



### WSCAC Meeting

Location: Held virtually

November 9, 2021 – 10:00 am

#### Members in Bold in Attendance:

**Jerry Eves, WSCAC Chair**

Michael Baram

**Whitney Beals**

**William Copithorne, Town of Arlington**

**Steven Daunais, Tata & Howard**

Andrea Donlon, CT River Conservancy

**Bill Fadden, OARS**

**James Guiod, MWRA Advisory Board**

Bill Kiley, BWSC

**Paul Lauenstein, NepRWA**

**Martha Morgan, Nashua River Watershed**

**Martin Pillsbury, MAPC**

**Janet Rothrock, League of Women Voters**

**Bruce Spencer, Retired DCR-DWSP Chief**

**Forester**

Kurt Tramosch, Wayland Wells

#### Non-Members in Attendance

Lexi Dewey, WSCAC staff

Andreae Downs, WAC

Steve Estes-Smargiassi, MWRA

Lou Taverna, MWRA Advisory Board

Brian Keevan, DCR

Lexi Dewey opened the meeting and welcomed members and friends to the November 9<sup>th</sup> virtual WSCAC meeting.

Three sets of draft meeting minutes, May, September and October, were approved and voted by roll call. WSCAC member Bill Fadden abstained from voting on the September and October minutes.

Lexi provided the following briefs:

- WSCAC submitted comments on October 29<sup>th</sup> on H.898/S.530, *An Act relative to maintaining adequate water supplies through effective drought management*
- DCR Commissioner Montgomery resigned and Stephanie Cooper is the new Acting DCR Commissioner
- The MWRA Advisory Board in partnership with Sen. Anne Gobi, was instrumental in removing the hiring cap for DCR-DWSP. There are 18-19 job vacancies that can now be posted
- October field trip to the DCR Barre heath site with DCR staff Ken McKenzie, Herm Eck, and Brian Keevan
- The PFAS Interagency Task Force is preparing a report to the legislature by December 2021 on potential policies and recommendations to address PFAS contamination in Massachusetts
- On October 18, 2021, EPA Administrator Michael S. Regan announced the agency's PFAS Strategic Roadmap—laying out a whole-of-agency approach to addressing PFAS  
<https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024>

- MWRA Board of Directors information:
  1. The Combined Heat & Power study was given a 3 month extension by the MWRA Board of Directors in October so that MWRA staff and the consultant, Black & Veatch, can review comments from the DOE expert panel
  2. The fourth meeting of the Tunnel Working Group will meet in December for an update
  3. Work continues on the Northern Intermediate High pipeline project which will assist Burlington in taking the full amount of water, 6mgd, it will be purchasing from MWRA.
  4. MWRA staff offered ratepayer water communities a virtual workshop on water quality issues. Due to increased precipitation over the summer, there was a high amount of organics in the raw water. This required higher chlorine dosing and chlorine decay issues for communities at the edge of the service area. Staff is in discussion about the possibility of new treatment options.

Lexi introduced the first speaker, Brian Keevan. Brian is a DCR-DWSP Natural Resource Analyst. He will be presenting DCR's updated 10 year Continuous Forest Inventory (CFI) and will also provide some pictures and information on the Barre Heath project. See presentation here:

<https://www.mwra.com/monthly/wscac/2021/110921-dcr.pdf>

The link below will take you to the FY22 forestry proposals. This year there are ten proposals at the Quabbin watershed, five at the Ware River watershed and six at the Wachusett watershed.

<https://mass-eoeea.maps.arcgis.com/apps/MapSeries/index.html?appid=e12cdd08ec6b45f5bb00edc3489fb5df>

Brian slides showed the location of the Barre heath project (gravel area originally) in the Ware River Watershed. Two rivers, the Canesta and Burnshirt join up to the Ware River. The Barre heath project includes 50 acres of cleared land with Oak and Pitch Pine as favored species. The project began with the removal of white pine which dominated the site. Habitat included low-lying blueberries, shrubs and grasses to encourage several types of endangered species. DCR staff and the DCR forest and fire bureau, Fish & Wildlife, and Barre fire personnel were involved in preparation of the site and during the burn day on April 3, 2021. Areas were wet down and burning was done in patches while moving upwind.



