



NOR' EASTER

A Newsletter of the Northeast Aquatic Plant Management Society

www.neapms.net

Vol. 7 No. 2

Fall 2008

President's Message



NEAPMS Turns 10!

10th Annual Conference
and Meeting

JANUARY 20 & 21,
2009

Saratoga Springs,
New York

Workshops
Welcome Reception
JANUARY 19th

Please join us at the historic Gideon Putnam Inn for NEAPMS' 10th anniversary meeting. The event kicks off on Monday, January 19th with two special sessions—a workshop for applicators and an algal workshop. The President's reception follows with a light buffet and cash bar.

A full program of presentations begins on Tuesday, January 20th and continues through the afternoon of Wednesday, January 21st.

On the evening of January 20th, the banquet dinner and awards ceremony will feature Dr. Curt Stager from Paul Smith's College sharing insights of some of his work with lakes in Cameroon, Africa.

Program details can be found on page 8.

It seems like the past couple of months have been filled with uncertainty. Uncertainty in presidential politics; uncertainty in the stock market and the threat of a global recession; and the uncertainty in the Patriots' chances of making the playoffs without Tom Brady at the helm...but I digress.

One certainty, however, is that aquatic invasive species continue to threaten our freshwater resources. In just the last few months the first hydrilla infestation was documented in New York. Hydrilla was also found in a second water body in Massachusetts. Didymo continues to threaten our rivers and streams, while persistent re-growth of more common nuisances like Eurasian watermilfoil and phragmites reminds all of us why they are considered to be invasive. With state and municipal budget cuts looming, now more than ever we need to draw on our collective resources and experience to effectively manage aquatic invasive species. Fortunately, the Northeast Aquatic Plant Management Society is stronger than ever to help lead the way.

NEAPMS will be celebrating its 10th Anniversary in January. It's hard to believe that ten years have already passed since our first meeting in Suffern, New York, and look how far we've come since then. Our core membership continues to grow. We successfully accomplished an early goal of increasing participation by students and academia - just look at 2009 conference program. We've been able to expand scholarship funding for research in aquatics occurring here in the Northeast.

Without a doubt it has been the support and participation of our membership and the generous contributions of our sponsors that has made NEAPMS such a success. Please continue to encourage more people to get involved and stay involved. Let's try to make NEAPMS bigger and better over the next ten years!

Many people are working hard to make our 10th Anniversary Meeting special. By popular demand, we will be returning to the Gideon Putnam Inn in Saratoga Springs, New York on January 19-21, 2009. On Monday, January 19th, Cygnet Enterprises will be offering a seminar for applicators and Dr. Ken Wagner will run an algal workshop during the afternoon. The Presidential Reception will follow on Monday evening. A full slate of presentations and discussions are planned for Tuesday and Wednesday, and be sure not to miss the banquet and awards ceremony on Tuesday night. Of course, probably the best part of the conference is getting a chance to catch up with friends and colleagues.

I want to wish everyone a healthy and happy holiday season and look forward to seeing everyone in Saratoga Springs, New York in January.

Respectfully,
Marc Bellaud, President

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Northeast Aquatic Plant Management Society

The Purpose of the Society shall be to assist in the management of aquatic vegetation, to provide for the scientific and educational advancement of members, to encourage scientific research in all facets of aquatic plant management, to promote an exchange of information among members, and to extend and develop public understanding in the discipline.

Mission Statement, adopted 20 April 1999

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NEAPMS 2008 Officers and Board of Directors: John McPhedran, Marc Bellaud, Amy Smagula, Bin Zhu, Bob Johnson, Lee Lyman, Glenn Sullivan and Scott Kishbaugh (missing, Jim Sutherland, Larry Eichler and Shaun Hyde). Also present, Ann Bove.

COMMITTEES

<i>Membership</i>	Glenn Sullivan, Jim Sutherland, Amy Smagula
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<i>Scholarship</i>	Amy Smagula, Ken Wagner, Bob Johnson, Larry Eichler, Paul Lord, Barre Hellquist, Bin Zhu
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<i>Awards</i>	Charles Gilbert, Gerry Smith, Glenn Sullivan

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Myriophyllum Genetic Research Continues

Dr. Ryan Thum, Robert B. Annis Water Resources Institute of Grand Valley State University

It is clear that non-native aquatic plant invasions are increasing at alarming rates throughout the region, that they can have less-than-desirable effects on our water resources, and that they therefore require active management. Less clear is why non-native aquatic plant invaders are so successful and annoying, where they come from, how best to manage them, and in some cases even what species they really are.

Our research group at the Robert B. Annis Water Resources Institute of Grand Valley State University is using DNA technologies to gain insight into the role that genetic variation plays in water-milfoil invasions. An indication of genetic variation provides a glimpse into the ability of species to respond to changes in their environment (e.g., a herbicide application) via genetic mechanisms. For example, hybridization among previously isolated gene pools or species can create a large amount of novel genetic diversity that is capable of responding to a larger variety of selection pressures than either parental gene pool was capable of. Genetic variation studies can also be used to pinpoint the geographic origins of invasive species, which in turn identifies locations that can be mined for factors regulating the distribution and abundance of species in their native ranges. Finally, genetic tools can be used to distinguish harmful non-native aquatic plant invaders from beneficial native species that are similar in appearance.

