



SCAPMSNEWS

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Letter from the President

By: W. Cory Heaton



I have a sneaky feeling that 2016 is going to be a very busy year for the aquatics business. Relatively mild winter temperatures coupled with well above normal rainfall is a great recipe for weed growth. My phone has been ringing non-stop with spirogyra calls, and many of the applicators I have spoken with are already making algae applications. If the rest of 2016 follows February activity we are sure to have a busy year. As we near spring please make sure you have taken care of renewing your NPDES permits, double check your pesticide licenses, and get your hands on all updated pesticide labels.

The Board of Directors met in October and February in Cayce, SC. There have been several topics of discussion during these meetings and I will highlight a few. First, the board has decided to return to Myrtle Beach for the 2016 Annual Conference. This year's conference will be held at the new Double Tree Resort from October 4th through 6th. The Double Tree will be a brand new facility on what was historically Springmaid Beach Resort which you are all familiar with. This facility has a lot to offer our Annual Conference, and it should be a great time for all.

In addition to planning the Annual Conference, the board has been active in finding temporary replacements for several positions in the society. I have currently assigned interim seats for the positions of Secretary and Editor. After many years of dedicated service to SCAPMS, Dr. Rebecca Haynie has accepted a new position and will no longer be involved with the aquatics field. We wish Becca the best in her new career path, but we will all miss her and all that she did for the society. Becca has always gone above and beyond to serve the society, and we will never be able to truly replace her. Daniel Hood has served as SCAPMS Editor for the past few years. Daniel announced that he is getting married and will be moving to Virginia to start the next chapter of his life. As I informed Daniel, he is about to enter a brave new world and we wish him the best. In the absence of Becca and Daniel I have appointed Todd Horton to serve as interim Secretary and Cary Martin to serve as interim Editor. I feel both of these gentlemen will do a great job. Both have been dedicated members and served the society in several positions over the years. We will elect official positions at the annual conference. Also, there will be several vacant Director positions to replace at this year's conference. If you have suggestions for potential board members please let me know. Please take a minute to thank Becca and Daniel for their service to the organization.

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Clemson University Student Updates

Department of Forestry and Environmental Conservation, Clemson University

Ecotoxicology and Water Resources Management

Students in this program are actively investigating approaches for mitigating risks of noxious algae as well as developing constructed wetlands for water treatment and reclamation.

Congratulations to **Dr. Cory Heaton** – he recently completed his Ph.D. and is continuing to work with Clemson University Extension (Public Service and Agriculture). Cory's doctoral research focused on duckweed and environmental requirements and tolerances of blue tilapia with emphasis on cold tolerance.

Kyla Iwinski has recently published some of her doctoral research on microcystin release (or lack of release) from *Microcystis* after treatment with copper based algaecides. She is wrapping up her research and looks forward to graduation in December.

Alyssa Calomeni is well into her doctoral research on modeling the fate and effects of copper based algaecides and gathering field data to confirm those models. She has published several papers from her Master's thesis.

Ciera Kinley has recently started work on her Ph.D. after finishing her Master's degree. Her M.S. degree involved investigations of processes in boreal wetlands that can assist with mitigation of risks of oil sands process waters in Alberta.

Tyler Geer is wrapping up his research on sodium carbonate peroxyhydrate for his M.S. degree. He will publish three papers on this algaecide and graduate this summer so he can begin his Ph.D. program this fall.

Kayla Wardlaw is working on her M.S. thesis and anticipates finishing this summer. The wetlands group is also active.

Andrew McQueen is wrapping up research on design and construction of treatment wetlands for oil sands process water in Alberta and will graduate with a Ph.D. in December.

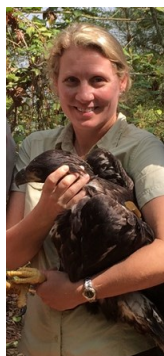
Maas Hendrikse recently began work on his Ph.D. degree and will extend the investigations of constructed wetlands for application in Alberta.

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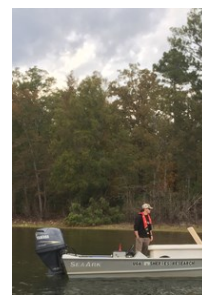


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University of Georgia Student Updates



Brigitte Haram (PhD) is working at J. Strom Thurmond Reservoir to monitor hydrilla density, waterbirds and eagles. She is investigating the hypothesis that this is an ecological trap; coots are attracted to this site with extensive (but toxic) hydrilla, and eagles are attracted to this site because it appears to be good habitat and experience high mortality. She worked with GADNR, USFWS, and COE to fit satellite transmitters on three nestlings from Thurmond. The two male nestlings flew up to Canada for the summer after they fledged, and then headed back down toward Thurmond in the late fall. The little female nestling from the Broad River remained near the reservoir.



