

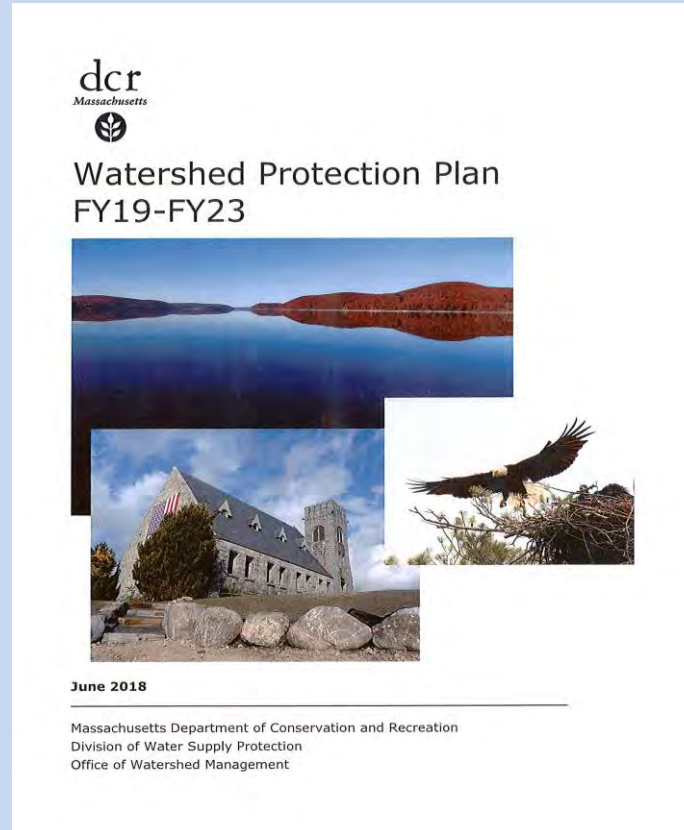
DCR Watershed Protection Program Updates



MWRA Advisory Board
February 17, 2022

John Scannell, Director
Division of Water Supply Protection

Watershed Protection Program



All Watershed Activities are guided by
the 5-year Watershed Protection Plan

Watershed Control Programs



- Land Acquisition
- Watershed Preservation Restrictions
- Land Management
- Wildlife Management
- Public Access Management
- Watershed Security
- Infrastructure
- Watershed Protection Act
- Education and Outreach
- Water Quality and Hydrologic Monitoring
- Watershed Monitoring and Assessment
- Aquatic Invasive Species
- Wastewater Management
- Stormwater Management
- Emergency Response

Watershed Protection Plan



- Plan updated every 5 years
- DCR will spend FY23 developing a new plan
- Plan will be in effect July 2023 and will cover FY24-28.

Land Acquisition



- Just hired new Land Acquisition coordinator, Felicia Bakaj.
- Land acquisition continued on selective parcels of land
- \$1M average annual budget for purchases
- FY2021 summary:
 - 37 acres
 - \$517,500
 - One was a 1-acre piece of commercial land very close to the Route 12 bridge at Wachusett

Watershed Preservation Restrictions



- DCR holds Restrictions on 149 parcels covering 8,808 acres
- 94 Monitoring visits conducted with only minor issues
- Meeting our goal to monitor each WPR every 2-3 years



Land Management



- Forestry staff monitored 24 active timber sales in FY21



Land Management



- Continuous Forest Inventory (CFI) work involves taking forest measurements in historic identified plots once every 10 years to track changes in the forest and forest composition.
- Quabbin CFI was completed in 2021
- Wachusett and Sudbury CFI data collection began for the first time ever (previously other data measuring tools were used). This will allow us to have consistent monitoring over all 4 watersheds

Barre Heathland Prescribed Burn 4/3/21



- Successfully burned 26 acres
- Multi-Agency Effort – DCR Fire Control & DWSP, MassWildlife, National Park Service, Barre FD, West Brookfield FD, Sterling FD, and Groton FD.









Prep-Work Over Multiple Years:
Two Timber Harvests
Contract Mowing of Vegetation
Preparation of Burn Plan
Staff Mowing to Establish and Maintain Fire Breaks



Day of Burn – Gathering Resources and Briefing Participants



Burning



Mopping Up and Monitoring



Future Prescribed Fire

- Prescribed fire will be an important tool for our future forest
- Prescott Peninsula fields likely this year
- Tool for improved oak regeneration
- Can be used for maintenance of areas such as along the Quabbin spillway



Slashwall Harvest in Oakham



Research Site

Dr. Jeff Ward
Chief Scientist
Department of Forestry and Horticulture
Connecticut Agricultural Experiment Station

- 20 Vegetation Plots
- Measured pre-harvest
- Re-measured annually post-harvest











Cost Effective Way to Control Herbivory

- Cheaper to Install than Fencing
- Little to No Maintenance
- Should Last 10 years
- Provides Habitat for Wildlife
- Carbon Released Slowly
- Utilizes Low-Grade Material