The goal will be to revisit this site every few years and lay down another fire to maintain the heathland habitat. Burn plans and permits took several years of preparation and review. Then the wait began for good burning weather. The DCR Fire program is now up and running.

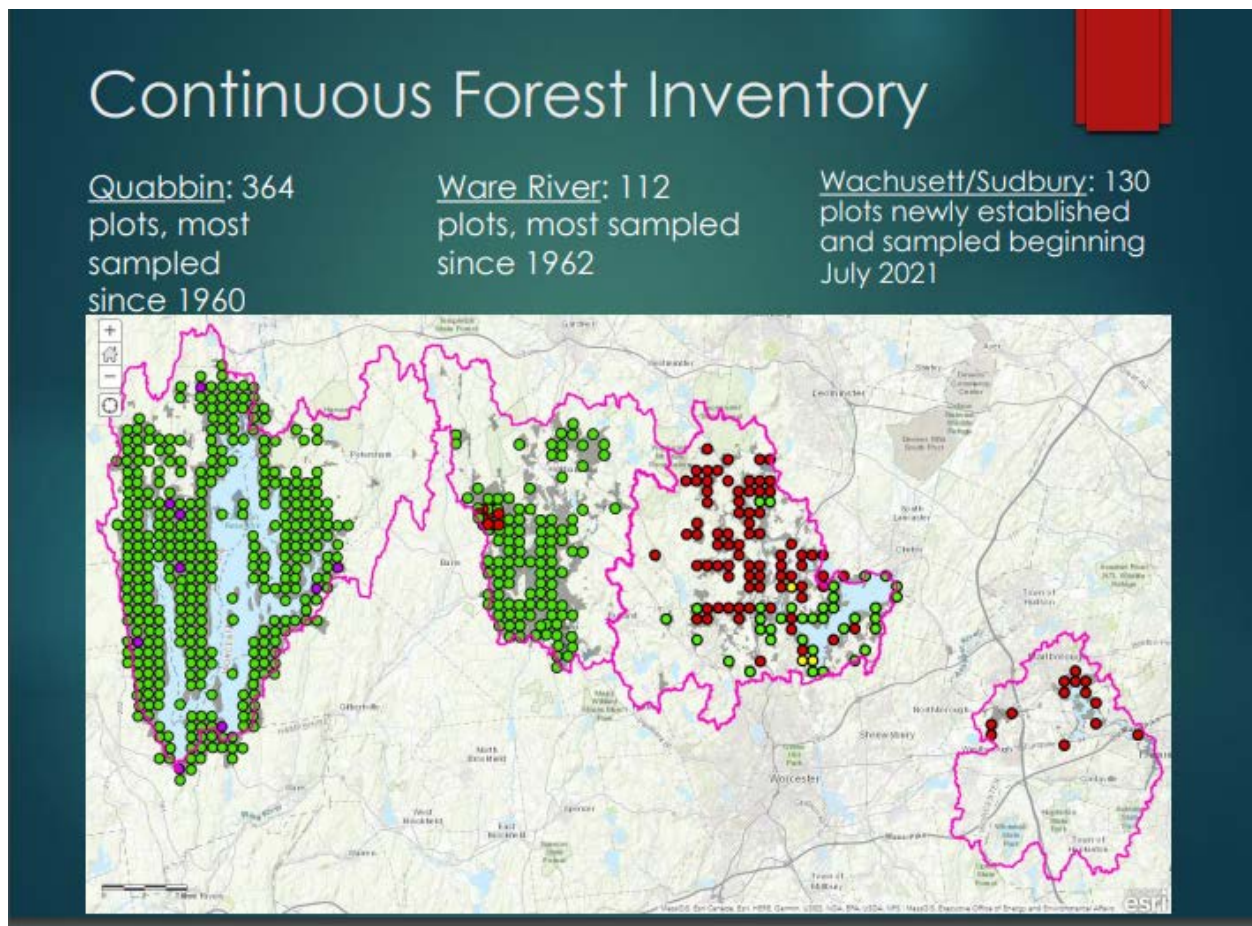
Bruce Spencer asked who paid for the brontosaurus/brush cutting work. Brian answered that EOEEA provided the funds. He said that a burn plan for a project in New Salem is in the works, and the site should be ready for burning in a few

