

COMMISSIONER'S COLUMN

Earth Day 2018

April 22 is Earth Day and in light of that we feel it is a good time to do some recycling – first, we'll recycle an old message that is just as fitting today as when it originated: Every Day is Earth Day.

Big plans to celebrate Earth Day on or near April 22 are noble, and they do a great deal to educate the people in our communities on the importance of taking action to protect our environment, as well as practical ways they can get involved. However, an equally important message that can never be re-used enough is that any person, any community, and indeed any business, can find ways to implement environmental protection initiatives that take place every day of the week.

At NHDES, we always strive to walk the talk and this is no exception. There are a few things we do internally as an agency to recycle, reuse and protect our environment. One example is our Reuse Room. Managed by employee volunteers, our Reuse Room is a source of reusable supplies and equipment for in-office use, such as three-ring binders, hanging file folders, phones, shelves, mouse pads and desk organizers. We encourage all employees to bring their unwanted, reusable supplies to the Reuse Room, and conversely to look in the room before ordering new supplies. These efforts have helped NHDES and the State of New Hampshire save thousands of dollars in waste disposal and new office supplies.

Another tool NHDES employees use regularly is an internal, digital "bulletin board," where staff can

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A winter of river ice jams in NH

In November, NHDES and the New Hampshire Silver Jackets hosted four ice jam observer training sessions across the state. The U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) in Hanover was integral to that training, which provided guidance and lessons to emergency management directors and local citizens on the science of ice jams, and how best to deal with them and their associated flood risks. Lessons from the training turned out to be timely, as ice jams formed on New Hampshire rivers and quickly became news items in January.



Ice jam on the South Branch Piscataquog River in New Boston.

Image courtesy Town of New Boston.

During the Arctic cold, subfreezing temperatures (in Concord) lasted from December 26 through January 7, and rivers statewide developed a thick layer of ice cover. When temperatures climbed above freezing on January 8, and soared into the 50s from January 11 through 13 (not to mention the two inches of rain on top of it), the ice broke into large chunks which began flowing down the rivers. When temperatures then just as quickly crashed again on January 14, the broken up ice chunks froze in place, creating the jams. While jams were reported statewide, such as on the Warner River, the Sugar River in Claremont, or the Saco River just

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post their unwanted items (personal or office items) for sale, for barter or to give away. It's akin to the yard sale groups that are all over Facebook these days. Our employees are actively reusing their personal items – anything from small kitchen appliances to home décor – rather than sending them to the transfer station. They also use the forum to donate certain items for reuse that some people need for their personal hobbies and crafts, such as the person who was looking for empty egg cartons recently or the one seeking glass jars.

Another important and more involved practice here at NHDES is what we call the Green Team. This group of in-house volunteers was formed in 1995 with the intention of exploring how we, as an agency, use resources and dispose of our waste. There are so many programs that have been born out of this group over the years that still operate to this day, including a Bicycle Share Program, preferred parking for carpoolers and an annual Pump It Up! tire pressure check event. The Green Team also conducts investigations on our agency's water and energy use and provides information and incentives for all employees to do their part to conserve.

Because that is the point, isn't it? For all of us to do our part. All of the things I've listed here are small endeavors that can



be implemented in your daily life and will make a difference over the long-term. Please take the time, as this year's Earth Day approaches, to think about how you can make every day Earth Day – whether in your home, your office or your community. If you are looking for more inspiration, you may find some on our NH Pollution Prevention Program webpage.

Let us know what you decide to do! Share your story (bonus: with pictures!) on Twitter; tag @NHDES with the hashtag #EarthDayEveryDay. ■

A 21st Century Geological Survey for NH



When the first geological survey of New Hampshire was inaugurated in 1839 under the leadership of Charles T. Jackson, the state was still in the process of being settled and the White Mountains were mostly trackless wilderness. Little was known of the underlying geology and mineral resources. Almost two hundred years later, the mission of the New Hampshire Geological Survey (NHGS) remains much the same but modern science and technology have created unprecedented opportunities to address today's environmental issues and information needs. In

recognition of all that has been accomplished to date but with a view toward the future, NHGS is undertaking a strategic review to better align its products and services with the needs of its stakeholders. Please help by taking time to complete a short questionnaire, accessible at <https://www.surveymonkey.com/r/ZKBZR88>. Responses will remain anonymous. Thank you for your willingness to share your thoughts and insights. ■

