

SOCIETY OF WETLAND SCIENTISTS: NEW ENGLAND CHAPTER



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President's Corner

By Jennifer Karberg: jkarberg@nantucketconservation.org



As the newly elected President of the SWS New England Chapter, I am excited and very lucky to be working in this newly revitalized local chapter. I believe that SWS NE has an opportunity to become a clearinghouse of New England-related wetland information by sharing and hosting informative field trips, conferences and online resources designed to

bring wetland scientists, policy makers and practitioners together. To that end, the newly elected SWS NE Executive Board is working hard to update our chapter bylaws and plan initiatives designed to increase the relevancy and usefulness of our chapter. We are initiating a quarterly newsletter to share regional information so keep an eye to your inbox! Do you have interesting research, a restoration project, or policy initiatives you are working on? Contact me for inclusion in future newsletters!

Our chapter new Vice President is working hard to bring relevant wetland field trips and workshops to the region - read more about this below.

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Our annual chapter conference is being planned for late spring 2016, more information will be available soon! Our annual chapter conference is being planned for late spring 2016, more information will be available soon! Check out the News and Opportunities section below (and on page 5) to learn how to get involved in your local SWS chapter.

And now, I would be remiss without providing a little introduction to myself. I am currently the Research Supervisor for the Nantucket Conservation Foundation, working in salt marshes and coastal plain pond shores in Massachusetts. My PhD work examined the ecology of carnivorous pitcher plants in northern Michigan and I have been an active SWS member since 2000. I strongly value the connections and experiences this organization can provide to wetland professionals!

I look forward to serving the chapter in the coming year and meeting many of you at our events and conferences!

News and Opportunities

SWS NE Chapter Field Trips

The New England Chapter is planning to organize 3 to 4 science-based field trips in the New England states. While several options were explored for the fall, none panned out on the short notice we had. These are the types of trips we've been discussing with potential trip leaders:

- Northern Salt Marsh (Maine)
- Southern Salt Marsh (Rhode Island)

- Wetlands of Northern New Hampshire and the Connecticut Lakes
- Mitigation Area in Southern New Hampshire
- Vermont Habitat Restoration Site
- Bog in Northeast Massachusetts

If you have an idea and are willing to lead a trip to a unique wetland area, please contact Ingeborg Hegemann at ihagemann@bscgroup.com or 617-896-4514.

Please see more *News and Opportunities* on page 5

SWS NE Vice President



[Ingeborg Hegemann](#), PWS, CWS, is a Senior Vice President with BSC Group, Inc., a New England based interdisciplinary engineering/environmental consulting firm, where she leads and mentors the Ecological Sciences group and the Resiliency Planning and Design Studio. She is a wetland scientist and planner with over 30 years of experience

in environmental science, wetlands assessment and impact analysis, regulatory permitting, and public participation. She received her undergraduate degree in Geology from Skidmore, and her master's degree in Regional Planning from the University of Pennsylvania. She is an adjunct professor teaching Wetland Ecology at the University of Massachusetts/Lowell. An active community member, Ingeborg serves on her local Conservation Commission, which implements the Massachusetts Wetlands Protection Act; was President of the SWS Professional Certification Committee (SWSPCP) in 2012–2013; and is currently on the SWSPCP Certification Review Committee.

SWS NE Treasurer

[Paul McManus](#) is the President and owner of EcoTec, Inc. of Worcester, MA; which he founded in 1990. He is a graduate of the College of the Holy Cross in Worcester with a Biology degree and a Master of Science in Ecology from the University of Massachusetts at Boston. He's a



certified Professional Wetlands Scientist (PWS). He is a lifetime SWS member and is a past president of the chapter. Paul is a Commonwealth of Massachusetts Licensed Site Professional (LSP) with a practice limited to ecological risk evaluation at sites where oil or hazardous material has impacted wetland resources. At EcoTec, Mr. McManus provides consulting services to a wide array of clients, including government, industry, utility companies, the development community, Conservation Commissions, and concerned citizens' groups. This work includes environmental permitting and reviews, wetland evaluation and delineation, erosion control design and monitoring, wetland replication and mitigation design, implementation, and monitoring, ecological assessments at contaminated sites, and general wildlife and rare species assessments.

SWS NE Past President and Future SWS International President

[Gillian Davies](#) is a senior wetland/soil scientist at BSC Group, Inc. Her work encompasses state and federal permitting, wetland delineation with a particular focus on difficult wetland soils analysis, impact analysis, wetland mitigation planning, design and monitoring, and environmental construction/post-construction monitoring. Prior to working at BSC, Gillian was a Circuit Rider for



the Massachusetts Department of Environmental Protection Division of Wetlands and Waterways, where she worked closely with Massachusetts Conservation Commissions. Gillian has a master's degree in Environmental Studies (concentration in ecosystem ecology) from the Yale School of Environmental Studies, and a B.A. from Williams College. In addition to being a Professional Wetland Scientist, she is a registered Soil Scientist with the Society of Soil Scientists of Southern New England, a New Hampshire Certified Wetland Scientist, and a Certified Erosion, Sediment and Storm Water Inspector.