years. Brian mentioned that the Barre heath site includes an area for a new gravel mining pit as well as areas for turtle nesting habitat. Andreae Downs asked about the purpose for burning. Brian said the goal is about promoting biodiversity and maintaining open habitat for early successional rare and endangered species including varieties of moths, insects and invertebrates. Martha Morgan noted the work being done by Fish & Wildlife in the Nashua River Watershed. She also asked about the control of invasive species. Brian noted that there isn't much being done on this yet. Janet Rothrock asked if deer like this habitat. This area in the Ware River Watershed has been open to deer hunting for many years. Bear use is expected due to the increased growth of blueberries in this habitat. Whit Beals mentioned that deer are less interested in such dry sites, and that white pine will come back in and dominate the site if not managed. He also mentioned the Fish & Wildlife habitat work in the Muddy Brook site.

### **Continuous Forest Inventory Update: 60 Years of Tree Measurements on DWSP Watershed Lands**

The CFI project was started in 1961 by Fred Hunt as his Master's Thesis project at UMass Amherst. There are 364 plots at Quabbin actively sampled with 1/2 mile grid spacing. Each 1/5 acre plot represents 160 acres. Ware River was started in 1962 with 112 plots sampled. Additional land has been purchased at Wachusett and Sudbury so DCR foresters are now actively measuring trees in 130 plots in these watersheds.

Foresters at Quabbin and Ware River with the addition of 3 seasonal forestry assistants completed the CFI work. They started in Ware River in December 2019 and finished in April 2020. Quabbin was started in June 2020 and completed in March 2021. When the work begins again in 2029, Brian hopes the seasonal assistants will be hired for a second time to work with the foresters.





## CFI Tree Level Data

- Number
- Species
- Location (Azimuth + Distance)
- Diameter
- Live/dead status
- Tree classification
- Height
- Sawlogs
- Crown position
- Live crown ratio
- Cavities



## Continuous Forest Inventory: Database and Analysis Status

### Tasks In Process:

- ▶ Local height : diameter equations by species
- ▶ Volume per tree per cycle
- ▶ Plot level table crosswalks
- ▶ Plot non-forested area calculations
- ▶ 'Future-proofing' and standardizing tables and code keys for sharing with FEMC