ENVIRONMENTAL NEWS

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over the state line in Maine, the most notable has been the one on the South Branch Piscataquog River in New Boston. This jam grew to at least 3,120 feet long, as measured on January 19, with reports of further growth beyond that. Since that time, officials in New Boston have been providing NHDES, CRREL, and other state and federal agencies continued measurements of the ice jam, in order to have the best information available to make flood risk estimates.

The reality is that ice jams are a fact of New Hampshire rivers in winter. The science as to where and when they will form remains inexact. Each year, NHDES fields calls from concerned town officials and landowners about ice jams that have formed and what can be done about them. Whether a specific ice jam will create flood issues is dependent on many variables, including their depth, and whether temperatures undergo a gradual warmup with no heavy rain, as opposed to inches of rain. Conditions that allow ice to melt

in place gradually will typically create less risk than where heavy rain occurs without a preceding warmup. As a general rule, when temperatures reach into the 40s for multiple days, the likelihood of melt and ice movement increases. It is important for town officials and landowners beside rivers to keep watch on ice jams in case there are any changes that could lead to flooding concerns. Additionally, it is important to note that as ice jams can create flood impacts in floodplains, residents with ongoing concerns should consider the purchase of flood insurance.

The Ice Jam Observer Training presented in November answered many questions regarding how to address ice jams and monitor them, and is available on NHDES' website. It can be found at: <https://www.des.nh.gov/organization/commissioner/gsu/fegh/documents/201711-ice-jam-presentation.pdf>. ■

Planning for recovery from transportation impacts in coastal NH

How would our coastal transportation system recover from threats posed by extreme precipitation, sea level rise and storm surges? What are the challenges municipalities and state agencies face in responding to and recovering from bouts of damaging weather? A workshop was held in January to answer those questions.

Participants discussed the role of transit providers in response and recovery efforts; current and emerging information technologies for vehicles, infrastructure, and communications; and transportation demand management strategies that promote alternative transportation modes such as biking, public transit, and telecommuting. A regional transportation recovery plan based on lessons learned and recommendations made from the workshop will be forthcoming.

The event was organized by the Strafford Regional Planning Commission and Southern Maine Planning and Development Commission, and brought together a diverse set

of stakeholders to focus on how to recover transportation infrastructure damaged by severe weather resulting from climate change. This was the first of six similar workshops being hosted by municipal planning organizations around the country as part of a project funded by the Federal Transit Administration. ■