Our investigation into the topics above requires a portfolio of molecular markers with different properties that can be employed to address different questions. To date, genetic investigations of milfoils, including our own, have relied on DNA sequences from one or two genes. While useful in several contexts, this limited number of markers is inadequate for questions or applications that require fine-scale genetic information. For this reason, our research group continues to put forth considerable efforts to develop a large

portfolio of molecular markers scattered across the entire genomes of milfoils. With the development of these markers comes the promise of very fine scale resolution of genetic variation that can be used to more accurately identify the incidence and effects of hybridization, the geographic origins of invaders, and may ultimately be used to discover the genes that are responsible for susceptibility or resistance to treatment methods.

In the meantime, we continue to look at native and non-native milfoils with our current set of molecular markers. This past summer, we focused especially on examining geographic variation in variable-leaf water-milfoil (*Myriophyllum heterophyllum*). Our genetic studies indicate that invasive populations in the northeastern and western US originate from genetically distinct native populations in both the southeastern US and Midwest. Because these two geographic regions are so distinct in their physical climate and biological communities, we hypothesize that the distinct lineages differ in their ecologies. Our eventual goal is to develop ecological niche models for distinct lineages, predict future invasions and identify particular lineages that are likely to become more widespread and/or problematic. In addition, we used our current molecular markers to aid in the identification of putative native and non-native milfoils for several states across the country. Our surveys led to the discovery of new populations of milfoils, including hybrids, in two states.

These early detection methods based on DNA sequencing will provide the opportunity for rapid response to early invaders in these states.

Finally, the molecular tools that we are developing for milfoil studies are heavily dependent on adequate geographic sampling of both native and non-native species. For us to obtain adequate samples from across the country would take years! We have been lucky enough to have willing and eager participants from both the public and private sectors collect plants from their region(s) to send to us. The number of individuals is too large to make an exhaustive list here, but you know who you are and thank you once again! Although our sample size is growing, we still need more plants from broader geographic areas, so if you see milfoil and have a moment, send it over to us. We'll look forward to making more discoveries that we can tell you about in future newsletters.

Editor's Note: see Nor' Easter issues Vol. 6 No. 1, Spring 2007 and Vol. 5, Winter 2006 for articles related to Dr. Thum's work.

The Solution for your Troubled Waters

Diversified Waterscapes, Inc. 888-DWI-WATER

The advertisement features a blue banner at the top with the text "The Solution for your Troubled Waters". Below the banner is a photograph of a small boat on a calm lake with a forested background. At the bottom of the advertisement, there is a row of six white plastic jugs of varying sizes, each with a different colored label (red, yellow, green, blue, purple, and white) and a logo. The logo consists of a stylized map of the United States with a blue wave-like shape over it. The text "Diversified Waterscapes, Inc." and the phone number "888-DWI-WATER" are printed in white on a dark blue background at the bottom of the advertisement.

State Updates

The following compendium of state updates is provided by the NEAPMS Board appointed state liaisons.

CONNECTICUT

Nancy Murray, CTDEP via Shaun Hyde, SePro Corporation

Grants to Municipalities for Invasive Plant Control: CT Department of Environmental Protection (CTDEP) announced the availability of funding through the Invasive Plants Council for invasive plant control. Grant proposals must come from municipalities and be for the control of invasive plants on publicly accessible lands and waters. In 2003, the Connecticut General Assembly established the Invasive Plant Council to develop strategies regarding public education, control methods, prevention, and related activities to begin addressing the adverse consequences of invasive plants. A total of \$175,000 was made available in FY 2008/2009, with the awards to be split between terrestrial and aquatic projects. Eligible project proposals need to be for the control/eradication of non-native invasive plant species, preferably new infestations or recently-arrived invasive species. Routine maintenance projects are not eligible. Target properties and water bodies must be open to public access and use. See CTDEP website (www.ct.gov/dep/invasivespecies) for additional information.

Evaluating Control methods for *Hydrilla verticillata*: CTDEP entered into a Cooperative Agreement with the University of CT-Department of Natural Resources Management and Engineering to evaluate the most optimal control methods for *Hydrilla verticillata* in the Silvermine River located in Fairfield County. Field work was conducted

from August through October 2008 to identify study sites and collect baseline data. Development of a management plan is expected this winter with control work expected to start in 2009.

***Nymphoides peltata*:** *Nymphoides peltata* was confirmed in a small private pond this summer by the CT Agricultural Experiment Station. The CTDEP Inland Fisheries and Wildlife Divisions conducted an herbicide application (Habitat/glyphosate mix) in September 2008. This site will be monitored and evaluated for future ongoing invasive plant control.

DELAWARE

David Hardin, Restoration Ecological Services, Inc.

No report this issue.

MAINE

John McPhedran, MEDEP

Infestation status: Maine closed 2008 with two new documented infestations—the Pine Tree State's latest since 2006. *Myriophyllum heterophyllum* reported to Maine Department of Environmental Protection (MEDEP) in early August was found in Spaulding Pond, a NH/ME border lake. The infestation on the Maine side (town of Lebanon) includes scattered plants with dense growth in two coves.

Maine's second-ever case of *M. spicatum* was detected on August 1st in 695-acre Salmon Lake, a headwater in the Belgrade lake system in central Maine. MEDEP, in coordination with volunteers, engaged its rapid response program. Initial hand removal by divers occurred within a

week and continued biweekly through September, surveys of the remainder of Salmon Lake and downstream waters occurred within two weeks, and the state's first Surface Use Restriction to limit boater access within the infested area was ordered by Commissioners of MEDEP and the Department of Inland Fisheries and Wildlife.

MEDEP biologists believe the Salmon Lake infestation to be limited to a 7-acre cove near the outlet and will develop plans this winter for continued response to the infestation in 2009.

