

Two Interns, Two Kayaks, and 2,133 Acres of River

Alison Field-Juma and Sue Flint

More articles about water chestnut, you ask? Well, we're stepping up our game and we wanted to tell you about it.

This summer two OARS interns, David Monti of Hudson and Matthew Cheever of Carlisle, paddled the length of the Assabet, Sudbury and Concord Rivers to map the full extent of the water chestnut (*Trapa natans*) invasion of our rivers and several ponds. Both interested in careers in environmental management, Matt and David got to know our rivers in sun and rain. The mapping started up in May, and despite



Summer interns, David Monti and Matt Cheever, in Saxonville.

very high June water levels, finished up by early August. On August 8, David and Matt joined 17 OARS volunteers in Saxonville, Framingham to tackle one of the large patches they had discovered.

This is the first time the water chestnut has been mapped on the Sudbury and Concord Rivers, and their work provided a second year of data for the Assabet. The results? Of the 2,133 acres surveyed, 3.7% had moderate to heavy density of plant coverage, 20.3% had emerging or light-moderate density coverage, and 76% had no water chestnut. You can view the maps at www.cisma-suasco.org.

We can draw several conclusions from the survey results. First, the Assabet mapping showed that data collection over several consecutive years is a must. In the sections of the Assabet that were harvested last year, one area had less water chestnut (yea!) and one had more (boo!). Clearly, we need a better understanding of water chestnut biology and a longer-term mapping effort to track the impact of control measures.

On the positive side, there was no water chestnut infestation above the Hudson impoundment (upstream of Rte. 85) on the Assabet. But the fact that it is spreading into other areas where it has not previously been recorded, on all three rivers, is of concern. For example, the plant is now growing all along the shorelines of the Concord River below the large infestation in North Billerica at the Talbot Dam impoundment. A rapid response is needed where these small populations are taking root due to the large number of nutlets produced each year. Although it is an annual, the nutlets can remain viable for up to 12 years.

Lastly, there is a large infestation on the Sudbury River in Saxonville (Framingham) upstream of the Wild & Scenic section where the US Fish & Wildlife Service has been working for years to control it with mechanical harvesting. There are roles for all stakeholders to get involved in supporting control efforts in Saxonville. OARS has been meeting with the

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Managing our Three Waters

"Sustainable water management" means many things to many people. What exactly does "safe yield" mean when it comes to figuring out how much water can be pumped out of a municipal well for us to drink and bathe in? For decades in Massachusetts "safe yield" was interpreted to mean that the well and the water system it supplied were reliable, able to keep supplying without going dry. But for some people that missed an important point. What if pumping a well meant that a stream or river went dry—was that still "safe"? NO, said the Superior Court, in a

landmark ruling on the case of the Ipswich River, brought by the Ipswich River Watershed Association and Essex County's land trust in 2003. The Court ordered the Department of Environmental Protection (MassDEP) to determine the "safe yield" of the Ipswich River.

The Sustainable Water Management Initiative (SWMI, aka "Swimmie") was the state's response to the case. It was a three-year process involving water suppliers, river advocates, and many others, steered by the State's Executive Office of

Energy and Environmental affairs (EEA). The result of that hard work—and ask anyone involved, it was hard—was the SWMI Framework adopted in 2012, and the forthcoming revised regulations of the Water Management Act.

SWMI will kick in for the Sudbury-Assabet-Concord watershed in August of 2015 when all the water withdrawal permits issued by the state expire. Permits are required for any withdrawal over 100,000 gallons/day from a well or surface water,

SWMI page 6

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Protecting, preserving, and enhancing the Assabet, Sudbury, and Concord Rivers, their tributaries and watersheds for the purposes of public recreation, water supply, and wildlife habitat.

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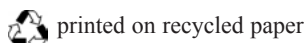
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Tackling the spiny devil

I generally try to avoid demonizing my enemies, but I think I've got support on this one.

Water chestnut (*Trapa natans*) grows vigorously in our rivers and ponds, blanketing the surface and blocking sunlight, creating extreme swings in the amount of dissolved oxygen in the water. The result is an environment that is severely degraded and won't support our native fish or other wildlife. Much to the dismay of boaters, neither canoes nor kayaks nor even motor boats can get through the clogged waterways. Swimmers can't even contemplate it. I have yet to hear of anyone around here eating the chestnuts. A related species, *Trapa bicornis*, is eaten in Asia where it is known as water caltrop or buffalo pod (or devil pod).

