NOR' EASTER

A Newsletter of the Northeast Aquatic Plant Management Society

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NEAPMS 10th Anniversary Conference

2009 Annual Meeting

Saratoga Springs, New York

President's Message

Robert Johnson, President

With our 10th Annual NEAPMS Conference behind us, I wish to express my gratitude to all who made it a very successful meeting, especially the presenters for their informative talks addressing topics important to our membership and our loyal sponsors who make the meeting possible.

One extra bonus to the 2009 annual meeting was Monday's Applicator Seminar allowing product manufacturers to provide information to applicators, consultants and others, of new products and methods, as part of a their continuing education in the field. Cygnet Enterprises and JoAnn Dunlap coordinate this event sponsored annually by Cygnet Enterprises and a select group of product manufacturers. JoAnn usually conducts this workshop later in the winter but allowed our conference to start with their workshop. It was very well attended; presentations were very informative and I came away with a lot more knowledge of current products available, innovative methods of application and future directions for the industry. All missed JoAnn who was unable to attend, but her able colleagues carried out a flawless program.

A special thanks to Marc Bellaud for putting together an excellent wide-ranging program that included six student presentations, a timely keynote address on invasives by Dr. Ed Mills from Cornell and our banquet presenter Dr. Curt Stager. Dr. Stager, who teaches at Paul Smiths and holds a research position with the University of Maine's Climate Change Institute, gave an interesting talk on exploding crater lakes in Cameroon. To Glenn Sullivan, Ann Bove and John McPhedran, a thank you for all your work on local arrangements, silent auction, etc. and another to Amy Smagula for keeping all of us organized, at not only the Conference, but also year-around. Thank you to Dr. Jim Sutherland for his year-around job of taking care of our finances, and always, Paul Lord for keeping our conference presentations running smoothly and Dr. Ken Wagner for his always informative Monday evening algae workshop.

We presented three major awards this year. The award for Outstanding Member went to Ann Bove for her many continuing leadership roles in our organization, especially her work on the newsletter where she enhanced content and layout in recent years. Ann has also been instrumental in the site planning and organization efforts of our recent annual conferences. Amy Smagula received the much-deserved Science Award, which recognizes her extensive work on NH lakes, scientific papers contributing to the aquatic sciences and her other leadership roles with limnological organizations such as NALMS. Charles Gilbert, "Founding Father" of NEAPMS received special recognition for his countless contributions during the ten years of NEAPMS. Thank you Charles! A thank you to John McPhedran and Shaun Hyde who have finished their terms on the board and a welcome to new board members Nancy Murray and Mike Fleming and our Vice President/President Elect Ann Bove.

Our field season in the north has begun in earnest, although behind our colleagues in the south. With the challenging economy and uncertainty ahead, we all have extra challenges facing our operations. Look in this issue for information on the April 9, 2009 US Department of Justice motion to stay issuance of the 6th Circuit Court of Appeals recent decision that affects our membership and we have all been concerned about. Have a great year and see you back at the Gideon Putnam Resort in Saratoga Springs, New York for our 11th annual meeting and conference from January 18-20, 2010.

I N S I D E

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

OFFICERS

President	**Bob Johnson**...(607) 257-2064 *rlj5@cornell.edu*
Vice President/ President Elect	**Ann Bove**... (802) 241-3782 *Ann.bove@state.vt.us*
Treasurer	**James Sutherland**...(508) 325-5220 *jwsinack@comcast.net*
Secretary	**Amy Smagula**...(603) 271-2248 *Amy.Smagula@des.nh.gov*
Editor	**Glenn Sullivan**...(908) 850-0303 *glenn@alliedbiological.com*
Past President	**Marc Bellaud**...(508) 865-1000 *mbellaud@aquaticcontroltech.com*
Directors	**Larry Eichler**...(518) 644-3541 *eichll@rpi.edu*
	Scott Kishbaugh...(518) 402-8282 *sakishba@gw.dec.state.ny.us*
	Lee Lyman...(508) 765-0101 *lycottinc@aol.com*
	Bin Zhu...(315) 781-4384 *zhu@hws.edu*
	Nancy Murray...(860) 424-3589 *nancy.murray@ct.gov*
	Mike Fleming... (717) 940-4009 *michael.fleming@basf.com*

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Myriophyllum quitense, A Possible New Invasive to the Northeast

C. Barre Hellquist, Massachusetts College of Liberal Arts, North Adams, MA 01220

The Andean watermilfoil, *Myriophyllum quitense* Kunth, (*M. elatinoides* Gaudich) (Figure 1) has recently become established in southeastern New Brunswick, Canada, in the lower portions of the Saint John and Kennebecasis River estuaries (McAlpine, et al. 2007). This location is within 100 miles of Maine's southeastern border. It is probably only a matter of time until this species is located in northeastern United States.