Four invasive aquatic plants are known to exist in Maine lakes, ponds, and rivers: *M. heterophyllum* in 26 waters (2 of these are the hybrid with *M. laxum*), *Hydrilla verticillata* and *Potamogeton crispus* in one waterbody each, and now *M. spicatum* in two water bodies.

Plant Control Efforts: The MEDEP anticipates Maine's infested lakes will continue to benefit from citizen scientists and other volunteers who conduct plant control work by deploying benthic barriers, removing plants by hand, and, on several lakes, using locally built diver-assisted suction harvester (DASH) units on a pontoon boat platform. So far lake groups have commissioned five DASH units to control variable milfoil on Little Sebago Lake in Gray/Windham (two units); the Songo River in Naples and connecting waters; Thompson Lake in the towns of Casco, Otisfield, Poland and Oxford; and Lake Arrowhead in the towns of Waterboro and Limerick. A sixth unit is dedicated for

control of curly-leaf pondweed on West Pond in Parsonsfield.

For 2008, the MEDEP also continued herbicide treatment (Sonar AS at a target concentration of 5-8 ppb) of the hydrilla infestation, SCUBA surveys, and ramp side boat inspection at Pickerel Pond in Limerick. New hydrilla plants continue to be found in that pond, albeit in fewer numbers.

A third SCUBA survey of a private 28-acre quarry pond in Scarborough previously infested with *M. spicatum* revealed that the pest species was indeed rebounding. None was found in 2007 after herbicide treatment (Sonar AS, PR and Q at a target concentration of 12-15 ppb) of the pond the previous year. A contractor resumed herbicide treatment in late July 2008 under approval from MEDEP.

Courtesy Boat Inspections:

Maine's Courtesy Boat Inspection Program proves effective both for intercepting potential invasive threats and as a teachable moment for the boating public. Total 2008 season inspections are not yet tallied and anecdotal accounts reported by inspection program coordinators do not, so far, indicate any statewide trend toward increased or decreased inspections. Of interest is whether economic factors such as summer fuel prices played a role in recreational boat usage in 2008.

In 2007, a total of 49,783 inspections—a 23% increase from 2006—was conducted. Of these, 2.1% of all inspections yielded plant fragments (1069 inspections)—little change from past years. This figure includes all plant fragments, whether invasive or native, on both entering and exiting boats. The majority of inspections (65%) are conducted on boats entering.

Grants: The 2008 cost share grant

program again included funds for boat inspection programs and plant removal efforts.

A bill passed in 2007 that reduces administrative costs in the state's sticker funding program began generating new revenue in 2008 to address 2009 program costs. Again, yet-to-be measured economics— increase or decrease in total boat registration/sticker revenue—will determine outcome of revenue generated during 2008.

The first priority of cost savings is to increase grants for local invasive aquatic plant control efforts. The amount available for cost share grants for plant removal increased from \$20,000 in 2007 to \$60,000 in 2008, and will possibly rise even higher in 2009.

More information: Please check the Maine Invasive Aquatic Species Program's website <http://www.maine.gov/dep/blwq/topic/invasives/index.htm> or email mil-foil@maine.gov.

MARYLAND

David Hardin, Restoration Ecological Services, Inc.

The Maryland Department of Natural Resources reported finding *Didymosphenia geminata* (didymo) in a section of the Gunpowder River near Baltimore during April. The Department issued educational press releases on how to avoid spreading the alga and is monitoring the population.

MASSACHUSETTS

Marc Bellaud, Aquatic Control Technology, Inc.

Invasive species monitoring and management continued to be a major focus of the Massachusetts Department of Conservation and Recreation (MADCR) in 2008. The Lakes and Ponds Program offered the following updates:

A second *Hydrilla verticillata* infestation was found at Hobomock Pond in Pembroke, on the south shore about 30 miles from Boston.

MADCR made a concerted effort to update the aquatic invasive species (AIS) database for state lakes and ponds. They focused on sites where there was no previous data or where data was more than 5 years old. At least 50% of these water bodies contained AIS.

There were so significant regulatory changes, other than the Natural Heritage and Endangered Species Program updates to the *Priority and*

Continued on next page



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State Updates continued

Estimated Habitat Areas. Areas that are mapped as “priority and estimated habitat” require additional permit review from the Program.

MADCR was able to offer a matching fund program in 2008 and several AIS projects were funded. Hopefully, funding for this and other state grant programs will continue in light of significant state budget cuts that were recently announced.

The NEAPMS grant funded SolarBee study for milfoil control was continued by Tufts University. A formal report has not been released yet, but preliminary results suggest no reduction in milfoil or water quality changes.

NEW HAMPSHIRE

Amy Smagula, NHDES

New Initiatives in New Hampshire: We’ve been focusing on two primary initiatives in New Hampshire in 2008: working to promote participation in our Weed Control Diver Class and to continue to retrofit and perform field trials with our diver-assisted suction harvester.

Weed Control Diver (WCD) Program: We have worked with interested divers to put together a specialty dive course to train divers to effectively hand-remove invasive aquatic plants like *Myriophyllum*, *Cabomba*, and others. The class was designed by state biologists and a Master Instructor with the Professional Association of Dive Instructors (PADI). The course is registered as a specialty course with PADI, and the participants of the course receive a PADI specialty certification and number upon completing the class.

The class is open to divers that

already have their open water certification, or any other specialty certification. Non-divers are also encouraged to participate (at no charge) to learn more about the process and provide support as surface water ‘tenders’ to the divers (not eligible to earn the specialty certification however).