The only redeeming feature of the water chestnut, as far as I can tell, is that it may crowd out other invasive plants. That is not enough to make me embrace it.

But there is a sunny side to this dark story. Water chestnut is an annual, growing anew each year from the spiny chestnuts that sink into the sediment. Unlike milfoil, it doesn't spread from fragments, so consistent and thorough harvesting can knock down an infestation within a few years, no chemicals needed. This Newsletter's cover article relates the exploits of our dedicated water chestnut mappers, volunteer harvesting teams, and our watershed-wide plans for our spiny "friend."

Some of our readers are themselves tackling water chestnut in their own towns and have met with notable success. Three cheers for them, and for the dedicated efforts of US Fish & Wildlife staff at Great Meadows for their decades of work on this problem despite a shrinking budget! It will take collaboration among local, state and federal governments, river users, property owners and community organizations to meet this challenge now and in the long run.

We hope you enjoy this Newsletter, which reflects the broad support we receive from our members, volunteers, local businesses and corporations, partner organizations, and scientists and policy-makers throughout the state and country. We are grateful to them all, and especially to you.

Very truly yours,

Alison Field-Juma



Remembering OARS in your will and estate planning

OARS has been protecting the natural resources of our watershed for more than 25 years, thanks to the help of your generous donations and volunteer hours. How will we protect it in the future? One way is to ensure the sustainability of OARS and its programs. We hope that you will consider including OARS in your will and estate plans. If you would like more information on including OARS in your estate planning, please contact me at afieldjuma@oars3rivers.org or (978) 369-3956.

Views of our watershed by local photographers

We are happy to announce that 27 photographers submitted a total of 90 photos to our 2013 Photo Contest. Thank you to all who entered photos.

Best overall winner: Raj Das (*Framingham*)

Other winners: Peter Burke (*Bedford*)

Thomas Cooper (*Wayland*)

Wayne Hall (*Sudbury*)

Dave Hansel (*Somerville*)

Art Illman (*Maynard*)

Sharon Tentarelli (*Sudbury*)

Jim Wojno (*Lincoln*)



Goslings at Great Meadows, *Peter Burke*

Special thanks to our judges Roberta Boylen, Carl Calabria, and Steven Gabeler. We also thank Stephen Gabeler for printing the photos, Frame-ables in Concord for framing our winning photo, and ArtScape for hosting our reception and photo exhibit. All winning photos are on exhibit in the ArtScape Gallery at the Wheelhouse (43 Bradford Street, West Concord) from December 4 through January 8. They can also be seen at www.oars3rivers.org



Congresswoman Niki Tsongas included our 27th Annual Cleanup in her River Day 2013 tour. After working alongside volunteers, she joined our pizza celebration and presented Certificates of Congressional Recognition to long-time OARS volunteers: Mike Duclos, Marty Moran, Dick Lawrence, Paul Goldman, and Allan Fierce (*not present*).

Top: This was the 10th season of our Water Wise Workshops! Education Coordinator Bill Froberg and summer interns Chelsie Vokes and Rachel Urso offered the series of six workshops in Westborough and Natick, and partnered with the Framingham and Hudson Boys and Girls Clubs to offer them in Framingham and Marlborough.

Bottom: Responding to popular demand, OARS offered a Family Water Sampling Workshop for children ages 5 to 10 and their parents. This free hands-on workshop gave families a chance to experience science in action! Participants measured pH, dissolved oxygen, temperature and turbidity and learned what makes a healthy river for our fish and other wildlife.

These workshops were made possible thanks to support from Intel.

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Framingham Conservation Commission to help the permitting process get underway.