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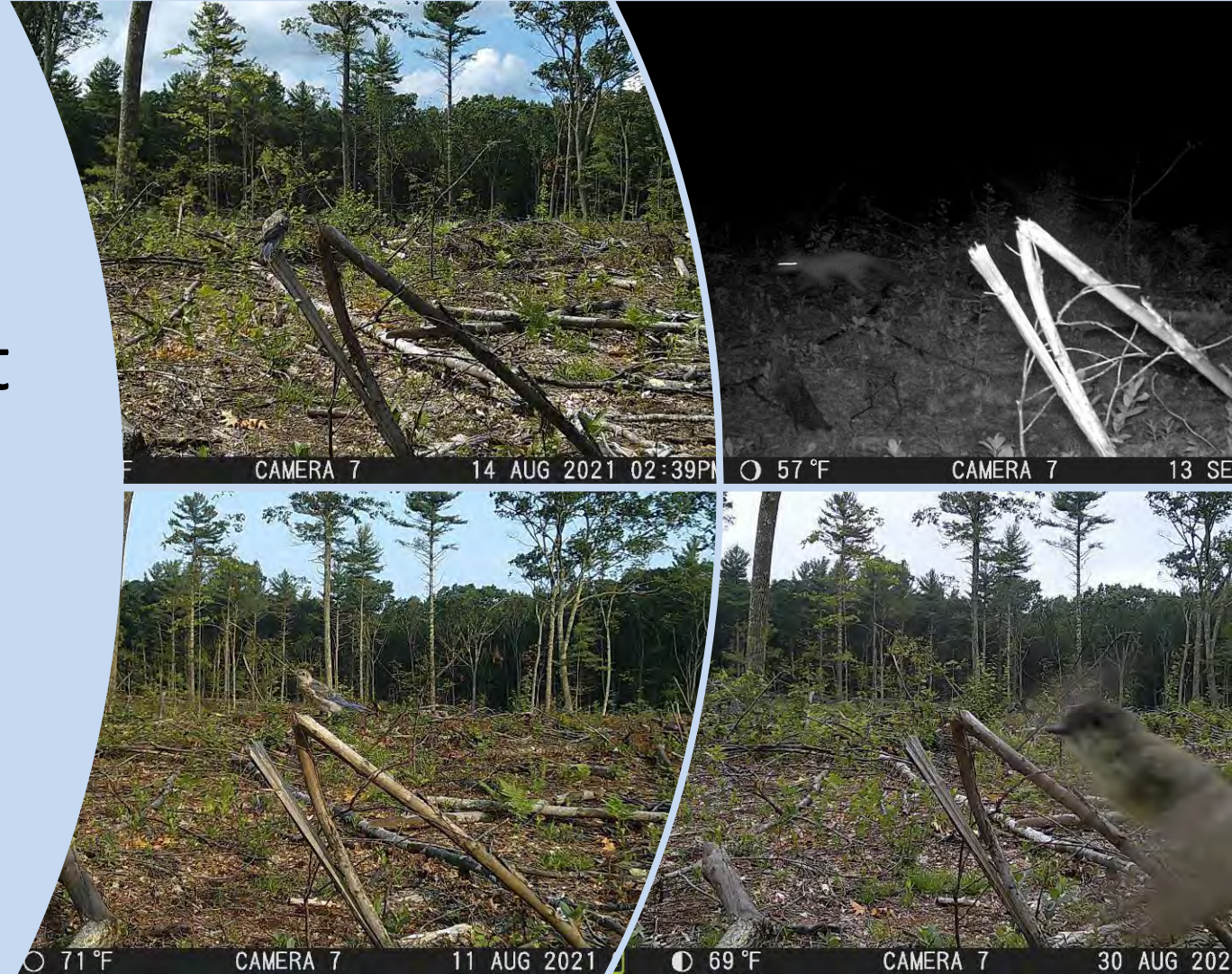


In the Harvest Outside the Slashwall





Photos in the Harvest Inside the Slashwall





Wildlife Management

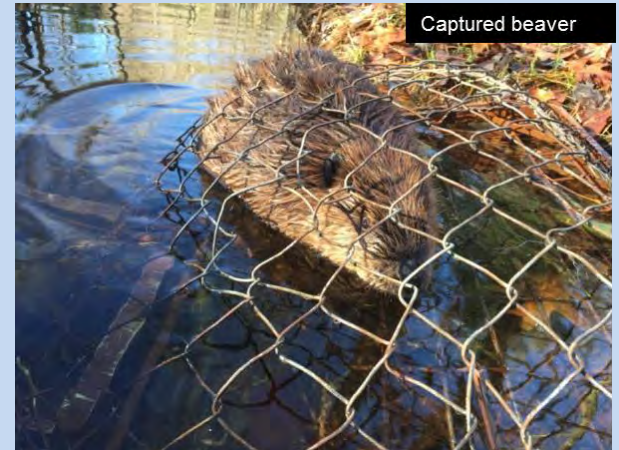
- Goal
 - Protect water quality or infrastructure from impacts of wildlife
 - Protect rare, common, or unique wildlife and habitats

White-tailed deer



Vernal pool

Captured beaver



Wildlife Management



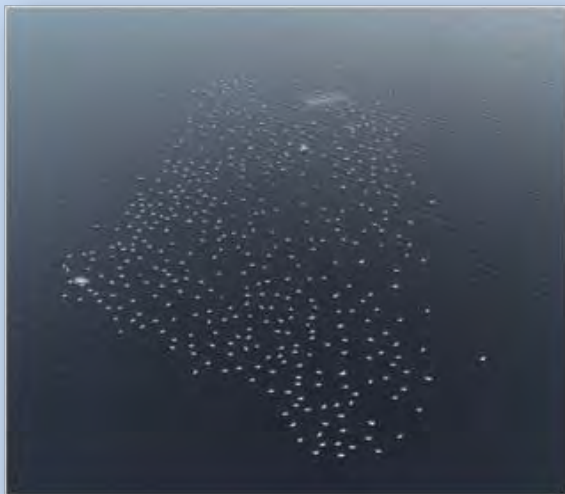
- DCR works to control impacts from wildlife while protecting diversity
- Continued success of Bird Control Program at both Reservoirs – bird number very low this fall\winter
- Management of beaver to limit impacts
- Control of Deer population to protect or restore forest health and resiliency