The course includes a day of classroom session and two open water dives with the instructor to learn and practice the technique of effective hand-removal of invasive aquatic plants. The fee for the course is \$149 for those seeking the certification. For more information on upcoming classes please visit the NHDES website at www.des.nh.gov and navigate to the exotic species page.

Diver-assisted Suction Harvesting (DASH): New Hampshire began its adventure with DASH in 2006 as part of a *Myriophyllum heterophyllum* removal and native plant transplant project in Lake Massasecum. Since then, NHDES purchased one machine and has work to retrofit it to suit our needs. During the summer of 2008, it was put to regular use on a number of waterbodies, and we

believe we now have a design that is easy to use and quite effective in allowing divers to cover a good amount of ground in a short time-period. In 2009 and beyond we plan to continue to incorporate the use of DASH in many of our exotic plant control projects.

Funding: Unfortunately due to a large state budget deficit, new initiatives are hard to sell in New Hampshire. The 2007-2008 legislative session was one where bills seeking increases in program funding were discouraged, so program expansion was not feasible due to lack of funds.

In the 2008-2009 legislative session, we will seek some increased funding for control and prevention and research projects, but given the economic climate across the country and in the state, the outlook is bleak.

New Plant Sightings: During 2008, we added two new infestations to the list of waterbodies infested with *M. heterophyllum*, our state’s most prevalent exotic aquatic plant.

Two species of naiads are becoming better known in New Hampshire. The second known population of *Najas minor* in the state was found in



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fall 2008 in Lake Winnepesaukee during a field survey for variable water-milfoil (the first was in Glen Lake in Goffstown in 2007). The *N. minor* population was found to be moderately abundant in one portion of the northern tip of the lake in Moultonborough. The plant was not documented in Lake Winnepesaukee in a survey in 2006 or 2007.

A new population of *N. guadalupensis* was also identified in New Hampshire in 2008, in Powwow Pond in East Kingston. At this time, we believe this to be the first population of *N. guadalupensis* in New Hampshire.

Currently, *N. minor* is listed as a prohibited plant in New Hampshire, though *N. guadalupensis* has not yet been listed, which makes it a challenge for determining if it is an invasive in New Hampshire or not. We are curious how others in the northeast are dealing with *N. guadalupensis*. If you have any thoughts or input, please contact me at Amy.Smagula@des.nh.gov.

Changes directly impacting ANS management: There was a positive change in regulations and permitting dealing with exotic aquatic plant

management in New Hampshire. Historically, any projects seeking to 'remove' aquatic plants that includes their root systems was considered a 'dredge' by the state Wetland's Bureau regulations, and required a Wetlands Permit (a lengthy and costly process). Working with the Wetlands Bureau, state exotic species biologists were able to encourage a rule change such that divers who were trained by NHDES in the WCD Class (mentioned above) were now exempted from that rule, and could perform the work without a permit provided that they were a certified (card-holding) WCD, and that they notified the NHDES Exotic Species Program of any project, and associated details, that they planned to perform in a surface water of the state. This change allows for an easier 'rapid response' for new infestations, and following other control practices, it makes an integrated approach at management more feasible.

NEW JERSEY

Glenn Sullivan, Allied Biological

New Jersey Department of Environmental Protection's (NJDEP) Pesticide Control Program has yet to

receive records of the state's aquatic pesticide applications, so reporting of increases or decreases in the state's aquatic invasive plants will have to wait. The pesticide program is currently the only state repository for this type of information. Since the NJDEP issues over 1,100 aquatic pesticide permits, this provides a pretty comprehensive assessment tool. Look for a poster presentation by the NJDEP Pesticide Control Program at NEAPMS's upcoming Annual Meeting, January 2009 on aquatic invasive plant data collected through these records.

One of the species that continues to show up at additional aquatic sites each year is *Trapa natans*. In 2008, an extensive infestation was recorded at Lake Musconetcong, in the northern part of the state, an infestation believed to be several seasons old. The 329-acre lake has a state-run public boat launch and receives considerable trailered boat traffic; the infestation presents a risk to numerous area lakes.

This September, a new infestation of *Eichhornia crassipes* was found in a wetland pond adjacent to a industrial site in the central area of the state. The plant was reportedly introduced by the former landowner. The date of introduction wasn't known, so it couldn't be determined if the plants had made it through the previous winter. *E. crassipes* has been found in other small ponds in the southern part of the state, but this wetland pond presents a greater potential for spread.

No official program or initiative to combat invasive aquatic plants currently exists in New Jersey. The New Jersey Department of Agriculture does fund the distribution of predatory beetles for control of *Lytthrum salicaria*, a program begun in 1997. Over 1.7 million beetles have

Continued on page 10

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NEAPMS 10th Anniversary

Monday January 19, 2009

- 9:00 – 4:00 PM **Applicator Seminar** (10 recertification credits), Coordinated by Cygnet Enterprises
- 4:30 – 6:30 PM **Algal Workshop**, Ken Wagner, Ph.D.
- 5:00 – 7:00 PM **Registration Table Open**
- 7:00 – 9:00 PM **NEAPMS Presidential Reception**, Light buffet and cash bar will be offered
- 9:00 PM – Wee Hours **NEAPMS Hospitality Suite**