The mapping helped us pinpoint where to focus our volunteer harvesting efforts. Volunteers carried out four water chestnut pulls over the summer—three on the Assabet River in Stow and one on the Sudbury River in Framingham. We owe many thanks to Allan Fierce for organizing the Stow pulls, and to Dick Lawrence, Tom Largy, Bob Collings, Honey Pot Hill Orchard, Stow Acres Country Club, and Sudbury Valley Trustees for help in hauling and/or disposing of the weeds. Canoes were donated by Charles River Canoe & Kayak, Laurie Ullmann and the Acton Boy Scouts, and Pat Conaway. And we give special thanks to the 48 volunteers who worked many hours pulling and hauling. They are generally the ones in the photos who are wet and muddy!

We are now working on finding funds to support research, watershed-wide water chestnut control planning, and mechanical harvesting of priority areas in 2014. As water chestnut is becoming a problem state-wide, there are opportunities to direct more state resources towards its control. OARS Board member Allan Fierce testified at the Environmental Bond Bill hearing on Beacon Hill this summer to ask that more funds be directed to invasive aquatic plant control.

In 2014 OARS will be working closely with Conservation Commissions, local landowners, the SuAsCo Cooperative Invasive Species Management Area (CISMA), and other local groups already working on water chestnut control on the Sudbury River and many local ponds. There is no doubt that it will take a team effort.

We are grateful to CISMA, a partnership of 41 non-profits and local, state and federal governments, for funding the mapping project as part of the river restoration plan funded under the Nyanza Superfund site in Ashland. We thank REI for a grant to support the water chestnut pulling, involving volunteers in this critical stewardship activity.



Maps of water chestnut density in our rivers, July 2013.
Top: Saxonville, in Framingham on the Sudbury River.
Bottom: Gleasondale, in Stow on the Assabet River.



Volunteers hand-pulling water chestnut this summer.

Left: Saxonville on the Sudbury River. *Right:* Stow on the Assabet River

OARS gratefully acknowledges our 27th Annual River Cleanup sponsors, donors and volunteers!

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Stow Highway Department

Thanks to our site leaders, scouts, and boat haulers:

Ray Andrews, Don Burn, Dave Cole, Pat Conaway, Mike Duclos, Bill Fadden, Bill Froberg, Carolyn Gouchoe, Jim Hawks, Dick Lawrence, Marty Moran, Priscilla Ryder, Katrina Scheiner, Drew and Kathy Simmons, Pete Tobin, and Laurie Ullman.

Thank you to the following teams:

Acton-Boxborough High School, AMC-Worcester Chapter, Big Heart Little Feet, Capaccio Engineering, Concord High School, Hudson Stop & Shop, Intel, Maynard High School, McAuliffe Charter School, Westborough High School, and the Wayland Seventh-Day Adventist Church.

Thank you to all who participated in this year's cleanup!

Visit www.oars3rivers.org and search "cleanup" for more photos.



covering most municipal water supplies, as well as many farms, golf courses, and industries. The big change is that permittees will need to fully analyze their efforts to reduce water use, look at ways to minimize the impacts to surface water, and in many cases, develop and implement projects that will make up for the negative effects of an increased water withdrawal.

Practically speaking, that last feature, known as “mitigation,” does a wonderful thing. It links drinking water withdrawals with stormwater and wastewater management—managing all three “waters” together. In past issues of this Newsletter we have talked a lot about restoring the water balance. The Massachusetts Water Policy, issued back in 2004, emphasized measures to “balance the water budget.” That is difficult if you don’t look at these three waters as part of a single system.

Since its founding 26 years ago, OARS has focused on the pollution from wastewater discharged into our rivers. Communities have invested a lot in cleaning up that wastewater before it is discharged, but it still contains hundreds, if not thousands, of chemicals that natural “clean” water would not contain. There have been tremendous advances in the technologies available to treat and reuse wastewater as “greywater” for toilet flushing, cooling, subsurface irrigation, or for discharging back into the ground.

Sewer system expansion, one of the “enablers” of sprawl, can be reduced with new and innovative household or neighborhood-sized wastewater treatment and discharge into leach fields. Several of our towns, including Sudbury and Littleton, are considering “spot” or “smart” sewer-ing their commercial districts or town centers to allow economic development and deciding not to expand those sewers into residential areas. There are many large developments that treat and recharge their wastewater into the ground, such as Highland Commons in Hudson, thus keeping water local and reducing demands on the town’s municipal system.

