

Coal Tar Sealants—Sudbury Takes the Lead

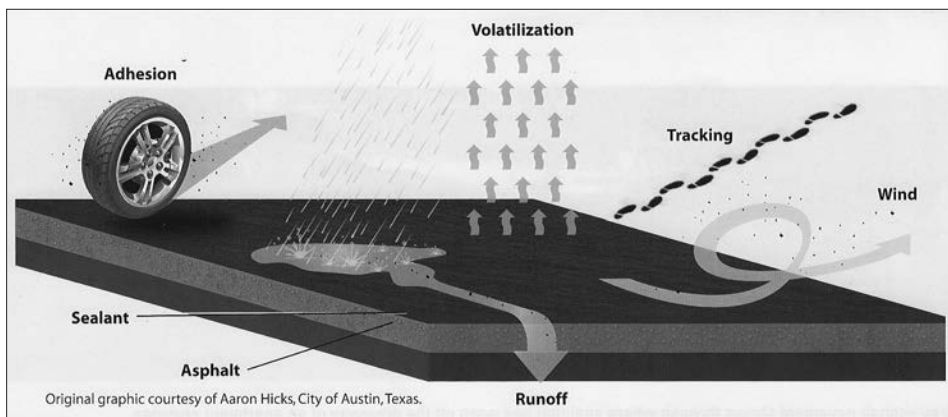
Debbie Dinneen, Conservation Coordinator, Sudbury

Driveway sealant, also known as sealcoat, has been used for more than 50 years.

It is marketed to keep driveways and parking lots from cracking, and to restore that smooth black look. Industry representatives say that their products are safe but recent studies by the U.S. Geological Survey (USGS), Baylor University, the U.S. Environmental Protection Agency (EPA), and University of New Hampshire indicate otherwise. These studies all show that coal-tar-based sealants contain high levels of toxic

compounds called PAHs (polycyclic aromatic hydrocarbons). According to USGS: “Parking lots and driveways with coal-tar-based sealcoat have concentrations of PAHs hundreds to thousands times higher than those with asphalt-based sealcoat or no sealcoat.”

PAHs are toxic to fish with a number of the compounds deemed hazardous to humans and are probable human carcinogens. These compounds are known pollutants to waterways. The sealant wears off driveway or parking lot surfaces and the PAHs enter our homes as a dust. This dust can be inhaled and be tracked inside on our shoes. When it rains, the stormwater carries the PAHs into our rivers and streams via the storm drains.



Two types of sealant are available—those containing asphalt and those containing coal tar. Which one you choose makes a big difference. Coal tar is a by-product of coke ovens used in the steel manufacturing industry. Coal-tar-based sealants contain 20-35% coal tar pitch; coal tar pitch contains 50% or more PAHs by weight. The alternative, petroleum (asphalt) based sealants, contain only 0.7% PAHs and use very little or no coal tar. Petroleum-based sealants are not without environmental consequences but are not nearly as toxic as the coal-tar-based products.

It is for these reasons that the Town of Sudbury has adopted wetlands permitting conditions and stormwater bylaw regulations

Coal Tar, page 4



U.S. Secretary of the Interior Sally Jewell joined Congresswoman Niki Tsongas to celebrate her 9th Annual River Day. OARS' staff and volunteers paddled them from the Lowell Road boat launch to the Old North Bridge in Concord for ceremonies with young environmental stewards and students from Lawrence, MA.

OARS

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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Out and about with map in hand!

I have finally come to accept a simple fact—there is no “quiet” time at OARS! Our field season kicked off with the Earth Day parade and RiverFest to welcome spring and summer on our rivers. Nipping on the heels of these celebrations were intensive efforts to remove invasive water chestnut, monitor water quality and map biomass to track our progress towards having fishable and swimmable rivers once again. Our education program brought excitement to children, interns, teachers and parents alike as the next generation of river stewards got their feet wet in watershed science. Now the fall whirlwind has struck with several new projects up and running.