Wally Woods (PhD) collected hydrilla from several AVM reservoirs, including Thurmond to follow the seasonality toxicity using the cell line bioassay. We continue monitoring for the sake of the birds but also for the clues that it provides for us in knowing what environmental conditions are conducive to toxin production. He is using toxic hydrilla in chicken feeding trials to evaluate whether there is any toxin accumulating in the meat. This is part of ongoing investigations to determine whether there's any concern for fisherman or waterfowl hunters in these locations.



Garon Brandon (MS) worked with GADNR, USFWS and Corps of Engineers during Fall 2015 to initiate a pilot grass carp stocking project with some radiotagged fish for hydrilla bio-control. Fish were stocked into coves with low or high hydrilla to evaluate whether hydrilla biomass effects initial movement. He will collect some of these fish to check for vacuolar lesions and potential for toxin transmission.

Tabby Smith (MS) is a first-year student interested in the ecotoxicology aspect of the hydrilla and cyanobacteria. She will be using zebrafish as a bioassay to follow the effects of the toxin from exposure to brain lesion formation.

The South Carolina Aquatic Plant Management Society is seeking applications for its annual **Phillip M. Fields Scholarship Award**. The Society intends to award a \$3,000 scholarship to the successful applicant in the fall of 2016. Scholarship funds may be used by the recipient to cover costs associated with education and research expenses. Eligible applicants must be enrolled as full time undergraduate or graduate students in an accredited college or university in the United States. Course work or research in an area related to the biology, ecology or management of aquatic plants in the Southeast is also required.

Applications must be received no later than June 1, 2016 and will be evaluated on the basis of relevant test scores (ACT, SAT, GRE, etc.), college grades, quality and relevance of course work or research, a proposed budget, information obtained from references, and other related considerations. Other factors being equal, preference will be given to applicants enrolled in Southeastern and South Carolina academic institutions. The successful applicant may be requested to present an oral report on research activities at the annual meeting of the Society. Application forms and additional information are available at www.scapms.org/scholarship.html.

Note: All application information is to be submitted electronically.

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NC State University Student Updates

Andrew W. Howell's research focuses on the early detection, monitoring, and mapping of invasive, submersed aquatic vegetation (SAV) using boat-based remote sensing technologies to reduce deleterious effects. Advances in hydroacoustics, optical remote sensing technologies and data processing offer increased prospects for estimating SAV biomass and composition at scale with reduced labor requirements. This research contributes significant advancements in managing SAV at a level that provides aquatic plant manager's with opportunities to quickly access and delineate invasive species management protocols. These improvements include: rapid interpolation for the assessment of submersed biomass; efficiently evaluate invasion levels, and provide ample data to delineate specific control actions; determine thresholds for treatment options; provide visual representation of temporal canopy development and growth patterns.

Amy Henry, Monoecious Hydrilla Growth Characteristics in Cool Climates is looking at monoecious hydrilla at two different locations with dissimilar climates. The research locations are in Raleigh (southern climate) and Laurel Springs (northern climate), North Carolina. As much of the research on monoecious hydrilla has been completed in southern climates, there is little information available about hydrilla growth in cooler climates. One major component of my research is a competition study between monoecious hydrilla and four other submersed cool season plants. Another aspect of my project is looking at tuber production and viability at different temperatures and differing lengths of time in the temperatures. This will determine the effect of sediment freezing on tuber viability, and also determine the sprouting rate of monoecious hydrilla tubers under northern conditions.

Erika Haug's research focuses on the biology and control of crested floating heart (*Nymphoides cristata*) and monoecious hydrilla (*Hydrilla verticillata*). Specifically my project looks at the fragmentation reproductive strategy and seed viability of crested floating heart. I also study growth and carbon storage during active growth of monoecious hydrilla under no light conditions and the respiration rate and carbon storage of dormant monoecious hydrilla subterranean turions. Finally I am looking at the control of both monoecious hydrilla and crested floating heart with a novel arylpicolinate product in aquatics (tradename: Procellacor) through response rate trials and radio-labeled translocation studies.