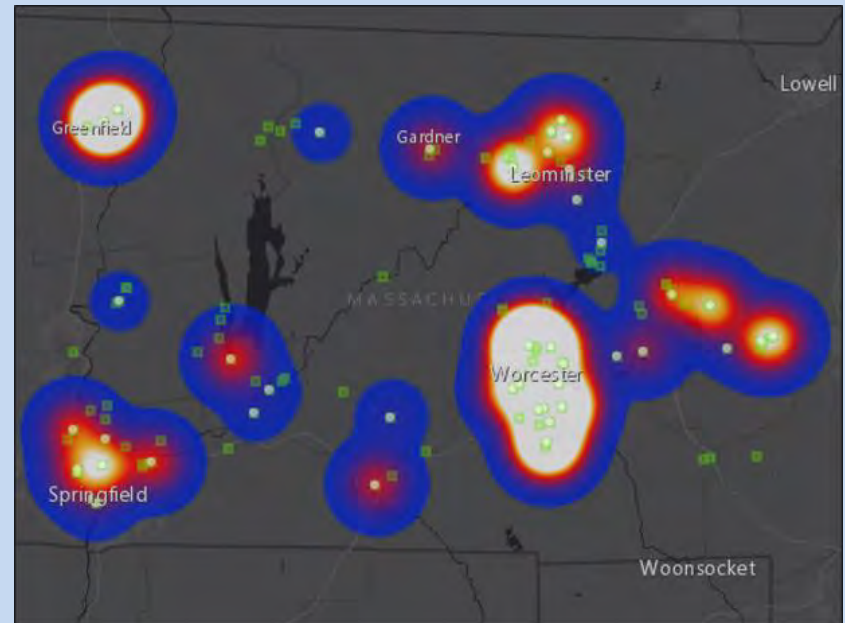
Bird Control Program



- Continued active observation and harassment from fall to spring
- Regional gull observations
- Fall\Winter (so far) has been relatively quiet with limited need for active harassment
- Worked with DOT Aeronautics for do weekly drone flights at Quabbin and occasionally Wachusett.
- Drone work successful in identifying bird locations