The big summer news was the completion of our Assabet River Recreation Guide—a map in both paper and waterproof versions, and on-line too! Over the course of a year, OARS staff and volunteers surveyed the put-ins, met with every conservation department along the river’s length, collected and compiled multiple GIS layers, and worked with an excellent map-maker. The map shows the links between river access and land-based hiking and biking trails and conservation areas, where to park, and more.

We launched the map with a lovely July paddle with the Press and a small flotilla of canoes and kayaks in Concord, and again in Hudson. We followed that with an all-out effort by our summer intern, staff and volunteers to get the free paper map to 38 outlets up and down the watershed—local libraries and town halls, EMS and REI stores, the wildlife refuges and even AAA! The waterproof map is available upon request. You can access the Google-based on-line map here: oars3rivers.org/river/recreation.

We are very grateful to the Fields Pond Foundation, REI, Foundation for MetroWest, and the Michele Monjeau Memorial Fund for their support. Extra special thanks are due to OARS Board member Don Burn for his dedication to the survey. Next stop—the Sudbury River map!

This fall we were honored to escort U.S. Secretary of Interior Sally Jewell on a paddle on the Concord River upstream to Egg Rock and downstream to the North Bridge, as part of Congresswoman Niki Tsongas’s annual River Day! The two VIPs were greeted by 30 fourth graders from Groundwork Lawrence, who were then treated to a Water Wise Workshop developed just for them by OARS.

With such an eventful summer and autumn, what will winter bring?

Alison Field-Juma
Executive Director



Photo: Art Illman/MetroWest Daily News.

Search and Extract!

Derek Koundakjian

“Just around this corner,” I repeated as my partner, John, and I maneuvered the many inlets and outlets of the Assabet River in our canoe. “Is that one?” I asked as we approached a foliated patch of water. “Nope,” John answered as we got a closer look. “Let’s keep going,” I said, as the sun drifted another degree towards the horizon. We spotted another area of floating greenery, “I have a feeling there’s some up ahead.”

My task as part of the OARS Rapid Response Team included the search and extraction of the invasive water chestnut, but the experience yielded much more than that. It was astounding to see such an extensive invasion, and how visibly a plant can impact an ecosystem. But as we returned each day to harvest, we noticed the water beginning to flow with more ease. It was not long before the sun glared off ripples and waves instead of chestnut rosettes. Although our backs ached after four or five hours of paddling and our arms grew tired pulling up roots from what felt like the entire river floor, it was satisfying to see the fruits of our labor.

There were hazards and difficulties: my typical day included capsizing, trekking through mud, avoiding leeches and snapping turtles, and enduring the summer heat. But the cons were minor in comparison to the relationship I was building with the river. Locals whom we met along the way shared with us a piece of their river knowledge, and after our month and a half of daily travels, we had learned what the river once was and what the river has become.

What I got out of this experience was a stronger bond with the river, and a heightened sense of stewardship. I will carry a similar attitude from now on, and even when I’m not in a canoe,



Summer Rapid Response Team: Derek Koundakjian and John Carter.

I’ll remain vigilant for litter and invasive specimens harming the rivers. The river doesn’t judge, but it reflects back on us. And we owe it to ourselves and our fellow creatures to keep the rivers clean. When I look back on this experience, I will remember how my perspective changed, and how my efforts made a difference to the well-being of the rivers that flow through our towns.

Derek Koundakjian is a sophomore at University of Connecticut majoring in Environmental Studies. A native of Bedford, Mass., Derek plans to go to law school to study environmental law. Thanks to his work with team member John Carter, and the efforts of volunteers, the Assabet River ended the summer nearly clear of invasive water chestnut plants for the first time in years. This project was supported by an environmental penalty payment under the federal Clean Water Act.