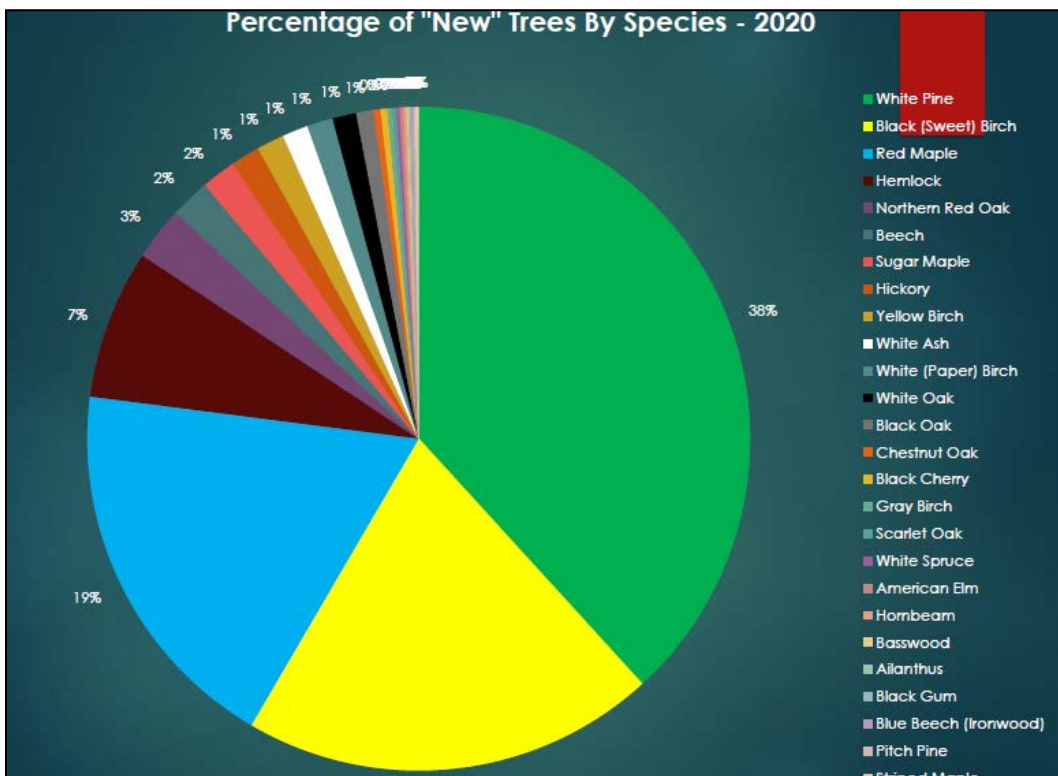
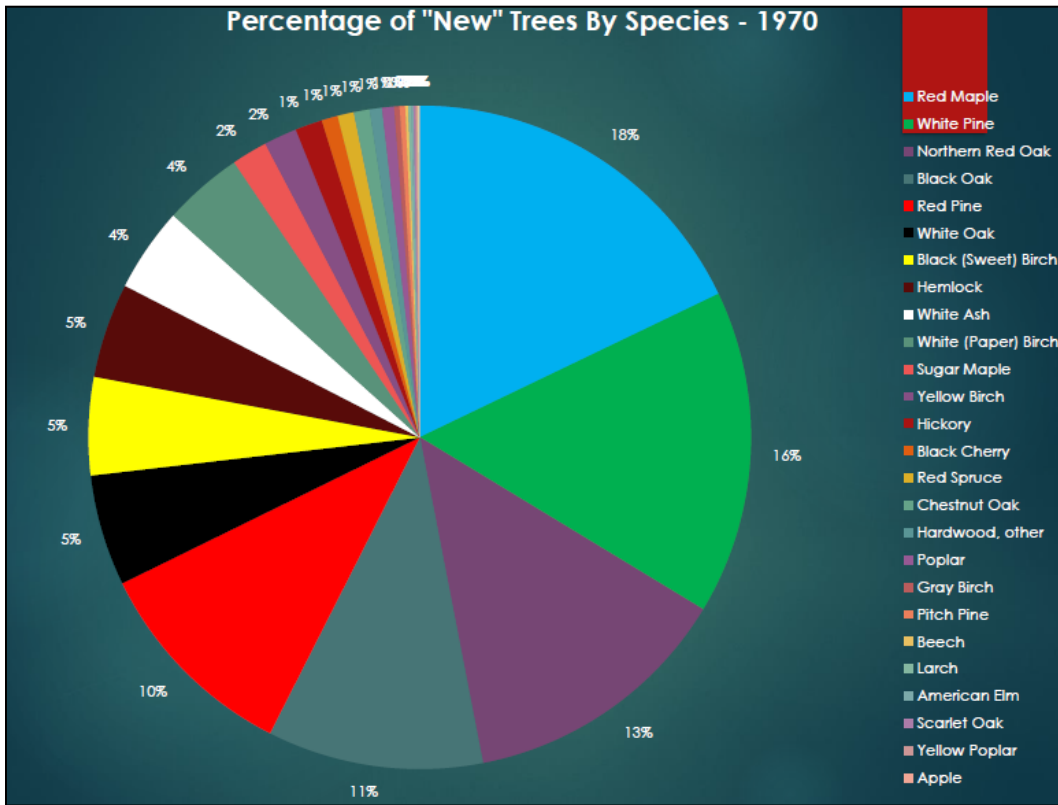
CFI Plot Level Data includes:



- Plot number- different versions of numbering at Quabbin, not so much at Ware River, active or retired plots
- Location-latitude and longitude
- Slope and Aspect
- Terrain Position
- Cover Type-years past and present
- Land Use
- Disturbances-weather disturbances, beaver activity and harvesting activity
- Interfering plants
- Invasive plants
- Browse-Fish & Wildlife browse set of categories
- Non-Forest Area-flood plain area (tree density adjusted)

Brian noted that there were questions asked of previous DCR-DWSP staff including Bruce Spencer and Tom Kyker-Snowman to verify historical CFI methods and what has changed moving forward with the availability of new technology like GIS.

The charts below show the 50 year difference of new tree species in 1970 & 2020.



