPA approves them due to the sensitivity of fish and invertebrates. All herbicides are routinely reviewed by the EPA. Extensive research for health and safety to humans, animals and environment are considered before an herbicide is approved for use. Herbicide product labels are reviewed by EPA and each state's regulatory agency (Clemson University's Department of Pesticide Regulation in SC) routinely to ensure that the product labeling is correct and up to date.

There have been some claims of aquatic herbicides causing cancer, but those claims have been scientifically disproven. The newer formulations of herbicides introduced to the market in the last 10 years are even more environmentally friendly. The product ProcellaCOR SC was formulated to California registration standards, is specific to crested floating heart and *Hydrilla*, and can be utilized to specifically control those invasives without affecting many natives. ProcellaCOR is being used more often than diquat on *Hydrilla*.

Aquathol K, 2,4-D, and glyphosate were mentioned specifically in one person's comments. The first two are rarely used by DNR. Glyphosate is generally only used in the control of phragmites.

For the treatments of water hyacinth on the Waccamaw River, we use triclopyr and flumioxazin, as this does not affect the spatterdock that also grows there. We spray the herbicide on the foliage of the water hyacinth, trying to ensure that is the only thing we are spraying. There are no use restrictions after using these herbicides.

4) Mechanical and manual control.

We generally do not use mechanical control because it is slow, expensive, and not selective. It tends to have lots of bycatch, including invertebrates and small fish, which is detrimental to the larger fish, as well as birds and turtles. Mechanical control methods break up vegetation and do not collect all the pieces, which can lead to the spread of the species they are trying to control. It must also be repeated on a regular basis.

Manual control is also slow and expensive, even if volunteers assist in the effort.

Neither method is effective for large infestations, as the growth rate of most of these species is faster than they can be collected.

5) Herbicides fuel toxic algae blooms.

Yes, there are more Harmful Algae Blooms (HABs) in recent years. There is no proof that herbicides are the cause. The article referred to is about a study being done in Lake Erie, which talks about agricultural glyphosate and phosphorous runoff. No conclusions have been made in that study yet. In SC, there has been an increase in the number of homes, especially around lakes and rivers, and many people fertilize their lawns well beyond what is recommended on the labels. Much of this excess fertilizer ends up in our lakes and rivers, which can cause problems.

The treatment of invasive vegetation does add to the nutrient load, but when done regularly to control the smaller amounts of vegetation, it is not significant enough to degrade the environment.

6) No public notice.

Public notice is required if there are any restrictions to drinking, irrigation, swimming or fishing. The herbicides being used most of the time do not have any of those restrictions. Notice has been given to some recreational businesses as a courtesy, so they may adjust their schedules if they wish to. Unfortunately, scheduling the contractors is sometimes on short notice.

We instruct our contractors to avoid contact with anyone who is paddling or fishing along the edges of the areas we are treating, but we also try to get ahead of them and ask those individuals to move so the contractors can do their work.

7) Dead vegetation is unsightly.

Yes, it can be. It can also be used to educate people on the hazards of invasive vegetation, which can make creeks, back waters, and shallow waters impassible. If left unchecked for too long, floating vegetation can cause navigation issues in the main river channels as well.

8) Treatments done during peak water use season.

Herbicide treatments are most effective while the plants are actively growing, which is also peak water use season. That is unavoidable.

9) Plan availability and comments.

Each year the draft plan is available for public comment for at least 30 days on DNR's website. Once the annual plan is finalized and approved, it is added to DNR's website as a final plan.

10) Plan is vague in direction and goals and focused on herbicides.

The plan notes the vegetation that has been observed in each waterbody as well as options for controlling the vegetation. Since the growth patterns, species types and numbers vary by year based on environmental conditions, we try to allow for as many options as possible to control the vegetation without having to come back to the Council in the middle of the year to get approval to make adjustments which may be time sensitive.

Herbicides are the focus if biological controls are unavailable and maintenance measures like drawdowns are not possible. As stated earlier, mechanical means of control are not cost effective and must be repeated regularly.

11) Publish additional articles about invasives in the Wildlife Magazine?

We will work on that.

12) Study wildlife displacement and how it can be managed to curtail the spread of invasives.

This can be discussed with the Wildlife section, but there is probably limited spread of invasives by wildlife.

13) A member of the US Coast Guard should be appointed to the Council in relation to ballast water management.

The Coast Guard already regulates ballast water. This plan only deals with freshwater invasive plants.