Ken Wagner

Tuesday January 20, 2009

- 8:30 – 9:30 AM **Continental Breakfast**
- 8:15 – 9:45 AM **Registration/Exhibits**
- 9:45 – 10:00 AM **Welcome**, Marc Bellaud, NEAPMS President
- 10:00 – 10:30 AM **Keynote Address- A National Perspective on Invasive Aquatic Plants**, Edward Mills, Ph.D., Cornell University/ISAC
- 10:30 – 11:00 AM **Efficacy of Combinations of Endothall with 2,4-D and Triclopyr for Enhanced Control of Eurasian Watermilfoil with Low Contact Time**, John Madsen, Ph.D., Mississippi State University
- 11:00 – 11:30 AM **Successful Operational Use of Renovate OTF for Selective Control of *Myriophyllum spicatum* (Eurasian watermilfoil) in Three New York Lakes: Saratoga, Lamoka, Waneta**, Mark Heilman, Ph.D., SePRO Corporation
- 11:30 – 12:00 AM **Intra-Species Variation of Submersed Aquatic Plants to Herbicide Treatments**, Michael Netherland, Ph.D., US AERDC
- 12:00– 1:00 PM **Lunch**
- 1:00– 1:30 PM **Industry Updates**
- 1:30 – 2:00 PM **An Overview and History of Two Aquatic Weed Management Programs in North Carolina: Giant Salvinia Eradication and Lake Gaston Hydrilla Management**, Robert Richardson, Ph.D., North Carolina State University
- 2:00 – 2:30 PM **Phenology and Tuber Dynamics of Monoecious Hydrilla in North Carolina**, Justin Nawrocki, North Carolina State University
- 2:30 – 3:00 PM **A Molecular Genetic Study of *Hydrilla verticillata* in the Northeast**, Lori K. Benoit, University of Connecticut
- 3:00 – 3:30 PM **Break/Exhibits**
- 3:30 – 4:00 PM **Eurasian Watermilfoil, Porewater Nutrients and Growth**, Mark Swinton, Ph.D., RPI Darrin Fresh Water Institute
- 4:00 – 4:30 PM **The Carnivorous Family: Lentibulariaceae**, C. Barre Hellquist, Ph.D., MA College of Liberal Arts
- 4:30 – 5:30 PM **Plant Workshop**, C. Barre Hellquist, Ph.D., MA College of Liberal Arts





The 10th Anniversary Meeting will be held at the historic Gideon Putnam Inn, Saratoga Springs, New York; for Inn details, visit www.gideonputnam.com

4:30 – 5:30 PM **NEAPMS Poster Session:**

- **Nontarget Aquatic Plant Species Responses from 2007 Spot Treatments of Triclopyr in Lakes Morey and St. Catherine, Vermont.** Ann Bove and Rich Langdon, VTDEC
- **Fanwort (*Cabomba caroliniana*) Control Using Granular Sonar™ in Donahue Pond (Eastern Long Island, New York), a High-flow Environment.** Chris Doyle, CLM., Allied Biological, Inc.
- **350 Volunteers Successfully Remove Aquatic Weed from Peconic River, Long Island.** Laura Stephenson, Peconic Estuary Program Coordinator, NYSDEC, Bureau of Marine Resources
- **Trends of Aquatic Pesticide Usage and Aquatic Vegetation Distribution and Occurrence Throughout the State of New Jersey (2005-2008).** Steven Brown, Hollie Ezze, NJDEP Pesticide Control Program
- **Eradication of *Hydrocharis morsus-ranae* by Hand-harvesting in the Adirondack Park, New York.** Stephen F. Langdon^{1,2}, Hilary A. Oles², Christopher T. Martine³, ¹SUNY Plattsburgh, Center for Earth and Environmental Science, ²Adirondack Park Invasive Plant Program, The Nature Conservancy, ³SUNY Plattsburgh, Dept. Biological Sciences

5:30 – 6:30 PM **Attitude Adjustment Reception**

6:30 – 9:00 PM **NEAPMS Banquet & Awards**, with a presentation by Dr. Curt Stager of Paul Smith's College on his work on lakes in Cameroon, Africa

9:00 PM– Wee Hours **NEAPMS Hospitality Suite**

Wednesday January 21, 2009

7:30 – 8:30 AM **Continental Breakfast**

8:30 – 9:00 AM **Targeted Management of Problematic Algae**, West Bishop, Clemson University

- 9:00 – 9:30 AM **Do Algae Spill Their Guts When Treated With Algaecides? A Look at the Data and Implications for Decision Making**, John Rodgers, Jr., Ph.D., Clemson University
- 9:30 – 10:00 AM **A Risk and Management Assessment for *Lyngbya wollei* in Kings Bay/Crystal River, Florida**, Brenda Johnson, Clemson University
- 10:00 – 10:30 AM **Break/Exhibits**
- 10:30 – 11:00 AM **Aluminum Treatment of Long Pond on Cape Cod: Target and Non-Target Impact Assessment**, Ken Wagner, Ph.D., ENSR Corporation
- 11:00 – 11:30 AM **Hydroacoustic Detection of Eurasian Watermilfoil**, Jeremy Farrell, RPI/Darrin Fresh Water Institute
- 11:30 – 12:00 AM **NEAPMS Business Meeting/APMS Updates**, Marc Bellaud/NEAPMS BOD Members & Carlton Layne, APMS President
- 12:00 – 1:00 PM **Lunch**
- 1:00 – 2:30 PM **Panel Discussion - Rapid Response to Aquatic Plant Invasions**, Panelists TBD
- 2:30 – 3:00 PM **Invasive Aquatic Plants in Connecticut: Why They Are Where They Are**, Greg Bugbee & Roslyn Reeps, CT Agricultural Experimental Station
- 3:00 – 3:30 PM **Predicting Future Invasion of European Frogbit and Experimenting the Possibility of its Biological Control**, Bin Zhu, Ph.D., Finger Lakes Institute
- 3:30 PM **Wrap up and adjourn**
- 3:45 PM **NEAPMS Board of Directors Meeting**

State Updates continued

been distributed by this Department to date. No other statewide grant programs exist that are focused on invasive plant control. Aside from individual lake or pond owners and community groups, The Nature Conservancy has been the state's largest landowner committed to controlling invasive species.