Stormwater runs off the ever-expanding parking lots, roofs and roads, and carries pollutants into our streams unless these features are designed (or redesigned) to capture, clean and “recharge” our groundwater. The more stormwater is encouraged to soak into the ground, the more it can feed clean water to our wells and streams (and reduce flooding too)—helping to remedy the water imbalance.

While the SWMI Framework is complicated, to say the least, it will help everyone take a deeper look at the myriad of ways that our three waters work together—so that we can keep them all flowing. OARS looks forward to working with our communities as they navigate the permit applications and consider the most cost-effective ways to have sustainable and safe yields.

Nashoba Brook Stormwater Recharge on the Web

OARS has completed a project with Acton, Westford, Littleton and Concord to identify opportunities to recharge stormwater to make Nashoba Brook cleaner and protect its streamflow. The Nashoba Brook watershed drains from Westford and Littleton through Warner’s Pond in Concord into the Wild & Scenic section of the Assabet River and suffers from low flow. The project, funded by a Supplemental Environmental Project by the Quail Ridge Country Club, mapped and prioritized recharge areas in the watershed for municipal use, compiled local stormwater-related bylaws, and conducted streamflow and water quality monitoring. To learn more about the project go to: www.oars3rivers.org/our-work/stormwater/SEP. To learn how to build a raingarden go to: www.oars3rivers.org/our-work/stormwater/LID.



Junction Park in West Concord with recharge system and interpretive sign supported by the Intel Assabet Groundwater Recharge Fund.

A big hand to our volunteers!

Senator Jamie Eldridge, Scott Horsley, Paul Kirshen, Janot Mendler de Suarez, Pete Shanahan and Bob Zimmerman for presenting at our Climate Disruption Forum.

EJ Labb for emceeding our Wild & Scenic Film Festival. **Judy Bennett, Jeff Collings, Aliza Edwards, Bill Froberg, Dave Griffin, Carol Kyte, Debbie Listernick, Dottie MacKeen, and Marty Moran** for helping with film selection, advertising, and everything else that made our Wild & Scenic Film Festival a huge success.

Bill Froberg, Paul Goldman, and Ingeborg Hegemann for reviewing projects and judging presentations, and **Jessie Steadman** for mentoring students for the Intel-OARS Environmental Innovators Contest.

Paul Goldman and Ingeborg Hegemann for leading an Innovation Workshop for high school students.

Carol Kyte, Bettina Abe, Marty Moran, Dottie MacKeen and Chelsie Vokes for representing OARS at community festivals and RiverFest.

Aliza Edwards, Win Edwards, Carol Kyte, Bette Pounders, Dottie MacKeen, and Marty Moran for helping with our mailings.

Aaron Bembenek, Beth Gula, Steve Kundrot, Fred Yen, Ray Nava, and Bruce Osterling for surveying our trout streams.

Sharon Adams, Nancy Allison, Brian Blake, Bev and Malcolm Bryant, Rad Decker, David Downing, Lisa Fierce, Claude Guerlain, Doug Johnson, David and Enid Karr, Jason Kopperschmidt, Adam Last, Jeff Lowe, Azusa Matsubara, Bruce McGarry, Michal Mueller, Diane Muffitt, Len Rappoli, Pam Shields, Andrea Pincumbe, Joanne Ward, and Fred Yen for getting up early to gather samples to test the water quality of our rivers.

Madi Bode, Liana Edwards, Emma Reichheld, and Morgan for surveying recreational users of our rivers.

We also wish to thank all **150 volunteers** who participated in our annual river cleanup and **48 volunteers** who helped pull water chestnut from our rivers.

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- If your employer has a matching gift program, please include the company's form.
- Your membership dues are tax deductible and include a subscription to the *OARS Newsletter*.

Thank you for your support!

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OARS is your local river conservation organization. Established in 1986 to protect the Assabet River, OAR added the Sudbury and Concord Rivers to its mission in 2011 and became OARS.

OARS has over 900 members, a dedicated board of directors, a small professional staff, and a large corps of active volunteers. Our work benefits all communities in the Assabet-Sudbury-Concord watershed.

Please visit us at www.oars3rivers.org

Get connected to the latest news affecting our rivers. “Like” us on



Assabet-Sudbury-Concord Watershed