Regional Gull Surveys

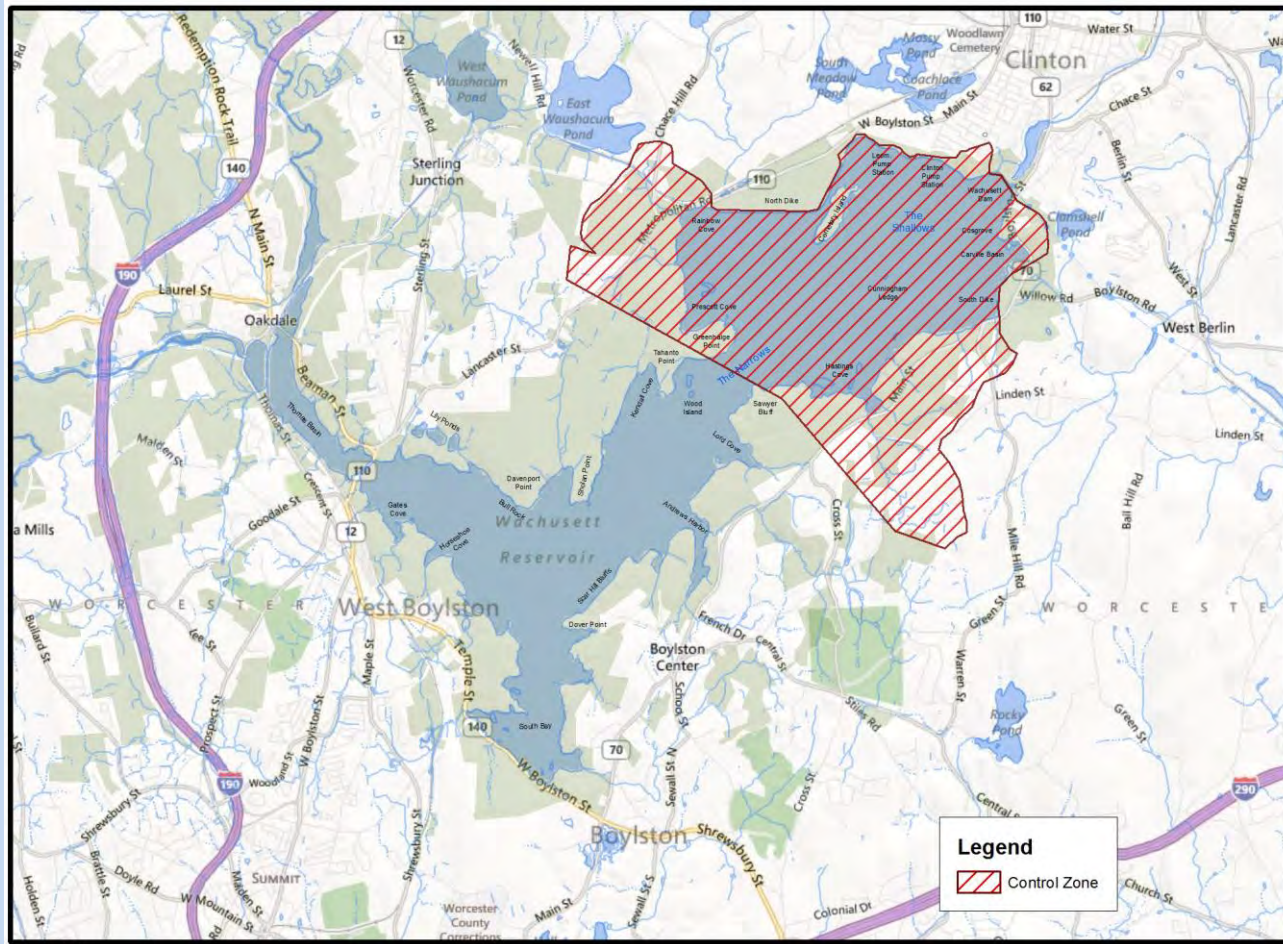


Beaver Control

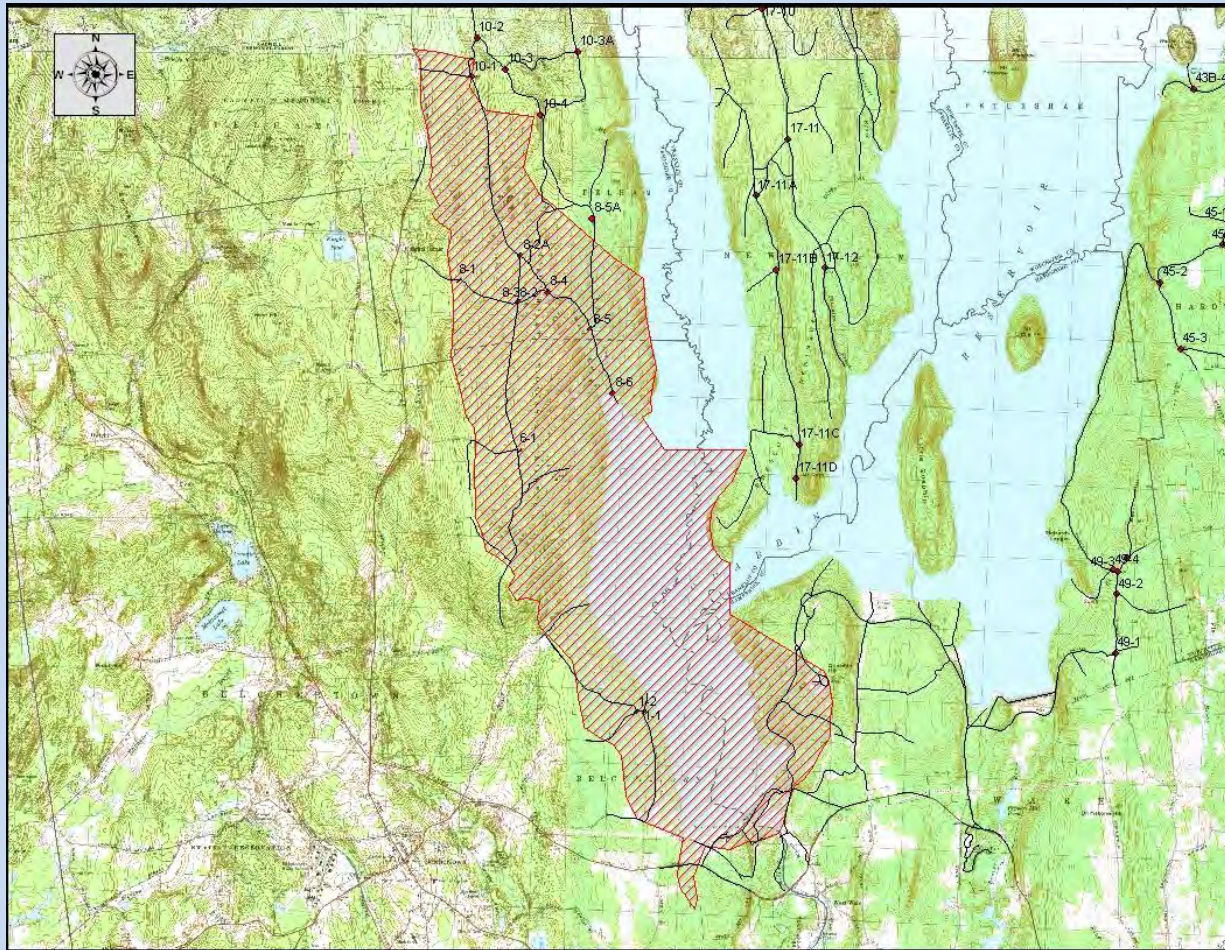


- Focus on Control in the Pathogen Control Zones on Each Reservoir
- Considerable effort to control beaver impacts to forest roads and infrastructure

Wachusett Pathogen Control Zone



Quabbin Pathogen Control Zone



2021 Deer Hunt Update



- DWSP specifically promotes deer hunting to maintain a resilient forest cover, which is most protective of the water supply
- Expanded Wachusett controlled hunt continued to be successful. Sudbury hunt expanded to include archery season
- At Quabbin, lands in Pelham, New Salem and Hardwick opened for shotgun season. Successful with limited staff time needed. Revised regulations being proposed to include archery season

2021 Deer Hunt Update



- **HUNTING ACCESS PERMITS:**
- Sudbury Reservoir Permits:
 - 486 hunters applied and received permits
- Wachusett Reservoir Zone Permits
 - No lottery this year
 - 310 hunters applied.
- Quabbin Permits
 - 640 hunters were issued permits.