The only other location in eastern North America where *Myriophyllum quitense* occurs is Prince Edward Island where it was reported as early as 1888 (Ceska et al. 1986 and is still found there at scattered locations. The natural range for this species occurs from southern South America and the Falkland Islands north along the Andes to Venezuela, a disjunct population in Mexico, and scattered locations in Arizona, California, Utah, Wyoming, Idaho, Washington, and British Columbia (Ceska et al. 1986). Records from the west go back as far as 1872 in Idaho (Couch and Nelson 1988). Presently it is considered as native in the west by Ceska et al. 1986, Moody 2004, and Whipple (Yellowstone National Park, Botanist, pers. comm.).

The Andean watermilfoil is common in rivers of Yellowstone National Park (personal observations). In the park it is found in four fast-flowing rivers where it forms emergent or submerged mats. It has been observed in various habitats from eutrophic to highly oligotrophic lakes and rivers (Ceska et al. 1986, Couch and Nelson, 1988). In New Brunswick it is found in upper estuarine waters (McAlpine et al 2007). Inflorescences form when growing emergent in shallow waters. In western North America it has been found fertile only in four locations other than Yellowstone National Park. The eastern Canadian sites are vegetative.

Myriophyllum quitense and M. sibiricum Komarov often occur in the same habitats and are difficult to distinguish between species present. Fertile *M. quitense* is easy to identify. It produces large, leafy bracts 1.0-1.5 long, denticulate, and broadly ovate (Figure 1) while *M. sibiricum* produces tiny, obscure bracts. Sterile submerged *M. quitense* observed in Yellowstone National Park was often quite stiff, appearing similar to *Ceratophyllum* in appearance but lacking roots and serrate leaves. The first two leaves on young stems are often, entire, bract-like. Submerged leaves are in whorls of 3 or 4, 1-4 cm long, pinnate with 4-10 capillary segments (Ceska et al., 1986).

Figure 1. Fertile Myriophyllum quitense with bracts in shallows of Firehole River, Yellowstone National Park

Key to separate *M. quitense* and *M. sibiricum*.

1. Fertile plants with large, leafy bracts 1.0-1.5 mm long, denticulate; first leaves on young shoots entire, bract-like; leaf capillary segments 1-4 cm long.....*M. quitense*

1* Fertile plants with tiny bracts less than 1.0 mm long, entire, first leaves on young shoots divided, not bract-like; leaf capillary segments 1.2-3 cm long.....*M. sibiricum*

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NEAPMS 10th Anniversary Conference

2009 Annual Meeting Saratoga Springs, New York

Major award winners-

The NORTHEAST AQUATIC PLANT MANAGEMENT SOCIETY would like to thank the following sponsors for their generous support of the 10th **Anniversary** Meeting

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State Updates

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

CONNECTICUT

Nancy Murray, CTDEP

No report this issue.

DELAWARE

David Hardin, Restoration Ecological Services, Inc.

No report this issue.

MAINE

John McPhedran, MEDEP

Infestation status

Maine begins 2009 with 30 documented infestations after last season's addition of two new cases for the first time since 2006, including the Pine Tree State's second-ever case of Eurasian water milfoil (*Myriophyllum spicatum*) in Salmon Lake, a headwater in the Belgrade lake system in central Maine.

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

It's the Economy....

Thanks to the ratio of infested to non-infested waters (Maine enjoys a total of 6,000 ponds and lakes), MEDEP has traditionally focused approximately 75 percent of its resources on prevention. Meanwhile, lake communities living with established infestations have called for increased state spending to complement the substantial private expenditures for plant control already borne by residents.

MEDEP had anticipated addressing these burgeoning control needs with new savings in administrative costs by combining in-state boat registration with the $10 in-state invasives sticker fee required for all boats using inland waters. Non-Maine registered boats would continue to affix a separate $20 sticker.

MEDEP forecasts for 2008 envisioned greater than $60,000 in new revenue that could be disbursed to local lake groups for plant control work and prevention. Not predicted, however, was the $4.00/gallon gasoline prices that befell Maine throughout much of the summer boating season. State boat registrations declined approximately four per cent while non-Maine invasive sticker sales dropped five per cent from 2007 peak figures.

Nonetheless, the administrative efficiencies did add up, resulting in a one-time, albeit modest, increase of funding from 2008 sales. These funds will be distributed in 2009 to lake communities as planned through grants.

