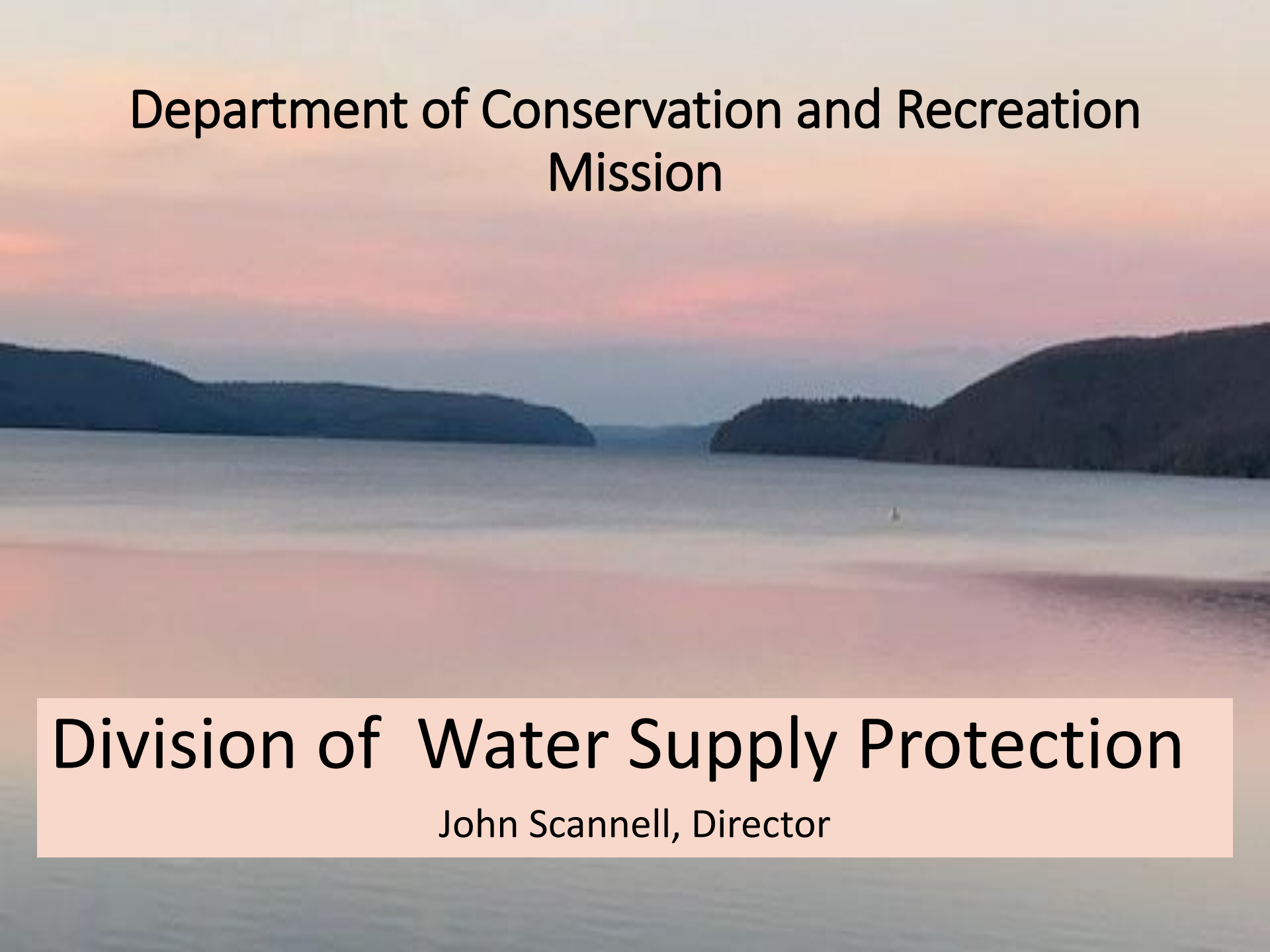
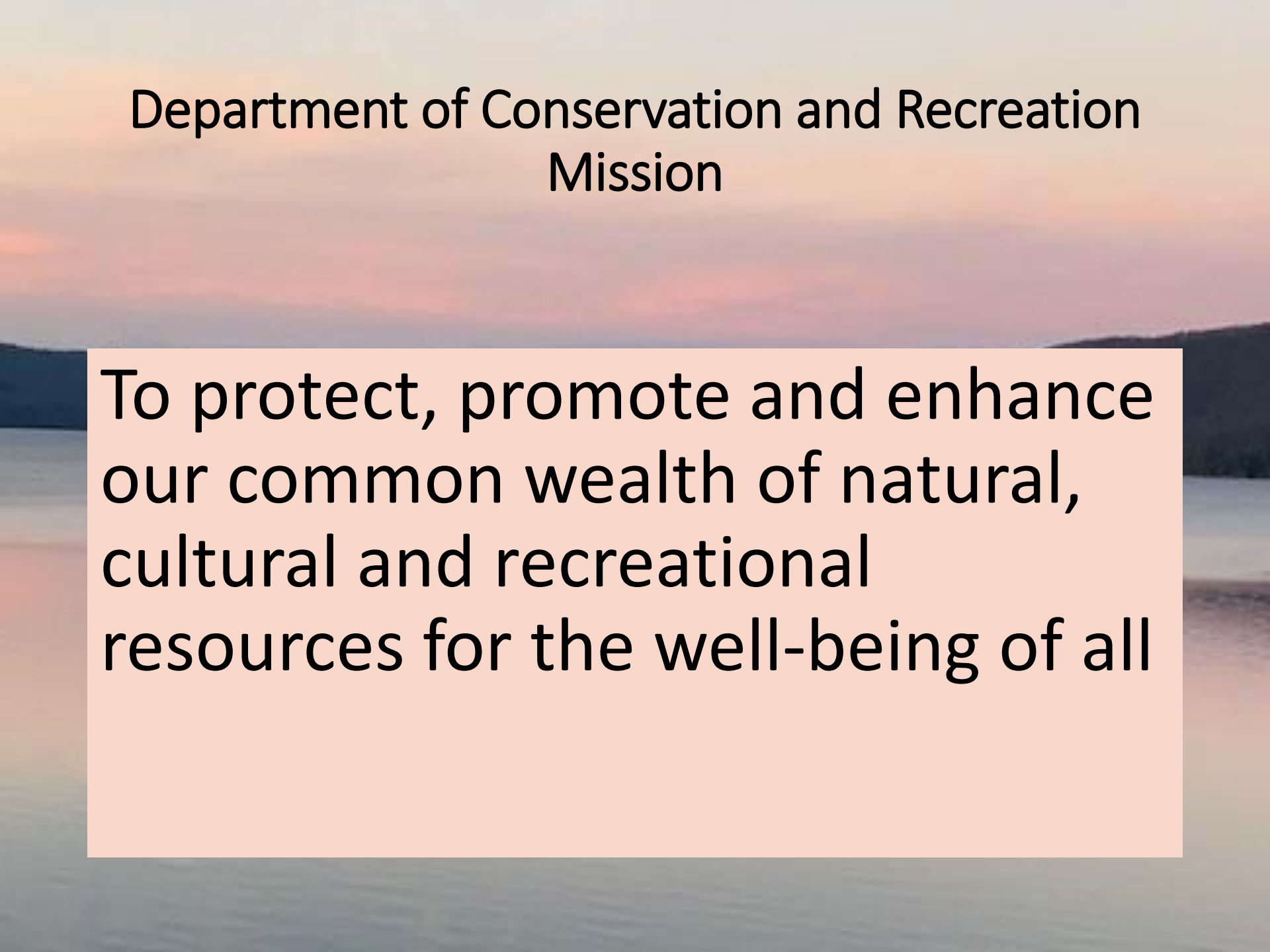