2021 Deer Hunt Update



- **HARVEST REPORTED TO DCR (Feb 2022)**
 - **Sudbury:** 23 deer (14 male, 9 female)
 - **Wachusett Reservoir Zone:** 21 deer (9 male, 12 female)
 - **Quabbin:** 17 deer have been reported. (10 male, 7 female)
 - 6 in New Salem (5 male, 1 female)
 - 5 in **Hardwick** (2 male, 3 female)
 - 6 in **Pelham** (3 male, 3 female)
- We will look further at MassWildlife data to get additional deer checked in but not reported to DCR.

Public Access Management



- Visitation similar to 2020
 - At Quabbin, Rangers documented almost 34,267 visitor contacts and 627 violations
 - In Ware River, Rangers recorded almost 12,332 visitor contacts and 1,250 violations (about half were swimming violations)
 - At Wachusett rangers catalogued 26,295 visitor contacts with 1,785 rule violations noted. 289 noncriminal citations were issued. Highest violations were people on property after hours, swimming and dogs

Education and Outreach



- Covid continued to impact programming.
- Some in-person education resumed. Focus on online education with videos posted.
- Educational videos on DCR Youtube channel
- *Understanding the Quabbin* video
(<https://www.youtube.com/watch?v=JHiW6KX9-Gc>)



Water Quality and Hydrologic Monitoring



- Reservoir and tributary sampling continued
- Monitor stream flow:
 - USGS continuous gauges
 - DCR monitors smaller tributaries
 - New equipment being tested
- Improved data storage and retrieval - facilitate data analysis
- New Water quality buoy in Quabbin Reservoir





Current Road Salt Reduction Initiative

- Education and training
- FY22 - Second year of salt reduction grant program to assist Wachusett watershed communities
- Model impact of reducing inputs
- Improve data collection capability
- Upgrade DCR practices

Education and Training



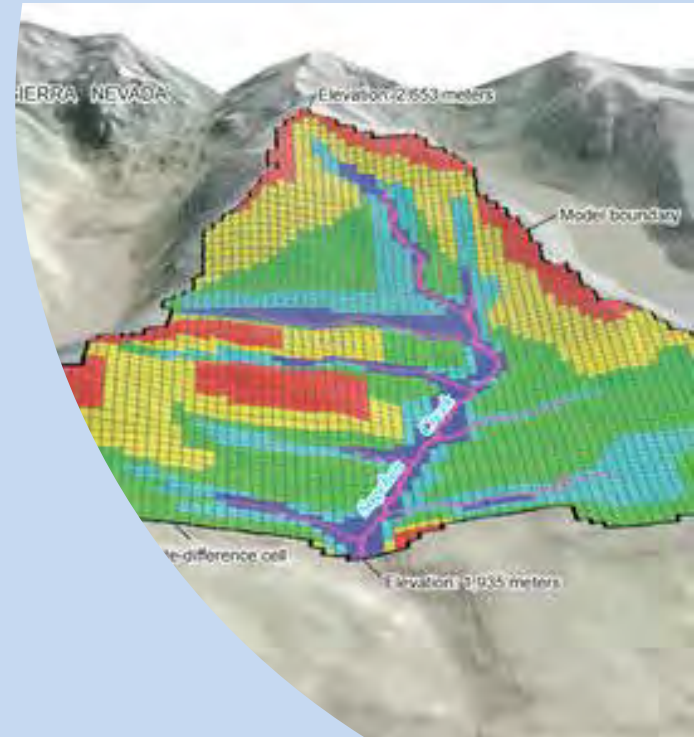
- DCR and MWRA have cooperated to provide Baystate Roads (UMASS Transportation Center) training on Snow and Ice Operations in 2019 and planned in 2021
- MWRA covered the cost of the training which was attended by staff from DCR, MWRA, and five watershed towns
- Instruction was provided on proper use of salt and liquid anti-icers, pre wetting and pre-treating options, anti-icing versus de-icing, new technology, and equipment calibration
- Pre-treatment of bare pavement BEFORE a storm prevents snow and ice from binding to pavement which makes it easier to plow and uses less salt overall
- Application of salt brine to roads before storm events is the best approach but requires specialized equipment to produce and apply the brine