NEW YORK

Scott Kishbaugh, NYSDEC

New Plant Sightings: Unfortunately, *Hydrilla verticillata* crashed the party in New York, surfacing in five waterbodies: Creamery Pond in Orange County (southern NY, west of the Hudson River), Lotus Lake, Sans Souci Ponds, New Mill Pond (aka Blydenburgh Park Pond) and Miller Pond in Suffolk County (Long Island). The latter three are all within the Suffolk County Parks system. The findings at the first three lakes all occurred within a two-week period in August, making it a very bad month. The Creamery Pond finding, the first of these, came through an unsolicited request to the NYSDEC for help solving a weed problem, highlighting the importance of surveillance networks and many eyes on the lakescape. One of the Long Island ponds also contained small populations of *Myriophyllum aquaticum*, and *Marsilea quadrifolia*, as well as very thick beds of *M. heterophyllum* and *Cabomba caroliniana*. An "albotanist's" dream!

New *M. spicatum* findings were reported in at least two Adirondack lakes (one through the Adirondack Park Invasive Plant Program (APIPP) volunteer monitoring network) and seven non-Adirondack lakes, through inventory efforts by NYSDEC and the State Office of Parks and Recreation, bringing the

inventory total to at least 291 waterbodies in nearly every county in the state. *Potamogeton crispus* was identified in 7 new non-Adirondack lakes, including two in Long Island, for a statewide total of at least 122 waterbodies. *Trapa natans* was found in a second and third location in Long Island and another outside the Adirondacks, bringing the statewide inventory total to at least 48 waterbodies. *Cabomba caroliniana* showed up in three new survey locations- the aforementioned Long Island pond and two in the Lower Hudson region. Other exotics recently elevated to the high profile surveillance list include: *M. heterophyllum* —a potential hybrid between *M. heterophyllum* and *Myriophyllum verticillatum* was found in at least one pond in a southern New York state park. *Eichhornia crassipes* was found in the Chemung River just downstream from a state public boat launch site, and in the southern Hudson River. Both populations were removed by the surveyors; the sites will be revisited to determine if any stray plants overwintered.

Hydrilla Rapid Response: The NYSDEC worked with local residents to rapidly respond to the hydrilla infestation in Orange County. Allied Biological Inc. donated staff and equipment to conduct a fall Sonar and Komeen treatment of the lake, and SePro Corporation donated the cost of these chemicals

after it was determined that a fall herbicide treatment was the most expedient way to prevent continued turion and tuber production (and in anticipation of delays as a result of limited local funding). Within nine weeks of discovery, the herbicides were applied to the lake. It is anticipated that a follow-up Sonar treatment and grass carp stocking will occur in the spring of 2009.

Changes directly impacting AIS management: The state Office of Invasive Species is now fully staffed, with a Director, an Invasive Species Management Coordinator, and a Regulatory Coordinator, and a Planning Coordinator. The Office has focused on coordinating on-the-ground AIS management activities, including a snakehead infestation and the initial hydrilla control project, and coordinating the contractual activities associated with the Partnerships for Regional Invasive Species Management (PRISMs).

Too Many Weeds Spoil the Fishing

Exotic invasive aquatic plants such as Hydrilla, Eurasian Water Milfoil, Curlyleaf Pondweed, Water Chestnut and Water Hyacinth can be detrimental to a healthy fishery in lakes across the country.

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The NYSDEC signed a five year, \$1.4M contract with AIPPP to continue its work on invasive plant surveillance (aquatic and terrestrial), development of training modules and rapid response protocols and partnerships, and implementation of the Adirondack AIS plan. It is hoped that this is the first of several formal agreements forged between the state and the principal partner for each of the eight established PRISMs throughout New York State. NYSDEC has approval to enter contracts for the Long Island Invasive Species Management Area (LIISMA) and Catskill Regional Invasive Species Partnership (CRISP), and is seeking approval to contract with a host organization for the St. Lawrence - Eastern Lake Ontario Weed Management Area (SLELO) and to issue an Invitation for Bids for the other regions.

The New York State Invasive Species Research Institute (NYISRI) is now under contract with Cornell University as a host organization. Dr. Holly Menninger was hired in the summer of 2008 as the NYISRI coordinator. She is forming a multi-disciplinary scientific advisory board to advise the institute.

The New York Invasive Species Advisory Committee (ISAC), a body charged with advising the NY Invasive Species Council, has been formed and had its kickoff meeting in late October. The makeup of the ISAC is defined in statute - up to 25 at large members with 15 stakeholder entities specified - some by name and others by category. The makeup of the Council is also defined in statute - nine state agency commissioners or designees co-lead by the NYSDEC and NYS Department of Agriculture and Markets.

PENNSYLVANIA

Jack Hanish, Pennsylvania Lake Management Society

No report available this issue.

RHODE ISLAND

Lee Lyman, Lycott Environmental

Rhode Island Permitting Process: Several changes in the Rhode Island permitting process for the use of pesticides in the waters of the state are expected in 2009.