Educating future river stewards through our Water Wise Workshops. Workshops were offered to the public in Natick and Westborough and in partnership with the Hudson and Framingham Boys and Girls Clubs, and to students from Lawrence at the Old Manse in Concord as part of Congresswoman Tsongas’ River Day.

Coal Tar, page 1

banning the use of coal-tar sealants within areas subject to wetland jurisdiction and on sites where a local stormwater management permit is required. This includes any repaving or resurfacing projects that exceed 500 sq.ft. In Sudbury, as is the case in many of our surrounding towns, we depend on public or private groundwater wells for our drinking water. Reducing the amount and type of pollutants, including PAHs, that enter our groundwater and surface waters is important for the health of all our human, fauna, fish, and avian residents.

Is that black driveway really worth the harm? To help keep your family and the local wildlife safe, before sealing your driveway hire only a contractor who provides a MSDS (material data safety sheet) for the intended product. Check to see that it does not contain this CAS number for coal tar: 65996-93-2. If doing the work yourself, buy only products with a “coal tar free” logo.

To learn more:

Coal-Tar-Based Pavement Sealcoat, Polycyclic Aromatic Hydrocarbons (PAHs), and Environmental Health, *USGS Fact Sheet 2011-3010*, Feb. 2011 (pubs.usgs.gov/fs/2011/3010/pdf/fs2011-3010.pdf).

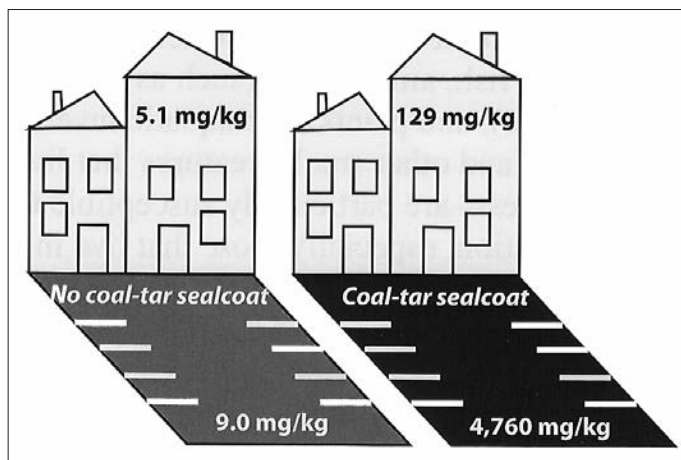
Pavement Sealcoat a Source of Toxins in Stormwater Runoff, UNH (seagrant.unh.edu/news/pavement-sealcoat-toxins).

New Water Management Regulations Look at the Whole Picture

By now, all of the communities in the SuAsCo watershed with public water supplies have submitted their application for water withdrawals to the state. Commercial enterprises, like orchards, golf courses, and industrial users, and institutions likewise. Anyone withdrawing over 100,000 gallons per day, whether from surface waters or groundwater wells, needs a new 20-year permit.

The permitting process by MassDEP, is different this year due to the 2014 revised regulations that resulted from many years of work on the Sustainable Water Management Initiative. The new approach for the first time looks at the three types of water use that is subject to permits—stormwater, wastewater and drinking water—all together. This is good news—the silos are being broken down! The permitting process aims to minimize the negative impacts of water demand by requiring greater water use efficiency and provides for mitigation through stormwater and wastewater recharge, conservation and education measures, and improvements to waterways by removing dams, among other things.

Finally we have rules that recognize that water is like a bank—you can't take out what hasn't been put in. If you looked with dismay at the low water levels in the rivers and ponds this summer and fall, the brown lawns and crinkly tree leaves, you may have wondered how changing weather patterns affect our water supply. News from California has been dire, to say the least. What about Massachusetts? By late September the Sudbury River was down to a trickle, and was difficult to float a kayak in much of the Assabet. The only benefit was that we were able to see a lot of the bottom-dwelling trash for the River Cleanup!