Department of Conservation and Recreation Mission

Division of Water Supply Protection

John Scannell, Director



Department of Conservation and Recreation Mission

To protect, promote and enhance
our common wealth of natural,
cultural and recreational
resources for the well-being of all

Department of Conservation and Recreation

Division of Water Supply Protection



Office of Watershed Management



Office of Water Resources

Office of Water Resources

- The DCR Office of Water Resources (OWR) works to conserve water resources, on DCR-owned properties and across the Commonwealth.

- Programs focus broadly on the impacts of climate and land use on water resources.

- Advance resiliency in the face of droughts, floods and land use impacts to our waters

- Anne Carroll, Director
- Vanessa Curran, Deputy Director
- Nadia Madden, Director Flood Hazard Management Program
- Kara Sliwoski, Director Lakes and Ponds Program

Office of Water Resources

- Water Resources Commission Staff
 - Implements the Interbasin Transfer Act and Regulations
 - Technical staff to the State's Drought Management Task Force
 - Provides state-wide technical support for Commonwealth Water Planning efforts
- Flood Hazard Management Program
 - State Coordinating Office for the National Flood Insurance Program (NFIP)
 - Development Statewide Flood Plan
 - Work with communities to develop local flood plans

Office of Water Resources

- Lakes and Ponds Program
 - Works to enhance 300 lakes, 51 freshwater swimming beaches and riverfront areas and provides technical guidance to lake and pond managers across the Commonwealth
 - Aquatic Invasive Species control on DCR water bodies
 - Technical advisors to other lake/pond organizations