The subsequent economic downturn is expected to challenge new prevention and control efforts for the long term. Dedicated funding generated from invasive sticker sales will likely track the economy at large with flat growth while concurrently facing erosive costs from anticipated increases in program overhead. Political consideration for any increase in invasive sticker fees remains, as in recent years, unlikely. Further, with federal funding of state invasive aquatic species management plans far below appropriation levels, MEDEP is braced for rough fiscal waters.

Fortunately, our port in the storm—dedicated funding provided by the invasives boat sticker—assures that the MEDEP will continue to 1) pass funds to local groups that organize boat inspection efforts and battle infestations, 2) train volunteer plant patrollers to distinguish non-natives from common look-alikes during plant surveys, and 3) actively control populations of hydrilla (one known) and Eurasian watermilfoil (two known) to prevent them from spreading to other Maine waters.

More information

Please check the Invasive Aquatic Species Program website

http://www.maine.gov/dep/blwq/topic/invasives/index.htm

or email milfoil@maine.gov.

MARYLAND

David Hardin, Restoration Ecological Services, Inc.

No report this issue.

MASSACHUSETTS

Marc Bellaud, Aquatic Control Technology, Inc.

Despite the difficult economic times, the Massachusetts Department of Conservation and Recreation (DCR), Lakes and Ponds Program reports that funding for lake improvement projects in 2009 remains unchanged from last year. Funds are already committed for management programs at over a dozen public lakes.

Aquatic vegetation management efforts to be funded involve mechanical harvesting, hydro-raking, hand-pulling, benthic barrier installations and herbicide treatments. One project is a fluridone herbicide treatment to control *Hydrilla verticillata* at Hobomock Pond in Pembroke. This is only the third documented occurrence of hydrilla in Massachusetts confirmed in the fall of 2008. It is a high-priority project for DCR and they should be commended for their rapid-response effort on this project.

Funding is also allocated for continued education and outreach programs in 2009. DCR plans to continue its boat ramp monitoring program and hire six seasonal educators to staff high use ramps. DCR will also continue its Weed Watchers program that trains volunteers on AIS identification and survey techniques. They are entering the second year of a comprehensive zebra and quagga mussel education, outreach and monitoring program.

One casualty of state budget cuts is the loss of legislative earmarks. Several ongoing AIS management projects will be impacted – including some water chestnut harvesting efforts, which require several consecutive years of complete harvests to be effective. DCR is concerned that this will eliminate all of the progress that was made on those projects over the past several years.

While 2009 looks okay fiscally, DCR is expecting significant budget cuts next year that could cripple their lake and AIS management efforts. There are over 3,000 lakes and ponds in Massachusetts and records suggest that over one-third have aquatic invasive species. Special thanks to Tom Flannery from the DCR Lakes and Ponds Program for providing this information.

NEW HAMPSHIRE

Amy Smagula, NHDES

Despite the economic downturn New Hampshire is continuing to plug along with invasive species initiatives. With the hope that there will be no budget cuts or staff losses to our exotic aquatic species program, the only significant thing we have noticed is the reduction in program income due to the fact that the program is supported through boat registrations fees. Currently, a fee of $5 is charged through each boat registration, which is the sole source of funding for the exotic species program. In 2005 we hit a peak year of registrations (roughly 104,000), and in 2008 with hard economic times and exorbitant gas prices there was an estimated 5-8 percent decline in registrations, which amounted to a loss of approximately $42,000 of program funds. To most this amount seems small, and indeed we should be fortunate that we still have a program and funding (and we are!), but it did result in fewer matching control grants that were able to be awarded (potentially 8-10 control projects left unfunded and not moving forward).

This fall and winter we have been working with the legislature to draft a number of bills to increase program funding, including one with good promise. Our state's Marine Patrol, which is the government enforcement division which patrols our inland waterways, is seeking increases to boat registration fees, including an in-

Continued on next page

crease in fees for the exotic aquatic species program. The bill has passed the house and is working it's way through a finance committee right now. If it passes, we already know that the Senate is eager to work on it and that we have good support in that portion of the legislature. If that bill passes it will mean an additional fee of $2.50 added to boat registration fees (for a total of $7.50 per boat). The funding (an estimated addition of $250,000) will be broken down with roughly an additional $150,000 expected for control projects and another $100,000 for prevention and research related projects. We also have a few other irons in the fire which I hope to be reporting on in the next edition of the newsletter, if they succeed.

Regardless of reduced funds at the moment, we continue to be optimistic for 2009. Gas prices have come down, and though the economy is still bad, it's likely that people with boats will still register and use them (on some level), so revenues, in some amount, will continue to flow in. We have some projects to work on through 2009, and hopefully some of the bills we are working on will pass. In the meantime we will continue to be tough New Englanders, tighten our belts, and push through.