- Permit applications will be processed and approved by the Rhode Island Division of Agriculture only. In prior years, the Division of Fish & Wildlife was also involved in the review and approval process.
- All owners of land under the waterbody in question must approve the pesticide application. The burden

State Updates continued on next page

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is on the applicant to verify these land owners through the local Assessor's Office and "sign-off letters" must accompany the permit application, verifying approval from each of the land owners.

- The application form has been updated and is available online at <http://www.dem.ri.gov/programs/bnatres/agricult/pdf/aquanuis.pdf>

According to the Rhode Island Department of Environmental Management (RIDEM), Office of Water Resources, in 2007 and 2008 staff surveyed 74 waterbodies (lakes, ponds and some river systems) and found 73% (55) with one or more invasive aquatic plant; 34 sites had more than one invasive plant present. All 55 waters surveyed contained *Myriophyllum heterophyllum*. *Cabomba caroliniana* was present in 37 sites. Other plants also found were *Myriophyllum spicatum*, *Egeria densa* and *Trapa natans*.

RIDEM Fish and Wildlife discovered *Eichhornia crassipes* in a small pond with public access for shore fishing only. The population was removed by handpulling in early October.

The Rhode Island legislature passed legislation for RIDEM to draft regulations which will lead to the prohibition of the sale, transportation and the importation of invasive aquatic plants.

The RIDEM and the Coastal Resource Center are working together to submit an Aquatic Invasive Species Management Plan. If approved, this Plan could lead to funds to continue the invasive aquatic plant inventory started in 2007.

A new organization relating to lakes has been formed in the state, "Save Our Lakes." Efforts from this newly formed group could lead to

further identification and management of invasive aquatic plants in freshwater waterbodies.

VERMONT

Ann Bove, VTDEC

Population Monitoring: The arrival of one new invasive aquatic plant in Vermont, *Myriophyllum heterophyllum* was recently confirmed in an 84-acre lake located on the eastern side of the state. VTDEC staff deployed rapid response initiatives shortly after receiving genetic confirmation of the plant's identity, thanks to Dr. Ryan Thum of Grand Valley State University in Michigan. An underwater search of areas of the lake where *M. heterophyllum* might grow confirmed that the plant appeared limited to one area of the lake. Using a curtain to contain any floating stem fragments, a crew removed plants by hand over a five day period. Public notification followed.

M. heterophyllum appears contained for now. Future surveillance and spread prevention measures will be deployed to prevent further spread of this aggressive plant in the confirmed lake and to other waters in Vermont. Alternative control methods will be explored this winter.

Only one new *M. spicatum* water was confirmed during the 2008 field season, bringing the total number of known lakes with populations to 65 and 25 other waterbodies.

No new *Trapa natans* infestations were identified this season; the total known Vermont waters with this



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species remains at 21. However, a new site was identified in Lake Champlain, on the New York side of the lake, bringing the total number of Lake Champlain sites to 68.

Hydrocharis morsus-ranae was confirmed growing in a third Vermont water.

Nymphoides peltata is only known from limited areas in south Lake Champlain. A number of new sites were identified this year in the southern portion of the lake. Curiously, the largest known lake population was not seen in 2008 or in 2007.

For the other six invasive aquatic and wetland plants known from the state – *Butomus umbellatus*, *Iris pseudacorus*, *Lythrum salicaria*, *Phragmites australis*, *Najas minor* and *Potamogeton crispus* – new distribution information was not collected in 2008.

Didymosphenia geminata was confirmed in a fourth Vermont water, the Mad River in July 2008. Significant blooms were detected along several miles of the river. Didymo blooms in the White River were monitored

regularly during the 2008 field season. One area that experienced a significant bloom in 2007 experienced only a minor bloom in 2008. Blooms in other areas were extensive at times but fluctuated considerably. One tributary to the White River also experienced a significant bloom, and cells were detected (without active bloom) far upstream of areas with active bloom.

Control and Spread Prevention

Projects: The Department's aquatic invasive species grant program, funded this year by a portion of motorboat receipts and federal matching funds, supported the following municipal projects:

- 26 *M. spicatum* control projects
- 1 *Lythrum salicaria* and *Phragmites australis* control project
- 2 didymo monitoring and education projects
- 19 spread prevention projects, 17 of which ran public boat access area "greeter" programs. (Only two additional spread prevention projects are known from the state; neither sought financial support from this program.)

In the absence of an available local entity, staff managed an incipient *M. spicatum* population in one water.

Traça natans management in all 21 infested waters occurred this season in cooperation with many local partners. Reductions were noted across many sites. The common control method was handpulling with contracted mechanical harvesting occurring at dense Lake Champlain sites. Access to a new private off-loading site closer to mechanical harvesting sites in Lake Champlain allowed for increased loads removed despite less management funds and increased fuel costs.

All state retailers selling live aquatic plants in the state were inspected for prohibited species (Vermont Invasive Plant Quarantine Rule #3). During these 2008 inspections, offi-

cial found two retailers in southern Vermont selling *M. heterophyllum*. Retailer voluntary compliance prevented the levying of fines. Search of internet retailers was also conducted and any sites selling Vermont prohibited species were notified.

Early Detection : An training session was held in May 2008 for boat access area greeters and greeter program operators. Topics covered at the all-day workshop included aquatic invasive species biology, threats to Vermont, and the importance of spread prevention; aquatic invasive species identification; access area rules and regulations, baitfish regulations, and invasive species laws; tips on delivering invasive species educational messages and interacting with the public; and a boat inspection demonstration and role playing session. Although a number of well established programs exist in the state, this was the first state-led training session offered.