The pie charts show the change over time in diversity of species. Foresters are aware of the effects of deer and moose browsing which has affected regeneration efforts. The deer hunt has helped to a degree, but moose cannot be hunted in MA. White pine, black birch and red maple are the dominant species. Oak is returning slowly in certain places. Bruce mentioned that oak regenerates better in thinning instead of 2-3 acre openings targeted by moose. The CFI also looks at mortality events such as the oak defoliation in the 1980s and 2010 due to Gypsy Moth.

Task envisioned with the database and analysis include:

- A comprehensive report with a summary in the next updated Land Management Plan
- The ability for querying internally and possibly including the public
- Complete the new data collection from the Wachusett and Sudbury and merge with the Quabbin and Ware River data
- The possible addition of downed woody debris, transects and herbaceous microplots

Brian was thanked for his presentation and Lexi noted we would like to invite him back next year when the tasks noted provide additional information.

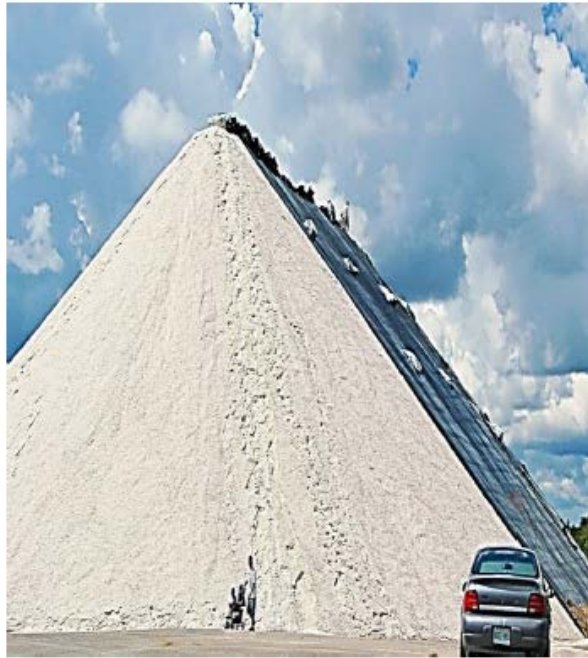
Lexi introduced Jamie Carr, DCR Head of Environmental Quality at Wachusett. Jamie served as DCR's Wachusett Regional Director for 3 years and has now changed positions back to environmental quality. His presentation is on Road Salt and Elevated Chlorides in the Wachusett Watershed. He will be covering:

- Overview of current conditions
- Water quality monitoring
- Why salt is a concern
- What are the sources of salt in the watersheds
- Actions DWSP is taking to reduce chloride levels

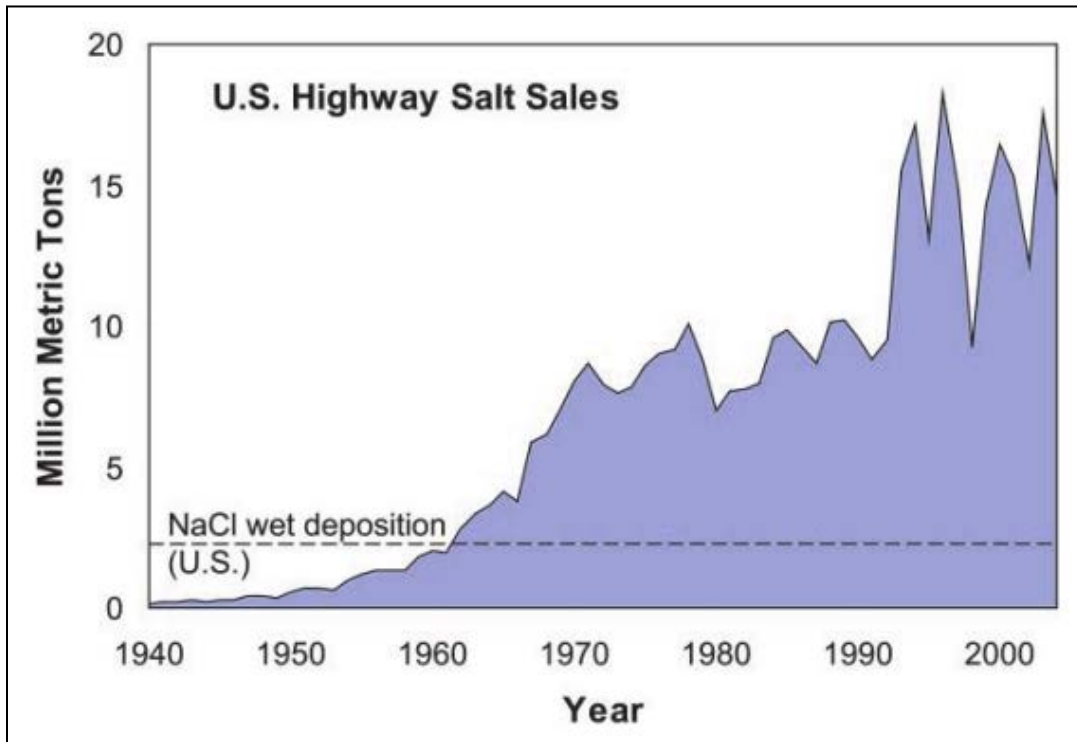
Salt use has increased in the US over time due to expectations by the public to be able to drive regardless of weather. There is pressure to keep roads clean all the time. Jamie mentioned that 15-17 metric tons of salt is used in the US.