NEW JERSEY

Glenn Sullivan, Allied Biological

The economic crisis has hit New Jersey's Department of Environmental Protection (NJDEP) hard over the last year. So far, the state does not offer any dedicated program or funding for invasives species monitoring, control or education, and with funding reductions, is not expected to do so in 2009. A Statewide Invasive Species Council has been previously formed, but members of this Council report that no activity has occurred. It is likely that this endeavor, along with other newer programs or initiatives has been put on the back burner due to deep budget cuts. The NJDEP staff already works 35 hours on alternate weeks, and now will be furloughed for two days in April and May.

At the NJDEP's annual meeting with Aquatic Pesticide Applicators in January, the Pesticides staff announced their intention to develop an Aquatic Invasives Early Detection/Rapid Response Program for the state. The state's interest in this effort came directly from Pesticides staff member Hollie Ezze's attendance at this past January's 10th Annual NEAPMS Conference in Saratoga Springs. Ms. Ezze plans to seek input from neighboring states with active Rapid Response Plans when creating a plan for New Jersey.

There is some good news on the watershed level in central New Jersey. The Upper Raritan Watershed Association and the Friends of Hopewell Valley Open Space have partnered to create a **Central Jersey Invasive Species Strike Team**. According to the Team's website (www.urwa.org/stewardship/cjisst.html), "This Strike Team represents the state's first comprehensive effort toward invasive plant management through a public-private partnership. (We) are working to find and destroy new populations of invasive species on public and private lands in New Jersey's Highlands and Piedmont regions." Although the Strike Team doesn't cover New Jersey's primary lake regions, they should be able to address many emergent wetland spe-

cies. NJDEP's Division of Fish and Wildlife is a contributing funder of this group.

NEW YORK

Scott Kishbaugh, NYSDEC

The state budget crisis may have significant implications in the management of invasive species in New York State, with greatly reduced tax revenues from Wall Street sending shock waves throughout the state economy. With proposed cuts in the operating budgets and staffing across agency lines, and increased scrutiny associated with spending even in uncut programs, the ability to conduct surveillance, rapid response, and education efforts may be delayed or ultimately compromised.

All spending decisions are dependent upon the results of an ongoing analysis of the EPF (Environmental Protection Fund). Last year's SFY 08-09 Deficit Reduction Budget appropriated $4M EPF for implementing recommendations of the IS Task Force, including eradication grants. This was a reduction from the original $5M. This year's SFY 09-10 enacted Budget appropriated $5M EPF for implementing recommendations of the state Invasive Species Task Force, including eradication grants. This satisfied the original target of $5M. Unspent funds from previous fiscal years have been reappropriated (and are therefore available for use).

In collaboration with the state Division of Budget and other agencies, DEC is working to develop a comprehensive, reliable process that will allow the Agency to smoothly run EPF programs while staying within the fiscal constraints that continue to exist. Now that the budget is largely finalized (recognizing that continuing negotiations between the various levels of government may change the budget around the edges), it will take several weeks before this process can be completed. Decisions about how to spend both previous year and current year EPF cannot be made until the analysis of the budget is complete. Reimbursement for previous year grants and decisions about future grant opportunities depend upon this analysis.

The NY Invasive Species Council will determine how to allocate available moneys once the EPF analysis is complete. Bottlenecks in several key plant management programs may be addressed by this re-evaluation. The slowdown in state spending initiated at the start of the fiscal crisis ultimately affected both the terrestrial and aquatic invasive species grants programs, as well as contracts for continued support of IS management by the eight Partnerships for Regional Invasive Species Management (PRISMs).

PENNSYLVANIA

Jack Hanish, Pennsylvania Lake Management Society

Effect of the Economic Downturn on Pennsylvania's AIS Management Programs:

There is a request from the Pennsylvania Invasive Specie Council to the state legislature's Budget and Finance Committee to authorize an invasive specie economic impact study. There presently is no dedicated line item budget in Pennsylvania for invasive specie activity. Traditionally, Pennsylvania's invasive specie efforts are managed at the department level with funding from three distinct sources; general revenues to designated departments, public sources derived from user fees and certain federal level tax revenues, and grants from various other sources. An exact figure for grant awards could not be confirmed, but a ball park estimate is about $60K over

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the past three years for various AIS applications; such as, signage at boat ramps, educational materials, training, and data support. In deference to our terrestrial bound brethren, the Pennsylvania Department of Agriculture received USDA grants totaling $1.25M for continuing eradication efforts for the Plum Pox Virus and Emerald Ash Borer. The point here is that Pennsylvania relies heavily on both federal and private grant sources to fund their invasive species efforts.