Modeling Efforts

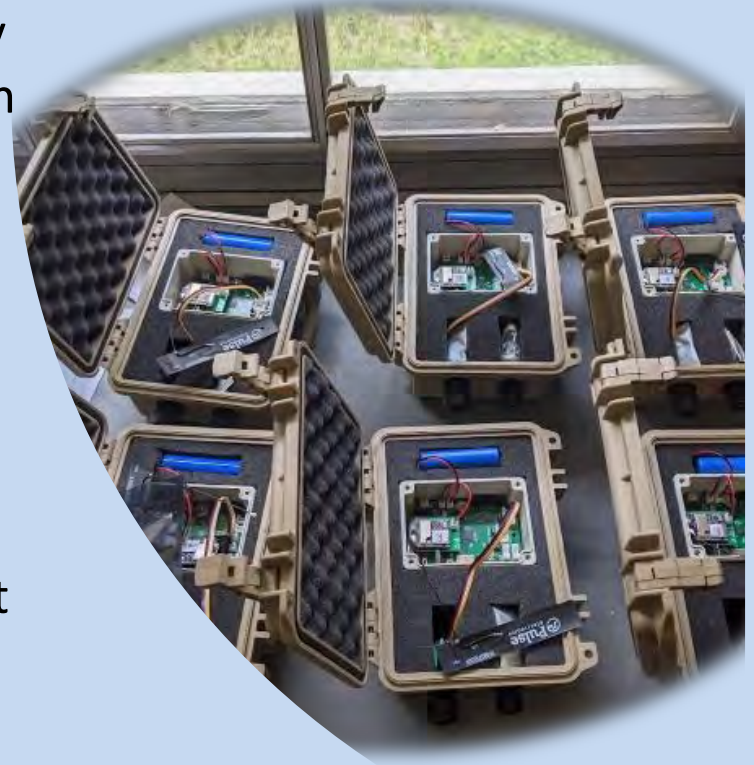
- UMASS-Amherst has an existing ISA with DCR to investigate watershed-based reservoir inputs and to use their existing hydrodynamic and water quality model to predict various outcomes under a variety of conditions
 - Recent publication: Soper et al. Long-term analysis of road salt loading and transport in a rural drinking water reservoir watershed Journal of Hydrology, September 28, 2021
 - “The decadal response of the reservoir system reflects the slow-moving nature of the baseflow-dominated chloride loading and suggests that measurable water quality improvements will only be realized with a sustained long-term decrease in the amount of road salt applied.”





Improve Data Collection

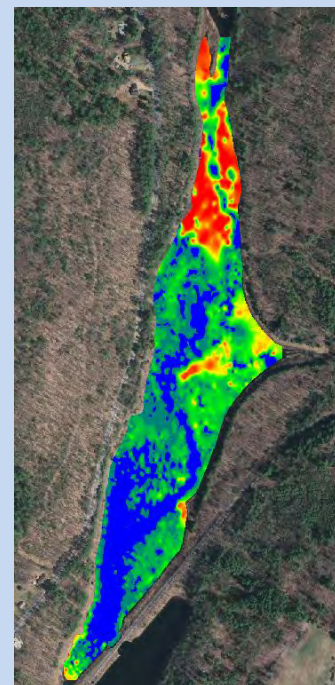
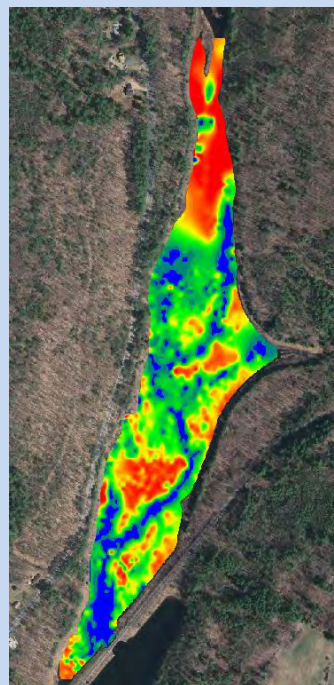
- Installation of DIY low-cost Mayfly Data Loggers across the watershed, powered by solar panels and lithium-ion batteries, with the ability to obtain real-time specific conductance data. Successful pilot of one unit, six more units have recently been deployed.
- Collect additional groundwater data on chlorides and specific conductance
- Encourage regular reporting on annual salt use by towns and MADOT
- Establish salt tracking form to be used during all future winter storms by DCR watershed maintenance staff
- Monitor salt applications at parking lots



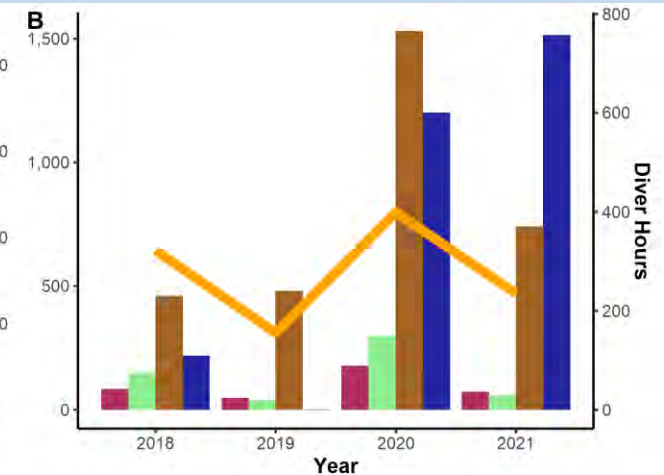
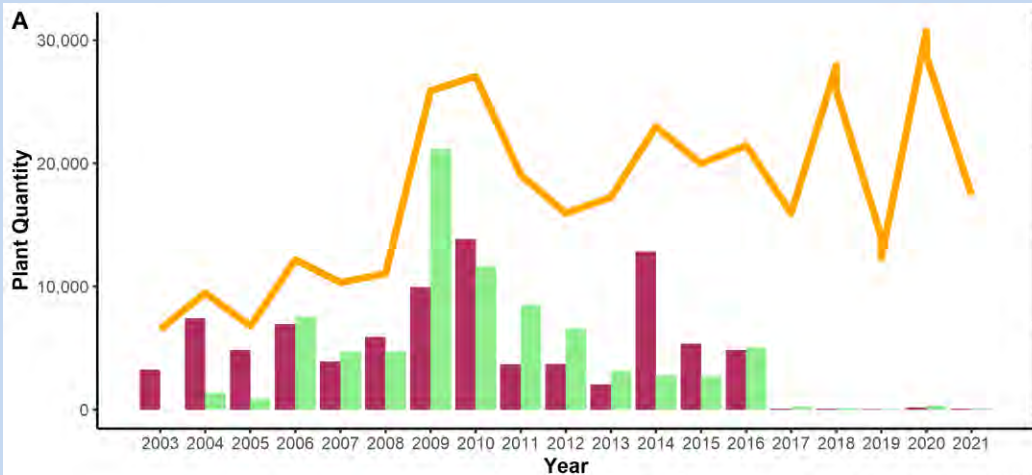