Salt pyramid (120' tall, 120' wide)



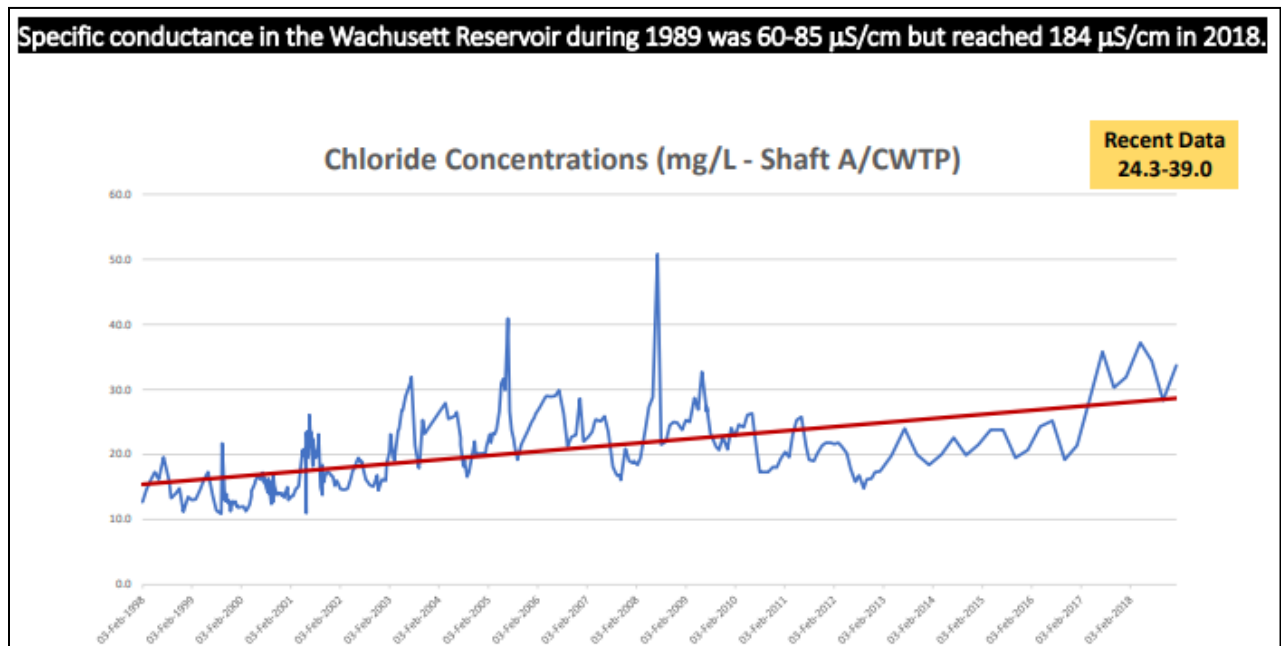
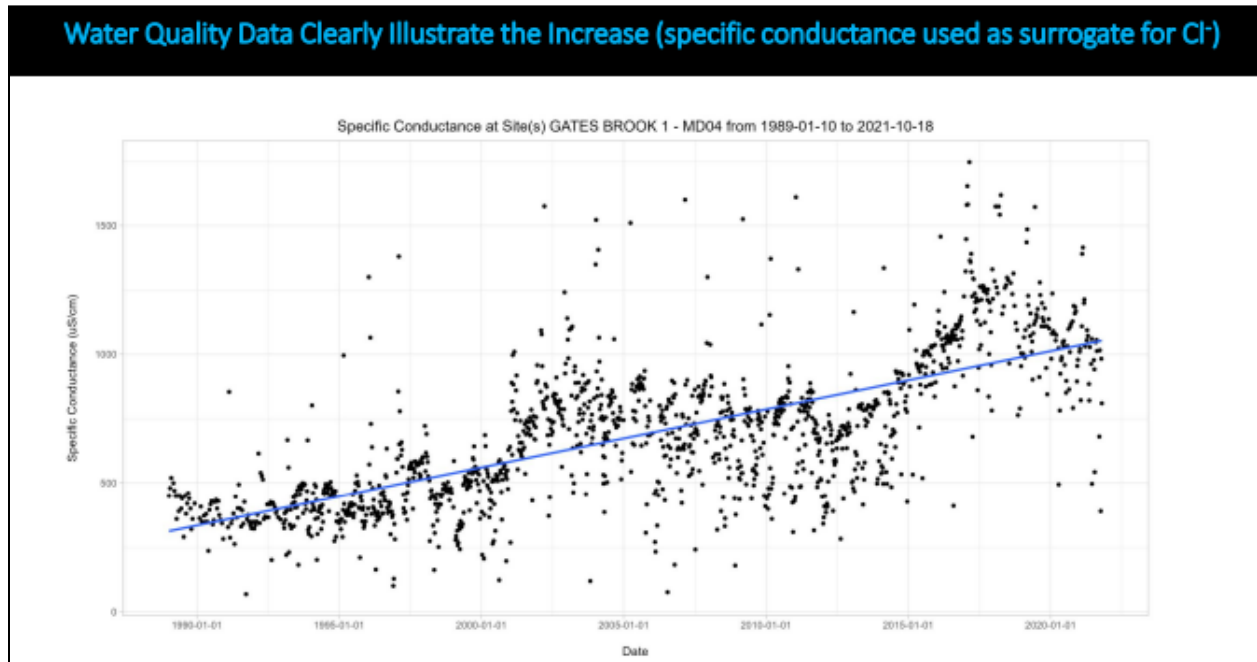
Old State House (65')