Other late breaking potential funding opportunities may indirectly affect invasive specie issues in PA. A press release from Secretary Vilsack announced funding totaling nearly $12M from the USDA for rural watershed projects and PENNVEST announced the availability of $31M for water quality improvements under the "Green Infrastructure" umbrella to support Dirt and Gravel Road projects in Pennsylvania. These funds became available through the American Recovery and Reinvestment Act of 2009. One might ask what this has to do with invasive species? Trout Unlimited, an organization that has some interest in keeping streams in protected watersheds viable for trout, identified 12,000 pollution sites along dirt roads in the state. My mother told me never to pick up hitch hikers. That's still good advice today.

There is another solid source of funding for invasives in Pennsylvania. The Pennsylvania Fish and Boat Commission and Game Commission are primarily funded through license sales with those revenues staying within those departments. These agencies generated a combined minimum number of 1,800,000 license sales. Leaving some room for non-qualified voters and neglecting supplemental licenses and permits, this represents about 1.7 million adult residents in the environment, who also happen to be voters. This revenue stream seems rock solid, and a little education/outreach could go a long way with this group in helping to prevent and report invasive species.

In addition to the "boots on the ground" mentioned above, there are many County Conservation Districts, state-wide NGO's and institutions that conduct workshops and training sessions for individuals and watershed organizations on a variety of subjects, including identification and control of invasive species. Unfortunately, any invasive specie management support this collective group provides is also not presently measured.

Recognizing the need for enhanced coordination between the state's agencies and other entities to minimize the spread of invasive species and their probable detrimental environmental and economic impact, the Governor of Pennsylvania issued Executive Order 2004-1 that established the Governor's Invasive Species Council. An Aquatic Invasive Specie Plan was then developed, which was approved by the Council, forwarded to the ANS Task Force, and was approved by the Task Force in February 2007. The Council subsequently established the position of Council Coordinator, supported by funds from agencies on the Council, to provide the coordination required by the Governor's Executive Order.

In recent developments, at the Council meeting of April 15, 2009, Pennsylvania's Comprehensive Invasive Species Plan, which includes terrestrial species, was approved by the Council. The AIS Management Plan is a companion document to the Comprehensive Plan. Discussions at the meeting touched on

all the major elements of an invasive specie management effort; namely, prevention, detection, reporting, control, and maintenance. Significantly, one of the Council members reminded the Council that the plan must transition to the task of developing processes and procedures in the implementation phases of the program. Without specifically mentioning 'quality control/ quality assurance' at the Council meeting, recognition of the elements of such a program was evident in the discussions. In other actions, the second draft of the AIS Rapid Response Plan was submitted to the Council for review and comment.

With a paucity of hard data, it is impossible with any certainty to gauge a positive or negative impact on Pennsylvania's invasive species management efforts in the present economic environment. The loss of budget in supporting agencies could be offset with stimulus funds and the general economic downturn could result in more revenues for the Fish and Boat Commission and Game Commission because the sportsmen will probably stay closer to home to preserve budget and others will turn to the less expensive recreational opportunities these agencies provide. Preliminary reports support this trend. In addition, there is a large cadre of troops out there just itching to get to work. All we need is a little more dedicated funding. So far, so good in Pennsylvania.

The information in this report was gathered from agency websites, conversations with agency personnel, agency documents, and other sources. The information presented herein is that of the author and does not represent an official position of any state agency unless the statements are in quotes.

RHODE ISLAND

Katie DeGoosh, Rhode Island DEM (via Lee Lyman, Lycott Environmental, Inc.)

New Infestations and Monitoring

The R.I. Department of Environmental Management (RIDEM), Office of Water Resources confirmed the second recorded infestation of *Trapa natans* in the state in October of 2008. The population is established in a private pond in Foster, 17 miles northeast of the wa-

State updates continued on next page

tershed where *T. natans* was first recorded in 2007. The landowner is pursuing an herbicide treatment to target plants this season, subsequently followed by monitoring and hand pulling new growth. RIDEM plans to stay in contact with the landowner to track progress and is planning a survey of nearby waterbodies this summer.

Please note a correction from the Fall 2008 NOR'EASTER newsletter: Staff from RIDEM Office of Water Resources surveyed 75 waterbodies (lakes, ponds and some large rivers) over two years (2007-2008). The surveys included spot-checking at public access locations for invasive plants. It was found that 73% (55 sites) had one or more invasive plant present; 38% (21 sites) had at least two invasive plant species present; 49% (37 waterbodies) had *Myriophyllum heterophyllum*; and 31% (23 sites) had *Cabomba caroliniana*.