Apartments with coal-tar-based sealcoat on the parking lot had much higher concentrations of PAHs than apartments with an unsealed asphalt or concrete parking lot or with a parking lot with asphalt-based sealcoat. (*USGS Fact Sheet*, February 2011)

The short answer is that wells depend on the groundwater table, which started this spring lower than normal due to less precipitation and recharge in the spring than usual. From March through August, Central Massachusetts experienced below normal rainfall in every month except June. May saw only 23% of normal. The trend towards increasingly intense rainfall reduces the amount of groundwater recharge that can occur as more of the stormwater just runs off and out to the ocean. Reservoirs are better at collecting storm runoff from heavy downpours, but still need the total rainfall to be near “normal” levels.

It remains to be seen what the new water withdrawal permits for the Concord basin will look like. This spring OARS worked with the Town of Westborough and Abt Associates to model Westborough's water supply system and options to increase its sustainability. We also provided a training workshop for all central Massachusetts permittees on the new tools and data sources they can use to meet the new application requirements. Some good news is that every community has reduced their per capita residential water use—most now fall below the statewide standard of 65 gallons per capita per day.

Will the new permits make a difference in balancing our water needs and the needs of our streams and wildlife? Will they result in more efficient water use? Will our communities support restrictions on private irrigation wells, or the water rate increases necessary to invest in a more efficient system? We will be working over the coming year to ensure that the permits do as much as they can to promote a sustainable use of our precious water resources. Stay tuned!

Good Choices—One Person Making a Difference in Plastics Pollution

Alison Field-Juma

There was a saying that the names of new housing developments reflected the resource they had just destroyed—think “Laughing Brook Apartments.” I was reminded of this at the office as I washed my hands and regarded the liquid soap bottle picturing a pretty aqua-colored water lily, feeling a slight grittiness on my fingertips. I’d just read a report on microbeads. I looked at the list of ingredients—no “microbeads.” Whew—must be apricot kernels. With a little more research I found I should be looking for plastic—polyethylene or acrylate polymers—in the ingredients. And there it was. Marketing genius, but a disaster for aquatic life.

Where I work, our treated wastewater goes directly into the Concord River, a federally-designated Wild & Scenic River with significant fish populations much loved by anglers and a major national wildlife refuge. The Assabet River, which contributes about 50% of the Concord River’s flow, has four major municipal wastewater treatment plants, discharging some 15 million gallons a day. Wastewater treatment is not effective at removing these miniscule particles (5µm-1 mm). Microbeads are not just plastic pollution. Toxins are adsorbed onto the surface and are transported into the bodies of aquatic life, such as the gills of fish, and into the food chain. Imagine those beads floating about in the air, how we would feel taking each breath.

Roughly 8 trillion microbeads are poured into aquatic habitats across the United States every day (*Environmental Science & Technology*, 2015). They are added as abrasives and fillers in soaps, cosmetics, toothpaste, and cleaners. Another 800 trillion microbeads end up in sludge from sewage plants, after which it’s frequently spread on land as fertilizer. From there, runoff from rain can bring it to waterways. This is plastic pollution pure and simple.

Our office is in the Bradford Mill in West Concord, a lively innovative workspace for individuals, artists and companies, with an emphasis on community and sustainability. The three old nearly-derelict wooden mill buildings were recently brought back to life by owner John Boynton. Like him, many developers are now taking a more sustainable approach in designing their projects.

I cautiously raised the issue of the microbeaded soap with Tatiana Murnikova, the Mill’s Property Manager and Concierge. Her immediate response was “I would be happy to have our cleaners switch” if I gave her a list of alternatives for bulk purchase. I was thrilled when, just a few weeks later, new soap appeared that was plastic-free. With a population of more than 120, the Mill goes through a lot of hand soap every day, headed directly down the drain.



Tatiana Murnikova at the Bradford Mill’s Wheelhouse.