Seven Vermont Invasive Patrollers (VIPs) training workshops were held around the state with a total of more than 80 participants. At least 16 waterbodies were systematically monitored by VIPs during the 2008 season, with additional survey data pending. No new invasive species infestations were discovered by VIPs during the 2008 season.

Research: Staff provided samples of Vermont *Myriophyllum* species to Grand Valley State University (MI) researcher, Dr. Ryan Thum (see page 3). Over 80 samples were submitted representing *Myriophyllum* populations of *sibericum*, *spicatum* and *verticillatum*.

A reduction of *M. spicatum* plants in an eastern Vermont waterbody is under investigation. Significantly damaged watermilfoil plants were found covered with dense colonies of aquatic mites. Mite identification is being collaborated with the USACE Biological Control Unit.

The watermilfoil population in the lake will continue to be assessed.

NEAPMS SILENT AUCTION

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A tradition at annual NEAPMS meetings, all proceeds from the SILENT AUCTION go directly into the NEAPMS Scholarship fund. **Please consider bringing an item as a donation to the Silent Auction at our upcoming 10th Anniversary Conference.**

Can't decide on an item to bring? Feel free to contact:

John McPhedran

john.mcphedran@maine.gov

or Ann Bove

ann.bove@state.vt.us

NEAPMS Scholarship Recipient Update

NEAPMS is currently sponsoring two student scholarships: doctoral student Lori Benoit at the University of Connecticut, awarded a scholarship in 2007 and undergraduate student Maris Mann-Stadt at Tufts University, awarded a scholarship in 2008. An update on both students' work is provided.

A molecular genetic approach to evaluate herbicide resistance and vectors of spread for populations of the invasive aquatic plant *Hydrilla verticillata* in the northeastern United States

Lori K. Benoit, UCONN

Microsatellite Markers: Work continued on using the new genetic markers (microsatellite markers). PCR conditions for amplification using the microsatellite primers (unlabeled) were finalized. Fluorescently labeled primers have been ordered representing the last step in the process before mass screening of over 400 hydrilla samples commences.

ITS Data: The sequence data for the Internal Transcribed Spacer region (ITS) has shown consistent sequencing irregularities that are likely due to insertions and deletions in the ITS gene in different copies of the gene. Hydrilla is reported to be either diploid or triploid (very rarely tetraploid), meaning it has either two or three copies of each chromosome, representing inheritance from parents and hybridization events. Unique copies can be useful in tracing the heritage of hydrilla populations. This summer I began amplifying and subcloning the ITS gene from a number of populations. This process allows one to sequence individual copies of a gene without the "noise" of the other one or two copies. I have found a number of small insertions/deletions in ITS. I am continuing to amplify and subclone ITS in hydrilla samples.

PDS Gene: I have been unsuccessful to date in amplifying the PDS gene, a single copy nuclear gene.

Plant Collecting: This summer I traveled to Pennsylvania to complete the necessary plant collecting in the Northeast. I had planned to collect also in New Jersey but the lake with hydrilla had been treated aggressively with herbicides. A contact there said no hydrilla could be found.

Effectiveness of solar-powered water circulators for reducing *Myriophyllum spicatum* growth in a recreational lake

Maris Mann-Stadt, Tufts University

I have been able to monitor the effects of SolarBee circulators on the *Myriophyllum spicatum* growing in Lake Cochituate in Massachusetts, a study started by Naomi Slagowski. Repeated trips throughout the summer of 2008 were made to observe plant growth and monitor an assortment of water quality parameters (DO, T, pH, conductivity, and chlorophyll). Visits continued into the fall and water samples collected through the end of the growing season. Currently, I am in the middle of sample analysis and can not conclusively identify any trends until all of the data have been collected and processed.

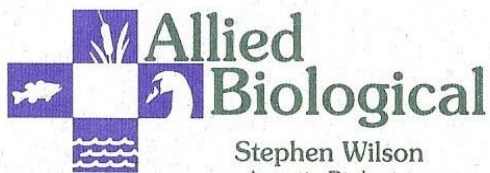
I expect to finalize a report of my work in December and will provide a copy to the NEAPMS Scholarship Review Committee at that time.

Graduate and Undergraduate Scholarships and Stipends Available



Graduate scholarships can range up to \$2500 per year for two or three years (maximum), depending on the degree pursued. Undergraduate students interested in participating in an internship in aquatic plant management can be eligible for a stipend to pay for salary and/or related expenses during the internship.

For more detailed information visit the NEAPMS website at www.neapms.net



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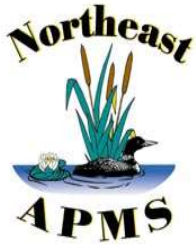
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Opportunities/Upcoming Events/Resources

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Massachusetts Coalition of Lakes and Ponds

Worcester State College, Worcester, MA

January 24, 2009

www.macolap.org

Joint Meeting:

Weed Science Society of America/Southern
Weed Science Society

Orlando, FL

February 9-12, 2009

<http://www.wssa.net/>

16th International Conference on Aquatic
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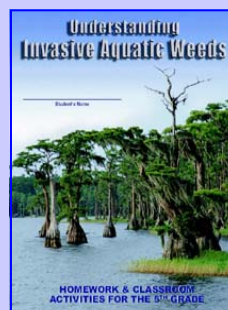
Montreal, Quebec, Canada

April 19-23, 2009

<http://www.icaais.org/>

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"Understanding Invasive Aquatic Weeds"



This 16 page booklet contains information and activities about aquatic ecology and the major weeds affecting North American aquatic ecosystems.

The booklet is geared towards 5th grade students.

<http://www.apms.org/activity.htm>