Aquatic Invasive Controls

- MWRA contract at Wachusett with DCR Aquatic Biologists providing oversight
- Continued decline of invasive plants in Stillwater basin; work focused on Quinapoxet basin



Thomas, Oakdale, Main Basin Coves

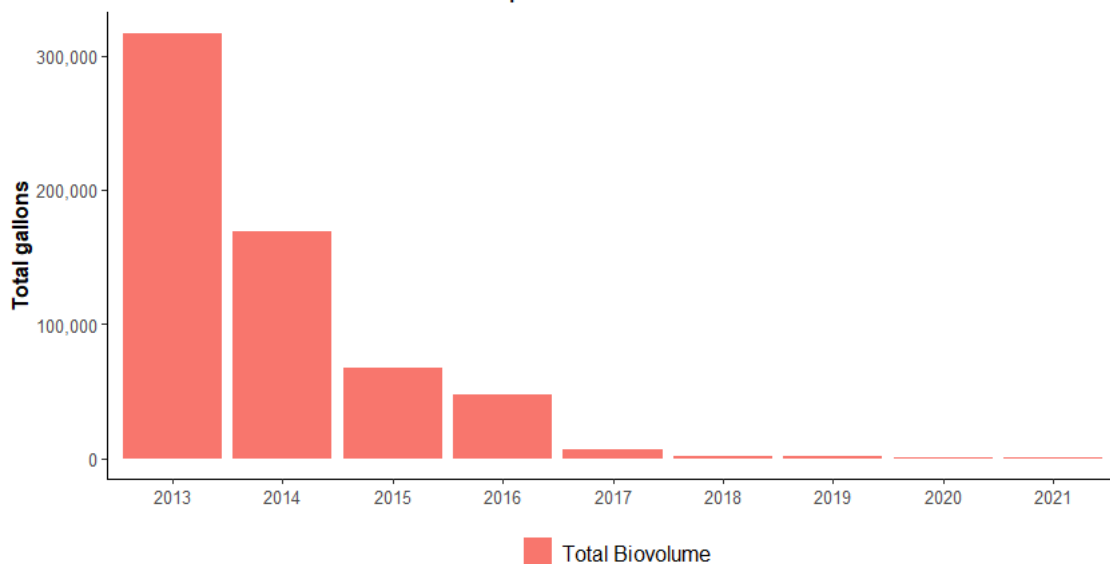


Variable Milfoil Eurasian Milfoil Fanwort Diver Hours

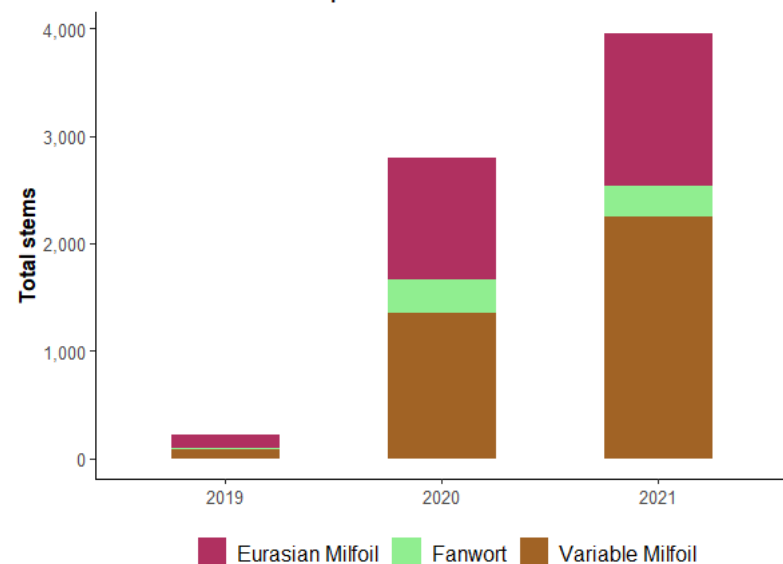
Stillwater Basin



A Gallons of invasive plants removed from Stillwater Basin

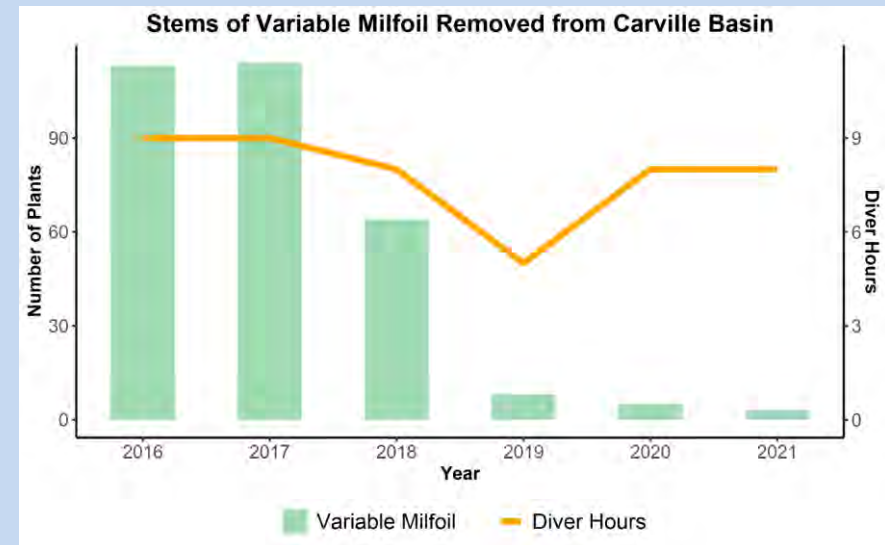
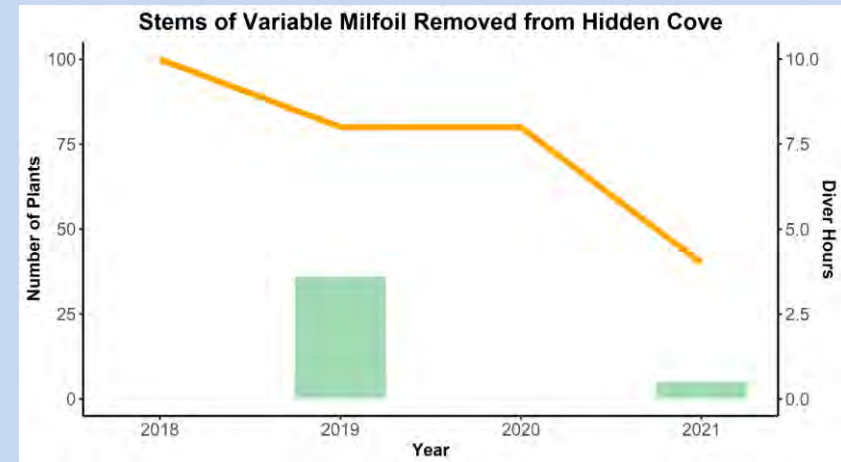
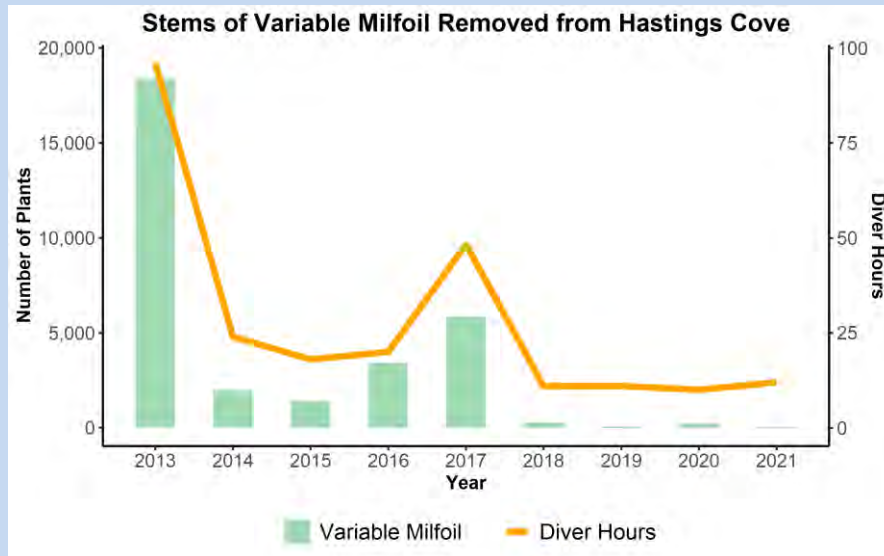


B Stems of invasive plants removed from Stillwater Basin





Main Basin Coves – Variable Leaf Milfoil





Stormwater Management

- Continued work on Direct Discharge Projects:
 - Rt 110 Sterling design submitted to DOT
 - Additional valves put in stormwater basins to all for draining water from forebay



DCR Asset Mitigation Funding



- Agency-wide initiative through Comptroller Funding
- Watershed received \$1.4 M for safety projects
- FY2022 funding only
- Quabbin: Cemetery, Quabbin Tower, Administration building;
- Wachusett: Salt shed, Stillwater Farm barn stabilization, Lancaster St. barn structure

Covid 19 and Watershed Protection



- Ranger and Maintenance staff reported regularly.
- Other staff worked remotely but still did required field work safely; Now on hybrid schedule
- Forestry continued to occur with monitoring
- High visitor usage across watersheds

Hiring



- FTE count: 140
- 2 additional staff starting in next few weeks
- Positions filled Since November:
 - Wachusett Regional Director, Land Acquisition Coordinator, 7 laborers, Wildlife Biologist, Maintenance Supervisor, Construction Maintenance Foreman, Civil Engineer, Painter, Program Coordinator, Office Support Specialist, Ranger, Carpenter, Janitor

Hiring



- Carpenter and janitor at Quabbin to begin end of month
- 6 of the positions were filled by Watershed staff, leaving vacancies.
- One vacancy due to Covid compliance



Questions?