Tatiana’s response is the right one: it is a choice we can make to do the right thing. From toothpaste to facial scrubs, cosmetics and soaps, when we go to the store—or even more importantly, if we are in charge of bulk purchasing for a company or institution—take the time to check the ingredients. Plastic microbeads are banned in California and Illinois and other states near the Great Lakes; Unilever is phasing them out by 2015, and L’Oreal will do the same by 2017. But we can take action now without waiting for a ban. There’s even an app for that (Beat the Microbead.org). After all, just think how many microbeads will enter our rivers if we wait another two years. The power is in our hands.

Additional reading:

Environmental Science & Technology, 2015, 49:10759–10761. (bit.ly/1JVo2PO)

New York Times, 5/22/15. (nyti.ms/1dqw2Ay)

WGBH Nova, 10/8/15. (to.pbs.org/1OoMWhh)

Originally published in *The Concord Journal*, October 29, 2015.

“The probability of risk from microbead pollution is high, while the solution to the problem is simple.” Env. Sci. & Technology, 2015

Thank You to Our 29th Annual River Cleanup

Sponsors, Donors and Volunteers!



Saturday, September 19th was an incredible day for our rivers! More than 200 volunteers came out to make a difference in their communities. Mountains of trash were pulled from the rivers and their banks in towns up and down the Assabet, Sudbury, and Concord Rivers. Thank you to all who participated! *Visit www.oars3rivers.org and look under 'events' for more photos of the cleanup.*

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Marlborough: Bertucci's at Solomon Pond Mall, Classic Pizza, Home Depot, Papa Gino's
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Northborough: Monti's Pizza, Northboro House of Pizza
Stow: Shaw's Supermarket
Sudbury: Papa Gino's
Wayland: Bertucci's, Donelan's Supermarket, Stop & Shop
Westborough: Uno's Pizza, Bertucci's
Other: B-P Trucking

Towns:

Acton Natural Resources Department
Concord Public Works
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Framingham DPW
Marlborough DPW

Maynard DPW

Northborough DPW
Stow Highway Department
Sudbury DPW
Wayland DPW

Thanks to our site leaders, scouters, and boat haulers: Nancy Allison, Don Burn, Pat Conaway, Mike Duclos, Bill Fadden, Allan Fierce, Bill Froberg, Jim Hawks, Dick Lawrence, Dottie MacKeen, Drew and Cathy Simmons, Pete Tobin, and Laurie Ullman.

Thank you to the following groups for sending teams: AmeriCorps, Appalachian Mountain Club, Church of Latter Day Saints, Concord-Carlisle High School, Concord Girl Scout Troop, Concord-Littleton Lumber, Environmental and Energy Law Society, Wayland Scout Troop 1 & 2, Hudson Stop and Shop, Intel Massachusetts, Maynard High School, Nashoba Regional High School, Natick High School, Westborough High School, and the Science, Engineering and Technology School in Ashland.

Welcome, New Members!

Abode Builder
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Karen Ahearn
Irene Aguero
Ray Andrews
William and Faith Bade
Sean Baker
Lisa Barth
Elizabeth T. Binstock
Steven Bloomfield & Melissa Apperson
Sarah and Peter Blum
Amanda Bowen
Catherine Burke
Michael Cafferty
Paul Carey
Paul Carlson
Laurel Carpenter
Paul Chaikin
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Nicholas Chunias
Dr. Paul Church
Sandra Crawford and Mark Weltner
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Karen Whitney
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Philip Woodyatt
Anne and Jonathan Yates
Anne Yazdani
And all our new DCU Members

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OARS Receives Funds to Restore the Assabet River!

OARS is very pleased to have received a gift of \$400,000 from Intel Massachusetts dedicated to restoring the health of the Assabet River. It follows on a decade of collaboration between OARS and Intel to promote aquifer recharge in the Assabet watershed. OARS is very grateful to Intel for making this long-term support for river restoration possible.



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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 depends on its 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