SWS NE Secretary

[Ruth Ladd](#) has been with the Corps of Engineers, New England District, since 1991 and a PWS since 1998. She is Chief of the Policy and Technical Support Branch in the Regulatory Division. She manages a diverse group of scientists and administrative staff who serve as 'consultants' to the project managers processing permits and handling



enforcement in the Regulatory Division. The group includes marine and wetland scientists, and policy specialists. In addition to managing the branch, Ruth is the Third Party Mitigation Program Manager and administers five state-wide In-lieu Fee programs and one umbrella mitigation bank. Training of staff and others is another part of her responsibilities.

Ruth attended Connecticut College for her B.A. in Zoology and UMass-Lowell for her M.S. in Environmental Science. She has a Certificate in Native Plant Studies from the New England Wild Flower Society, and is a member of the Society of Wetland Scientists and the Association of Massachusetts Wetland Scientists. In her spare time, she is a puppyraiser for Guiding Eyes for the Blind.

URI Wetland Scientists Student Chapter Thrives

By Ryan Quinn

When PhD student Rose Martin decided to organize an SWS Chapter at the University of Rhode Island for students interested in wetlands research and restoration, she never expected the club to gain momentum and popularity so rapidly. Since the University of Rhode Island's Chapter of Society of Wetland Scientists was officially recognized by the URI student senate in February 2015, the email list has grown to include over 40 people including graduate students, undergraduates, and professors. The club has quickly become a community for those interested in wetland ecosystems to meet and discuss research interests and ideas in a welcoming and fun atmosphere. At biweekly meetings, journal articles are discussed over pizza and donuts, funding and travel to conferences is planned, and graduate students give advice about internship applications and graduate school admissions to younger



URI Student Chapter leading a marsh exploration field trip at Portsmouth High School

students. Since inception the club has helped members network for summer fellowships and attend national conferences. Although the club is in its early stages, community service and outreach work has already begun. Last spring, URI SWS led a marsh exploration field trip for Portsmouth High School marine biology students. Students learned from 10 URI SWS club members about vegetation, wildlife, and functions of salt marshes. Students participated in an aboveground biomass survey

Please see *Student Chapter* on page 5

Discerning drivers of intertidal greenhouse gas fluxes: effects of invertebrates

By Ryan Quinn

This summer I worked in Dr. Moseman-Valtierra's lab at URI investigating how *G. demissa* (ribbed mussel) presence alters greenhouse gas fluxes. It was a unique experience because my mentor, PhD candidate Rose Martin, allowed me complete freedom to pick a research subject and design an experiment on my own. At our first meeting before the SURF program started she said "I'm going to treat you like a masters student this summer". I wrote a proposal outlining current research on how invertebrates impact coastal ecosystems and how my research added to what is already known.

We used the Picarro analyzer to measure gas concentrations in real-time, collected sediment cores, biomass, and pore water, and recorded soil variables. We used R and Excel to analyze the data. My results showed mussel presence doesn't significantly affect fluxes. Interestingly, variables like soil temperature, soil oxidation-reduction potential, and pore water salinity do appear to significantly drive trends in flux magnitude. This demonstrates how variable a marsh ecosystem is and even small scale changes may greatly impact a marsh's ability to sequester carbon and act as a GHG sink.

Please see *GHG Invertebrates* on page 5

Greenhouse Gas Fluxes Vary With Nitrogen Pulses Along a Vegetation-defined Gradient in a New England Salt Marsh

By Jaclyn Friedman

Salt marshes are important carbon (C) sinks due to high levels of productivity, slow decomposition, and minimal emission of the greenhouse gases (GHGs) carbon dioxide (CO₂) and methane (CH₄). While this ecosystem service is well known, patterns of salt marsh C cycling are less well understood. Generally, New England salt marshes are characterized by vegetation zones that reflect gradients in edaphic stress and interspecific competition, and so GHG fluxes between zones may differ. Further, responses of these zones to anthropogenic impacts such as eutrophication may vary, with implications for responses of marsh C cycling to drivers of global change. The objectives of this experiment were to characterize GHG fluxes along a New England marsh vegetation-defined gradient, and to test responses of different vegetation-defined zones to nitrogen enrichment. Using a cavity ringdown spectroscopy (CRDS) gas analyzer (Picarro Labs), GHG fluxes were measured from 5 plots along a transect spanning 5 vegetation communities including *S. alterniflora*, *S. patens*, *Phragmites*, and the transition areas between each zone. On 3 measurement dates, GHG fluxes were measured pre- and post- enrichment with pulses of nitrogen-enriched seawater (500 mL of 300 μM KNO₃). CO₂ fluxes varied significantly between vegetation zones, with substantially more CO₂ uptake at plots with greater ameliorated