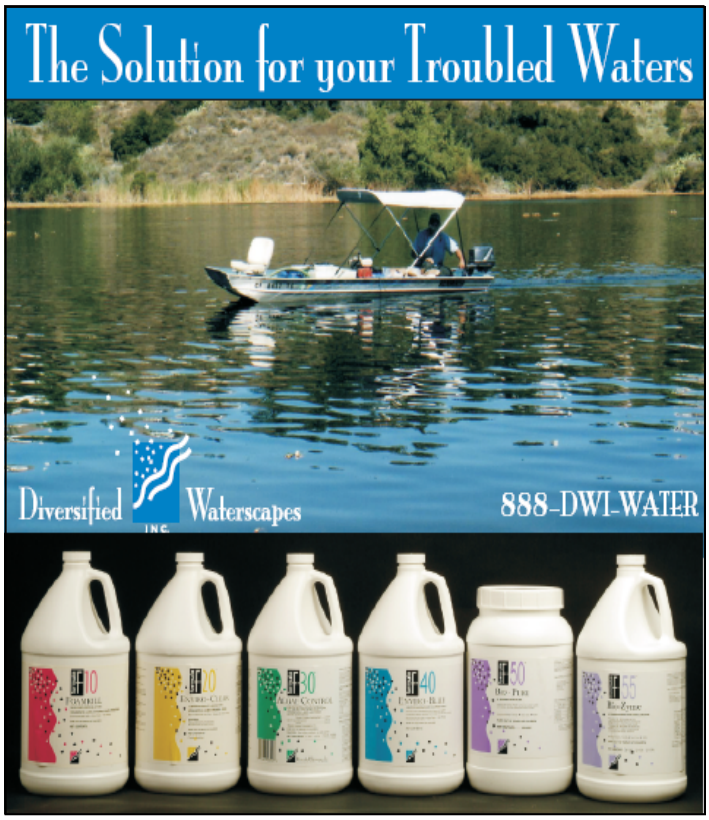
Legislation

In June of 2008, the RI General Assembly passed an act to prohibit the importation, transportation, distribution, introduction, sale or purchase of aquatic invasive plants. Currently RIDEM is drafting a prohibited plant list, with rules and regulations of the prohibition, and hopes to place it into effect later this year. A violation of the ban is a misdemeanor punishable by a fine up to $500 and possible imprisonment up to 90 days. For full text of the bill, see:

http://www.rilin.state.ri.us/billtext08/senatetext08/s2369b.pdf

Policy

The Federal Aquatic Nuisance Species Task Force approved the RI Aquatic Invasive Species (AIS) Management Plan in November of 2007. Developed by the Coastal Resources Management Council with RIDEM, the plan serves as a framework for state government to coordinate AIS management with federal agencies, non-governmental entities and academic institutions. The Plan is also a means to secure federal grants to support state projects that meet the goals of the RI AIS Plan, available online at http:www.crmc.state.ri.us/invasives/RIAIS_Plan.pdf



Please note a correction from the Fall 2008 NOR'EASTER newsletter: Changes in the 2009 RI herbicide permitting process include handling and approval of all herbicide permit applications by the Division of Agriculture, however the Division of Fish & Wildlife and the Office of Water Resources are also still involved in the review of permit applications. After the application has been reviewed by each Agency, comments are compiled by the Division of Agriculture which then issues the approved permits.

Outreach

Throughout the summer of 2008, RIDEM Division of Fish and Wildlife posted educational signs at boat ramps across Rhode Island. This is one of the first efforts by the state to educate the public about aquatic invasives. A copy of the sign can be downloaded here: http://www.dem.ri.gov/programs/benviron/water/quality/surfwq/pdfs/stopinv.pdf. RIDEM hopes to expand its outreach efforts in the future to include more information online.

VERMONT

Ann Bove, VTDEC

Here in Vermont, significant budget shortfalls in the current fiscal year as well as those expected in the next are adding up to job losses and state program eliminations. Statewide, over 200 job cuts within

state government have occurred since June 30, 2008; another 300 positions are currently on the chopping block.

How will these economic shortfalls impact aquatic invasive plant management in Vermont waters? Vermont's aquatic invasive species program resides within the State's Agency of Natural Resources' Department of Environmental Conservation. Currently, the program has not been impacted directly by state budget rescissions – to date anyway. Unfortunately, impacts are expected on some level either by direct position losses, via the position displacement process or thru elimination of state funds for aquatic invasive species management efforts. Impacts should be better understood in May 2009 when the legislature adjourns for the year.

Locally, funds to manage aquatic invasives in Vermont are supported primarily through boat registrations fees. (Almost all Eurasian watermilfoil management projects and aquatic invasive species spread prevention efforts are the result of local initiatives not state-run programs.) While a significant reduction in boat registrations has not been noted, high gas prices and hard economic times may negatively impact this annual revenue source in the near future. The majority of these local programs are run on a shoestring budget with an enormous amount of local contributions - volunteer time and local dollars. Boat registration revenues funneled thru competitive grants to municipalities represent only a portion of these efforts, however, a reduction in state contributions on even a small level could sink many of them.