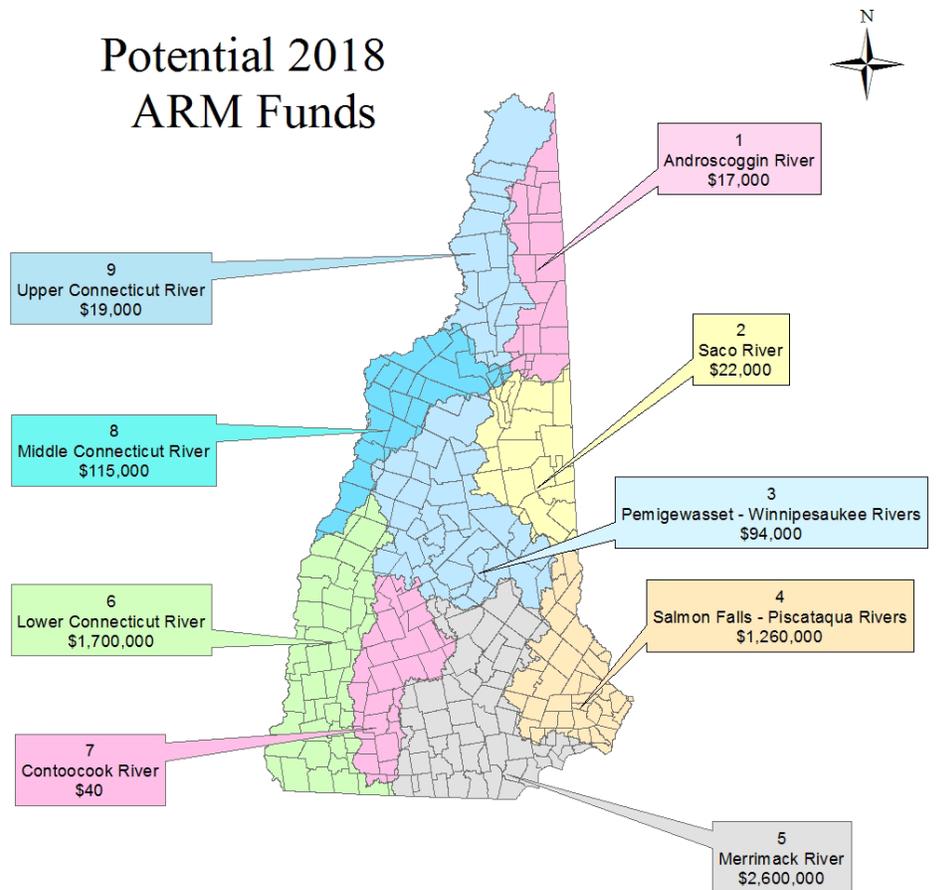
image credit: Sandt Michener, NHDOT

Aquatic Resource Mitigation Fund – 2018 grant announcement

The NHDES Aquatic Resource Mitigation (ARM) Fund is now accepting pre-proposals for the 2018 Grant Round. The ARM Fund Program provides wetlands permit applicants with the option to contribute payments to this fund in lieu of implementation of several other possible and more traditional compensatory mitigation alternatives. These other mitigation options might include restoration of existing impaired wetlands, land acquisition and preservation, or construction of new wetlands. In many circumstances, these other options may be more costly, time consuming or complex to implement for the wetlands permit holder when compared with an ARM Fund contribution.

The ARM Fund program has been very successful for permit applicants and has resulted in the funding of many significant wetland preservation and restoration projects across the state. Projects that have been awarded funds include those that provide significant wetlands restoration or land conservation and are focused on areas of important and/or vulnerable wetlands with regional significance. In the past eight grant rounds, the ARM Fund has funded 80 projects that include preservation and habitat restoration as well as stream passage improvement projects. These projects have resulted in

Potential 2018 ARM Funds



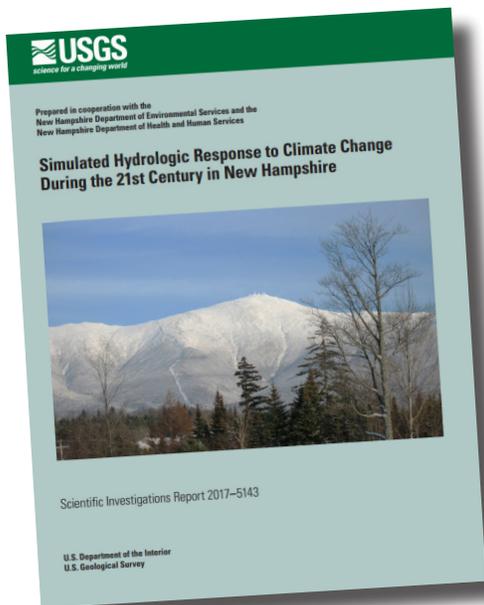
approximately 16,000 acres of land conservation, 100 acres of restoration/enhancement and over 15 miles of stream restoration.