Adjusting base and chamber used for GHG flux analysis

aboveground biomass. All zones, except *S. patens* (plot 3), displayed CO₂ uptake. Plot 3 may have exhibited CO₂ emission opposed to uptake due to microbial activity in the soil or a shading effect from the extremely dense vegetation in this zone. CH₄ emissions were greatest from the *S. alterniflora* zone (plot 1). These results were surprising because the sulfate-reducing bacteria found in plot 1 typically outcompete the methanogenic bacteria present in this area. GHG fluxes were also affected by N enrichment, and responses varied between vegetation zones. Results of this study suggest that GHG fluxes from salt marshes are heterogeneous and vary with vegetation zone, and that net GHG emissions may be by N enrichment under some conditions. To better understand between-zone differences in GHG flux dynamics, fluxes should be measured over diel and annual cycles. This will determine if the role of salt marshes in C sequestration changes with seasonal variability along with variability in vegetation characteristics.

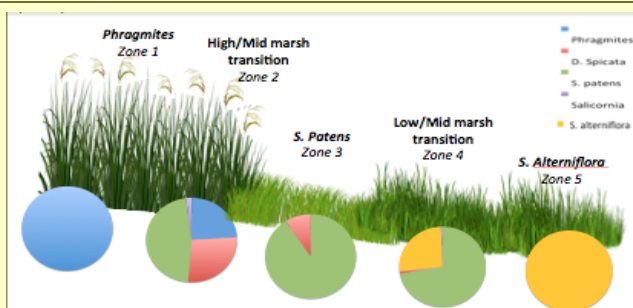


Figure 3: Schematic showing vegetation species composition of plots averaged over 3 sampling dates. Pie graphs indicate percent species composition (by dry weight) of the 5 marsh zones.

News and Opportunities from page 1**New England Chapter LOGO design Contest!**

Our chapter is in desperate need of a logo designed to represent us. Are you an artist or have an artistically minded acquaintance? The Executive Board is looking for your contribution!

Please submit a .jpg of your proposed logo to [Jen Karberg](#) by Nov 15th for consideration. The winning logo will be used on all SWS NE communication and promotional material.

Good with Social Media? Love tweeting and posting to Facebook? Your Chapter Needs You!

The SWS NE chapter is looking for a volunteer Social Media Coordinator to maintain our Facebook page and twitter account and work to grow participation in social media.

More than one person can participate in this committee – contact [Jen Karberg](#) if you are interested or for more information!

GHG Invertebrates from page 3

I also helped Rose with her field and lab work as she finished up PhD research. We spent 24 hour periods in the marsh to observe fluxes and soil variables *in situ* throughout a full diel cycle. When we weren't in the field, we were analyzing pore water ammonium and sulfide concentrations in the lab, or processing soil samples. After my NSF SURF EPSCoR fellowship experience I am 110% committed to a career in environmental

research. I woke up every morning enthusiastic to hit the lab bench or spend a day immersed in the *Phragmites*. In the future I hope to pay it forward and show someone how exciting wetlands research can be by providing the same experience Rose and Dr. Moseman-Valtierra provided for me.

Student Chapter from page 3**SWS Multi-Cultural Mentoring Program
Attention students - Applications now being accepted!**

Students are invited to [apply](#) for the SWS Multi-Cultural Mentoring Program. This program is dedicated to increasing diversity in the field of wetland science by offering undergraduate students from underrepresented groups **full travel awards to the SWS Annual Meeting, May 31 – June 4, 2016, in Corpus Christi, Texas**. Winners will receive valuable career mentoring as well as exposure to professional networking forums. This program is supported by the National Science Foundation and several SWS Chapters. Please contact [Vanessa Lougheed](#), SWS Multi-Cultural Mentoring Program coordinator, with any questions. Application deadline is **Friday, Nov. 6, 2015**.

using quadrants along a transect in a marsh in Jamestown, RI. They also watched a demonstration of URI Professor Moseman-Valtierra lab's Picarro analyzer measure greenhouse gas concentrations in real time, and learned about the role coastal marshes play in global climate. This fall President Ryan Quinn hopes to organize similar fieldtrips to motivate younger students to consider careers in wetlands science and raise awareness of the importance of coastal wetlands. One important project that will be starting this fall is organization of a campus wetlands monitoring program where Wetlands members gain hands on research experience while helping maintain constructed storm water management wetlands on their own campus.

Society of Wetland Scientists:
New England Chapter

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We're on the Web!

Visit us at:

www.sws.org/new-england/chapter

2015 Wetland Related Events in New England

Thursday October 15th: [SWS Webinar Series](#) – Moving beyond Global Warming Potentials to Quantify the Climatic Role of Wetlands.

Friday October 16th: [NHANRS Coastal Wetlands Conference](#), Rye, NH

Saturday October 17th: Massachusetts Association of Conservation Commissioners [Fall Conference](#), Devens MA

Thursday November 12th: [SWS Webinar Series](#) – Wetland Restoration and Management in a Future of Changing Climate.

Do you have a wetlands-related workshop, meeting, class, or grant to advertise? [Email Jen Karberg](#) for future newsletter inclusion and publication over our social media resources!