A comprehensive aquatic nuisance species bill introduced in the second year of the 2007-2008 legislative session and re-introduced in January 2009 was not supported by the current administration, despite having two funding mechanisms for aquatic nuisance species – a sticker for non-motorized vessels and motorboats registered outside of Vermont at a cost of $10 and $20 respectively and an increase in boat registration fees. The administration was unwilling to burden existing state programs with new initiatives or the general public with increased fees during tough economic times.

Despite the lack of administrative support, the bill is not dead. A revised version with the funding mechanisms eliminated was passed by the House and currently resides in the Senate. Since the bill also included a number of other important changes related to aquatic plant management - an expansion of the existing aquatic nuisance transport law that would make the transport of **all** aquatic plants illegal and the creation of a new aquatic species rapid response program - there's a good chance it will now get the support it needs to pass. The bill is not expected to move through the Senate before the session ends but will be in a good position to move forward once the legislative session starts in January 2010. It's important to focus on the positive, right?

NEAPMS Scholarship Recipient Update

The Northeast Aquatic Plant Management Society (NEAPMS) continues to provide scholarship and stipend awards to exceptional students in the field of aquatic plant management. The goal of the scholarship program is to foster research and better understanding of all aspects of aquatic plants and their management.

Most recently a Tufts University Student, Maris Mann-Stadt, completed a field study to evaluate the effectiveness of water circulators in reducing the density and distribution of invasive aquatic plants like Eurasian watermilfoil (*Myriophyllum spicatum*) in a Massachusetts lake. Ms. Mann-Stadt's final report is forthcoming, but in this edition of the newsletter she has provided a brief summary of her findings (pg. 14), and plans to attend the 2010 NEAPMS Annual Meeting to present her findings as either a poster or oral presentation.

The NEAPMS Scholarship Committee has just recently completed a review of three scholarship applications and has decided to fund two of the three projects.

The first proposed by Kimberly Lellis-Dibble from the University of Rhode Island, is entitled "Effects of Plant Invasions on Trophic Transfer, Nekton Fitness, and Aquatic Ecosystem Function in the Northeast." Her research objectives are: 1) quantify changes in food webs when systems are colonized by invasive plants; 2) evaluate the habitat value of reference versus invaded habitat; 3) investigate the long-term, large-scale effects of plant invasions on nekton fitness; and 4) determine the effects of restoration on 1, 2, and 3, above. Ms. Lellis-Dibble is a candidate for a doctoral degree in Environmental Science.

The second project to receive funding is led by a student who has presented at past NEAPMS meetings. Jeremy Farrell is a doctoral candidate at the Rensselaer Polytechnic Institute who is working on adapting hydroacoustic technology to study biological phenomena. Mr. Farrell's research is entitled "Expanding Hydroacoustic Technologies to Accurately Identify and Map Eurasian Watermilfoil and other Aquatic Plant Assemblages." His goal is to develop algorithms in each of these areas to more accurately describe biological functions and communities through the use of hydroacoustics.

NPDES Permits for aquatic pesticides? Not till April 2011!

Many of our members engaged in the use of aquatic herbicides as management tools have been keeping a close eye on the 6th Circuit Court of Appeals this spring. The 6th Circuit has heard the appeal of an earlier decision by the 9th Circuit Court that allowed EPA to rule that a Clean Water Act permit is not required to apply aquatic herbicides or algaecides.

This past January, the 6th Circuit declared that the EPA's decision was not a reasonable interpretation of the Clean Water Act, and vacated the rule, effectively requiring National Pollution Discharge Elimination System (NPDES) permits for all aquatic pesticide applications. Specifically, the three-judge panel said that EPA must require an NPDES permit for any application of pesticides made to, over or near any bodies of water. Although the original suit was brought to tighten restrictions on farmers, the language incorporates all aquatic pesticide applications.

Before this took affect, two things occurred. The EPA asked the Court to "stay the mandate", allowing time for states and the EPA to develop general NPDES permits for aquatic products. Also, industry groups filed for the Court to rehear the case with new information that was provided.

On June 8th 2009, the 6th Circuit Court of Appeals denied the request for rehearing, but has issued a stay of the mandate, to vacate the 2006 EPA Final Pesticide Rule, until April 9, 2011. This means that at this time and until April, 2011, no NPDES permits are needed to perform aquatic pesticide applications. This delay will allow the EPA to work with states to come up with a streamlined process of NPDES permitting. It is expected that some states that have permit programs for aquatic pesticides may already come close to meeting NPDES requirements.