Falls Brook stream restoration volunteer day, Lower Connecticut River watershed

NHDES accounts for ARM Fund payments on a major watershed basis. The ARM Fund is currently soliciting grant proposals for \$6 million, which is available in the nine watersheds throughout the state. Please see the website: <https://www.des.nh.gov/organization/divisions/water/wetlands/wmp/index.htm> for more information about the program, and for forms and instructions. Pre-proposals are due April 30, 2018. The pre-applications will be reviewed during the month of May and feedback given to each applicant. Full applications are due August 31, 2018. For more information, please contact NHDES Wetland Mitigation Coordinator at: lori.sommer@des.nh.gov or (603) 271-4059. ■

Hydrologic response in a changing climate



Changes to precipitation and air temperature patterns impact the hydrologic cycle (soil moisture, streamflow, groundwater levels, snow pack). David Bjerklie, from the U.S. Geological Survey (USGS), presented the recently-published report *Simulated Hydrologic Response to Climate Change During*

the 21st Century in New Hampshire to NHDES and other state agency staff in February. The USGS presented a summary of the results developed from a statewide watershed model that assessed hydrologic response across the state to projected changes in weather patterns. The watershed model includes land cover type (forest, shrub, impervious surface, bare ground, etc.), soils, geology, topography, drainage networks, and climate and hydrologic information. The model was calibrated to USGS stream gaging stations across the state, and was then run, using projected weather input for various time frames, out to the year 2100. The projected future weather input to the model came from a selected set of published Global Circulation Models. The model simulated mean monthly streamflow at selected stream gages as well as some daily time series; monthly total snowfall and groundwater recharge time series data for the period 2009 to 2099 are made available through the

USGS ScienceBase website (see below).

This scientific investigation found:

- Annual average streamflow is projected to increase by as much as 20% by mid-to-end of this century, with increasing variability.
- Daily peak flows are projected to occur more frequently in winter.
- Daily low flows are projected to occur more frequently in summer.
- Groundwater recharge is projected to be more variable in time and space, increasing in some areas and decreasing in others.
- Snowfall is projected to decrease on average across the state; varying substantially in time and space, indicating less reliability of timing and amount.
- Snowfall in some areas of the state may experience increases for particular months and time frames.

To view the USGS online publication see: <https://pubs.er.usgs.gov/publication/sir20175143>.

Should you utilize any of the data in your work, the suggested citation is:

Bjerklie, D.M., and Sturtevant, Luke, 2017, Simulated hydrologic response to climate change during the 21st century in New Hampshire: U.S. Geological Survey Scientific Investigations Report 2017-5143, 53 p., <https://doi.org/10.3133/sir20175143>.

Also, the associated data release on USGS ScienceBase “Thirty- and ninety-year data sets of streamflow, groundwater recharge, and snowfall simulating potential hydrologic response to climate change in the 21st century in New Hampshire” is available at: <https://www.sciencebase.gov/catalog/item/599d9826e4b012c075b964ad>. ■



twitter.com/NHDES



Still receiving phone books? It's time to opt out.

Fifteen years ago, phone books were a valuable source of information. Today, however, an increasing number of Americans are turning to online search engines while their phone books sit unused. Unfortunately, the companies that produce yellow pages haven't kept up with this trend – most residents continue to receive phone books on their doorsteps, sometimes multiple times per year.

Nearly 70 percent of adults “rarely or never” use a phone book, yet 650,000 tons of these bulky books are delivered to households each year. Imagine the ink and paper (and trees!) used.

These directories are not only a nuisance, but a significant waste of resources:

- Each year the phone book industry uses up an estimated 4.68 million trees worth of wood fiber, or 14 football fields' worth of forest per day.
- The process of printing and delivering that unwanted phone book to your doorstep produces greenhouse gases equal to burning 8.8 pounds of coal – and that's per book.
- Directories are a burden on local governments, who pay nearly \$60 million annually in recycling and disposal fees for unwanted phone books.
- In fact, every 100 unwanted phone books removed from printing and distribution reduces greenhouse gas emissions equal to nearly 2,000 miles driven by a passenger vehicle.

Do you use your yellow pages directory? If not, do your part to save trees – the New Hampshire Pollution Prevention



Program is encouraging you to take three minutes to opt out of getting a phone book.

Here's how you can opt out today:

1. Visit phonebookoptout.us/go.
2. Enter your ZIP code and create an account.
3. After completing registration, click “opt out of or order directories.”
4. Choose “opt out of all” option, then “save changes” and hit CONFIRM.