Jamie mentioned that there are numerous studies showing that the application of road salt by municipalities and on state highways affects lakes, streams and reservoirs. Over the past 30 years, DCR has documented significant increases in conductance at their sampling stations in the Wachusett watershed. Salt concentrations in tributaries are now found in the summer which points to groundwater contamination.

The slide below shows the increase in specific conductance at Gates Brook.



Sampling for chlorides is now collected every month from ten tributary sampling stations around the Wachusett, as well as at eight groundwater wells. Specific conductance is also measured at the same time.

Where does the salt come from? Jamie said it comes from multiple sources:

- Atmospheric deposits
- Weathering of soil and rock
- Wastewater
- Agricultural sources- fertilizers, animal waste and irrigation
- Energy production
- Landfills
- Deicing chemicals

### SALT APPLIED ANNUALLY IN THE WACHUSETT WATERSHED: ~18,000 tons

TOWN	AVERAGE ANNUAL USE (tons)	ESTIMATED WATERSHED USE (tons)
Boylston	2,604	847
Holden	2,884	2,087
Paxton	1,545	210
Princeton	2,200	1,662
Rutland	4,000	1,316
Sterling	1,800	991
West Boylston	4,401	3,868
Worc/Clint/Leom	unknown	700
MassDOT	4,093	4,093
DCR DWSP	n/a	35
Parking lots	2,522	2,522

What are the consequences from excess salt applications? Jamie mentioned the following:

- Harm to aquatic wildlife and roadside vegetation
- Damage to cars, bridges and buildings
- The financial cost to town and state budgets
- Contamination of private and public drinking water wells
- Likelihood of corrosion in water distribution systems and increased threats from leaching in pipes of lead and copper

How is DCR-DWSP addressing this issue? DCR and MWRA are working together with Baystate Roads (UMass Transportation Center) to offer watershed towns free education and training on Snow and Ice Operations. Municipal staff from five watershed communities, along with DCR staff attended the training in 2019. An additional training was offered in the fall of 2021. Instructions included:

- The proper use of salt, liquid anti-icers, pre-wetting and pre-treatment options
- New technology and equipment calibration

- Education on the benefits of pre-treatment before a storm so that snow and ice don't bind to pavement
- Salt brine pre-treatment is extremely beneficial but requires special equipment to make and apply the brine. Plowing is easier and less salt is used.