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Mother Nature and Father Time's Influence



Every waterbody, no matter how big or small, natural or manmade, evolves through Mother Nature's influence. This influence is unique to each individual waterbody, depending on the surrounding watershed's characteristics such as: water flow, topography, human land use and development. As a lake or pond ages, it continually collects the surrounding surface runoff which contains suspended sediment and nutrients, such as [phosphorous](#) and nitrogen. These excess materials disperse throughout the water column and pond bottom and as a result, [water quality](#) diminishes and nuisance growth of aquatic plants and [pond algae](#) is escalated. These influences accelerate the build-up of organic matter from decaying aquatic life, leaves, tree limbs and other debris, decreasing the water depth. If left unmanaged, these inputs will lead to the filling in of the waterbody's basin, eventually creating [wetlands](#) and later developing into a land mass. To prevent a waterbody from succumbing to the influences of Father Time, hydro-raking is an ideal lake management option.

What is hydro-raking?

[Hydro-raking](#) is the process of removing detritus (leaf litter, debris, decaying organic matter and unwanted [nuisance aquatic vegetation](#) and root systems) from a waterbody. As shown above, the hydro-rake is essentially a floating barge with a backhoe, powered by hydraulic paddle wheels. The 12-foot hydraulic arm is equipped with a rake attachment, which is used to scrape or rake the pond bottom and remove detritus and aquatic vegetation with attached root systems.

Each rake-full is transported and deposited onshore. The detritus is then allowed to dewater before being moved to the compost or disposal site.

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The hydro-rake can operate in water depths ranging from one-and-a-half to ten feet. Each rake-full of organic matter can range from 300 to 500 lbs. depending on the compositional makeup. The duration of a hydro-rake project is contingent on the project objective, plant type and density, detritus depth, management area, and other logistical factors such as onshore offload locations.

Benefits

Employing hydro-raking as a [lake management](#) tool provides many biological benefits. To start, hydro-raking involves the removal of large amounts of organic matter which increases the overall water depth. This technique is ideal for the health of any waterbody, as it recoups habitat for aquatic flora and fauna to thrive in.

Further, hydro-raking can rid the waterbody of undesirable vegetation, whether that be [invasive plants](#) such as



Common Reed ([Phragmites australis](#)) or native nuisance plants such as Yellow Water Lily (*Nuphar lutea*). These plants have the ability to form large monocultures over lakes and ponds that out-compete native species for nutrients and light. The abundance of vegetation and decaying [organic material](#) can also cause a reduction in dissolved oxygen through decomposition. Reclamation of a waterbody's open water space increases its capacity to intake oxygen

through wind currents, which is beneficial to aquatic organisms.

In the process of removing the detritus and nuisance vegetation, the hydro-rake is also removing nutrients such as [phosphorus and nitrogen](#). If these nutrients are left unmanaged, the waterbody can become overloaded with nutrients, a process known as eutrophication. This condition can lead to ecological degradation through excessive algae growth, oxygen depletion, and death of aquatic life.

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Hydro-raking is an ecological and economical alternative to [dredging](#). The rake attachment allows aquatic organisms to escape, whereas wet/dry dredging with an excavator permanently removes aquatic life. Hydro-raking is also valued for its ability to sustain the condition of the shoreline during operation. Having a backhoe and the capacity to float allows the hydro-rake to off-load material up to eight feet from the water's edge, without damaging the shoreline. Furthermore, the hydraulic system of the hydro-rake is powered by bio-fluid which is a renewable, bio-degradable and non-toxic substance.

Overall, it is aesthetically pleasing to see a lake or pond that has been recently hydro-raked because it is deeper and clear of unwanted vegetation and debris. In the end, the fish are swimming, the birds are chirping, the water is flowing, and we can just sit back and enjoy Mother Earth.

Written by Industry Expert, Jeff Castellani, Director of Mechanical Operations, SOLitude Lake Management

ANNUAL MEETING OCT 5-7, 2016



Springmaid Beach Resort - Oct 5-7, 2016!

DoubleTree Resort by Hilton Myrtle Beach Oceanfront - Coming in 2016! In 2016, we'll be re-launching as a DoubleTree Resort by Hilton with a new main building and fully renovated accommodations, restaurants, meeting space, and entertainment deck!

As always, the annual meeting is a great place to accumulate the CEU's you need for your Cat 5 license. The annual meeting will be packed with informative meetings and educational workshops. Workshops will bring you up to date on current topics. Socials and meals will help you network and get reacquainted with colleagues. Can't wait to see you there!

First Call For Papers

As always we are looking for interesting topics of discussion for our annual meeting. Whether you are a student, an applicator, or someone who works in the industry we are interested in considering your ideas for our agenda. Please submit your topic along with an abstract to: Bo Burns @ bburns@solitudelake.com