Use of Upflow Water Circulators for Managing Eurasian Watermilfoil in Lake Cochituate (eastern Massachusetts)

A Report by
Naomi Slagowski, Maris Mann-Stadt, and John L. Durant
Department of Civil & Environmental Engineering , Tufts University , Medford, MA 02155

Summary

Eurasian watermilfoil (*Myriophyllum spicatum*, milfoil) is an invasive submerged aquatic macrophyte that was first identified in Lake Cochituate, a three-basin lake in eastern Massachusetts, in 2002. Milfoil and is now established in all three basins, with the heaviest growth (50-75% coverage in beds along the shoreline) in Middle and South Ponds.

To help manage milfoil growth in Lake Cochituate, upflow water circulators – an alternative to conventional mechanical, chemical and biological control measures – were deployed. Upflow circulators have been used in lakes and waste-water ponds to control cyanobacteria, and there is anecdotal evidence that they can reduce milfoil growth. We hypothesized that vertical circulation increases delivery of well-oxygenated surface waters to the sediments thereby promoting sediment oxygenation, and conversion of ammonia, the preferred nitrogen source for milfoil, to less utilizable, oxidized nitrogen species. Our objectives were to determine if water circulation reduced milfoil biomass in plant beds, and whether circulation significantly changed water column and sediment pore-water nutrient levels.

Two upflow circulators were used between October 2006 and October 2008, one in the South Basin and one in the Middle Basin, in areas with moderate-to-heavy milfoil cover. Measurements of physical and chemical parameters in the water column and sediment pore water, as well as milfoil density, were made before the circulators were installed in August and September 2006 and throughout the growing season (May – October) in 2007. Surface water quality and milfoil density measurements were also made monthly from May to October in 2008. Measurements included temperature, pH, conductivity, dissolved oxygen, chlorophyll-*a*, Secchi depth, total dissolved phosphorus, ammonia, nitrate and nitrite, total dissolved iron, total suspended solids, turbidity, and alkalinity.

Our results show that there was no apparent change in milfoil abundance or distribution in the study areas of Middle Pond and South Pond over the course of the investigation. Some seasonal changes in milfoil growth were observed but these did not appear to be attributable to the action of the circulators. Likewise, changes in sediment pore-water ammonia and nitrate levels did not appear to be due to the circulators. The sediment pore water at all four sites was generally anoxic (dissolved oxygen levels were <1 ppm) on all measurements dates. Pore-water ammonia levels generally increased with sediment depth on all dates at both sites in each basin. Ammonia levels exceeded 1 ppm at most sediment depths, a level that is well in excess of published thresholds to support milfoil growth. Pore-water ammonia levels increased throughout the growing season, but by September the levels dropped sharply (presumably due to uptake by macrophyte roots) in both the Control and Experiment sites in each basin. Nitrate levels in the pore water also did not show differences between Control and Experiment sites in either basin. Like ammonia, a seasonal nitrate increase was observed at all sites, followed by a decrease at the end of the growing season, presumably due to uptake by rooted macrophytes. Pore-water phosphate levels did not exhibit any discernible temporal or spatial variations in either basin.

In the water column there were no apparent differences in temperature, dissolved oxygen, pH, conductivity, or chlorophyll-*a* between the Control and Experiment sites in the two basins on all sampling dates. Changes in some of the parameters (e.g., temperature and dissolved oxygen) appear to be due to seasonal effects. Ammonia, nitrate, total dissolved iron, alkalinity, and turbidity were also generally indistinguishable between the Control and Experiment sites on all measurement dates.

Our results in Lake Cochituate show that after two years of circulator use, there was no measurable change in milfoil extent or abundance within the study areas of the lake. These findings suggest that in anoxic sediments where oxygen mass transfer from the water column is limited by diffusion and quickly used up by biochemical reactions in the sediment, milfoil tends to thrive despite the action of upflow circulators.

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glenn@alliedbiological.com

Northeast Aquatic Plant Management Society

Northeast Aquatic Plant Management Society
P.O. Box 142
Chester, New Jersey 07930

Opportunities/Upcoming Events/Resources

49th Aquatic Plant Management Society Meeting
Milwaukee, WI
July 12-15, 2009
www.apms.org

North American Lake Management Society
Ensuring Our Lakes Future
29th Annual International Symposium
Hartford, CT
October 27-31, 2009
www.nalms.org

South Carolina Aquatic Plant Management Society
Clemson University, SC
August 12-14, 2009

Northeast Aquatic Plant Management Society
11th Annual NEAPMS Conference
Gideon Putnam Resort
Saratoga Springs, NY
January 18-20, 2010
www.neapms.net