Jamie mentioned the Town of Sterling that has adopted pre-treatment. They used to use approximately 1800 tons of salt each winter. Now with pre-treatment, they have reduced salt use to 1100 tons. Jamie noted that there is dedicated funding in the DWSP budget for a 50/50 matching grant program to help watershed towns purchase the equipment for reducing road salt use. Three towns received grants in FY21 and FY22 grant opportunities opened in October 2021.

DCR is doing public outreach through educational programs to get the message out about the dangers of excessive use of road salt. The Interpretive Services has produced a salt reduction video with messaging that reducing salt use does not mean reducing public safety. Public expectations that insist on clear roads during storms require modification. There are serious environmental costs to continued overuse of road salt.

UMass Amherst is working on modeling efforts with DCR to investigate:

- The impacts of reducing chlorides to the reservoir and to predict changes to chlorides at the Cosgrove Intake based on Quabbin transfer options
- Looking at impervious surfaces, the relationship between chloride and specific conductance and consider climate change

DCR is improving data collection and monitoring salt use at parking lots, encouraging reporting by watershed towns and MassDOT on annual salt use, creating a salt tracking form to be used by DCR staff during winter storms, and installing Mayfly Data Loggers around the watershed to obtain real-time specific conductance data.

Jamie ended his presentation by offering two additional ideas that may help reduce salt use:

- New Hampshire has a law that grants liability protection to certified commercial salt applicators and property owners or managers against damages from snow and ice conditions. MA may benefit from this same legislation. Some of the highest amounts of road salt are applied in parking lots to guard against liability for public injuries.
- The preparation of detailed winter operations plans for towns that include standard procedures and best management practices.

Jamie was thanked for his informative presentation which can be viewed here:

<https://www.mwra.com/monthly/wscac/2021/110921-wachusetsaltschlorides.pdf>

Steve Estes-Smargiassi provided the following MWRA briefs:

- Chemical availability and pricing-MWRA has a robust program to track inventory and suppliers which is beneficial during this time of higher demand and prices. As a critical public safety organization, MWRA has priority over other customers. Fewer truck drivers have also affected supply availability. Price increases are factored in to the MWRA's budget.
- Lead update-Late summer sampling round just completed. Results were not as good, but similar to previous years. The Action level is 15 ppb and results came in at 8.56 ppb. Steve called this



slightly disappointing but typical. Five communities were individually above the Action Level. They have lead service replacement programs and will have to public education outreach.

- Chloride levels-Levels are higher in Wachusett as well as higher levels of organics due to all the rain over the summer. Water becomes more reactive with higher levels of UV254. This has had a big impact on chlorine residuals. Dosing of chlorine increases (to address the UV254) as well as the increasing rate of chlorine residual decay. Communities at the edges of the MWRA service area are affected by the quicker decay of chlorine. This leads to lower residuals and higher levels of coliform. Transferring of higher quality Quabbin water will continue for a longer time this fall to offset water quality in the Wachusett.
- Green energy update-Preliminary numbers from 2019 are available but the final version of the report is not ready yet. Steve noted that they have a reduction in energy (gas, oil and electricity) use due to the fact that the grid is getting greener all the time. MWRA's new energy contracts include a greener mix of power. They are moving to electrify more facilities where possible and increase the use of electric cars.

Steve was thanked for his updates.

Lexi noted that WSCAC will not have a meeting in December. Conflict of interest forms will be due at the beginning of January 2022.

The meeting was adjourned.

**The next virtual WSCAC meeting will be held on January 11, 2022 via Zoom.**

**The meeting is a discussion for WSCAC members on current and future topics**

**Please visit [our website](#) for more information on these meeting**