Did you opt out? Tweet about it and tag us @NHDES with #TheseWereTrees. ■

Compost bin sale

Due to widespread interest in organic waste diversion, NHDES' Solid Waste Management Bureau has been working to increase opportunities for composting throughout the state. NHDES has partnered with various stakeholders to accomplish this. The Northeast Resource Recovery Association (NRRA), one of the partners in this venture, coordinates an annual compost bin sale for interested organizations and municipalities. Backyard composting is a simple way for households to reduce the amount of trash that gets sent to the landfill and helps municipalities and solid waste districts to save money. For information on the sale, which ends March 15, visit NRRA's website: <https://nrra.net/news/bins-barrels-info>.

The NRRA is a non-profit 501(c) organization that provides cooperative purchasing programs, educational and networking opportunities, technical assistance and cooperative marketing programs. ■



Protecting New Hampshire's Wetlands – This video provides an introduction into these “hard-working, water-purifying, flood-storing wildlife habitats” – what they are and why it's important to protect them.

<https://www.youtube.com/watch?v=gCqh3prodwY>

NHDES seeking public comment on wetlands rules

NHDES is seeking public comments on a major overhaul of the wetlands rules – check out our website for background, rules summaries, draft rules, FAQs, Draft BMPs, online comment collector and outreach schedule: <https://www.des.nh.gov/organization/divisions/water/wetlands/process-improvement.htm>.

Wetlands Best Management Practice Techniques For Avoidance and Minimization



We are excited to hear from you – please come and participate in a Regional Public Input Session at NHDES: <https://www.des.nh.gov/organization/divisions/water/wetlands/documents/listening-schedule-session.pdf>.

The NHDES public comment deadline is April 20, 2018. For any questions or clarifications, contact: maryann.tilton@des.nh.gov.

#ThisIsNH

The upcoming Earth Day celebration will mark the first anniversary of the introduction of NHDES' *This is NH* story map. We have seen the photos change with the seasons – with the most recent additions being of hikes up snowy mountains and

Stream in Franconia, Mary Ann Tilton

outcropping where you parked your kayaks. The best part about the story map is it's not just a photo gallery; it's an interactive map that tells us *where* people enjoy the New Hampshire environment as much as *how* or *why*. When users submit their photos, they also apply the location the photo was taken and it gets its place on the map. Zoom into any section of the state and you will see a great collection of user-submitted photos specific to that area. With the location, you can be as specific as you want – longitude and latitude, physical address or even zoom in and scour the banks of the Merrimack River until you find the exact sandy

New Hampshire Water and Watershed Conference

The New Hampshire Water and Watershed Conference is a key event for sharing water resource information. For 2018, the event will focus on regional environmental stresses and how we are adapting to new information, emerging issues, and current events affecting water quality and water supply.

The conference agenda includes sessions and posters that connect information and research to the practice of adaptive management.

The plenary speaker is Wilfred Wollheim from UNH who will present a talk entitled *An Aquatic Symphony: The Ongoing Revolution in in situ Water Quality Sensing and What It Means for Watershed Science and Resource Management*.

Register now as space is limited: <https://campus.plymouth.edu/cfe/2018-nh-water-watershed-conference-registration/>

Questions? Email psu-cfe@plymouth.edu

Save the Date! DWG Trust Fund and DWSRF Loans and Grants Workshop

When: Wednesday, April 18, 2018

Where: NHDES, 29 Hazen Drive, Concord, NH

Contact: johnna.mckenna@des.nh.gov or (603) 271-7017

Website: <https://www4.des.state.nh.us/nh-dwg-trust/>



NEW HAMPSHIRE DRINKING WATER & GROUNDWATER TRUST FUND

outcropping where you parked your kayaks.

The response and enthusiasm for this crowd-sourcing project has been more than we could have asked for. Now, as we look forward to the second year of its existence, we will focus on gathering even more submissions. Please take the time to show us what you love about NH's environment; share your photos today! Visit <https://www.des.nh.gov/organization/commissioner/this-is-nh.htm> to upload them; they can be uploaded from a desktop computer, mobile device or tablet.

Let's put New Hampshire's environment on the map! ■



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Discover Wild NH Day

April 21, 2018