Champion of Our DCR Mission and Core Principals

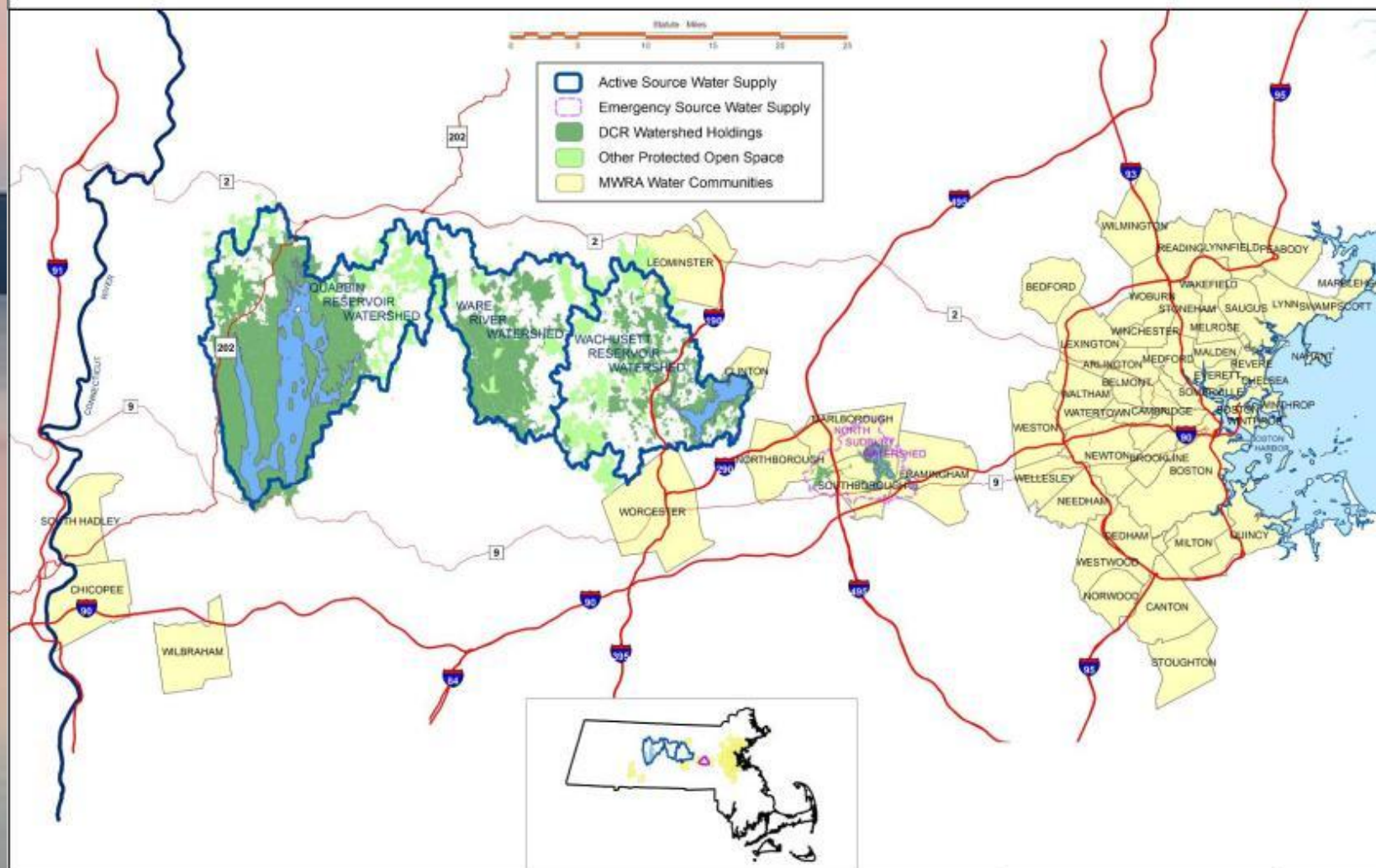
- Integrate science and research initiatives into water resource protection and conservation policies for DCR lands and overall Commonwealth water resources
- Work to advance resiliency in the face of droughts, floods and land use impacts to our waters
- Strive to provide access to healthy waters for all

Office of Watershed Management

OWM is responsible for protection of metropolitan Boston water supply watersheds with a goal to provide a clean unfiltered source of water for over 2.7 million Massachusetts residents;

Our system encompasses 4 watersheds Quabbin, Warfe River, Wachusett and Sudbury Reservoirs. DWSP manages over 100,000 acres of land

- **Quabbin\Ware River Region**
 - **Dan Clark, Regional Director**
 - **Lisa Gustavsen, Deputy Regional Director**
- **Wachusett\Sudbury Region**
 - **Kelley Freda, Regional Director**
 - **Derek Liimatainen, Deputy Regional Director**
- **Watershed Natural Resources**
 - **Ken Mackenzie, Director**
- **DWSP GIS**
 - **Erica Poisson, Coordinator**
- **DWSP Finance**
 - **Jarrett Sparks, Budget Director**



Watershed Protection Program

- **DCR/MWRA Unfiltered Water Supply**
 - Regulated by DEP (EPA)
 - Waiver from Filtration must be re-certified by DEP annually, which requires annual review of Watershed Protection Program
 - DCR must show sufficient control over watersheds
- **Required Watershed Protection Plan every 5 years (current plan 2024-2028)** <https://www.mass.gov/doc/dcr-watershed-protection-plan-fy24-fy28/download>
- **313 CMR 11.00 Watershed Protection Regulations implemented by DCR DWSP**

Watershed Protection Program

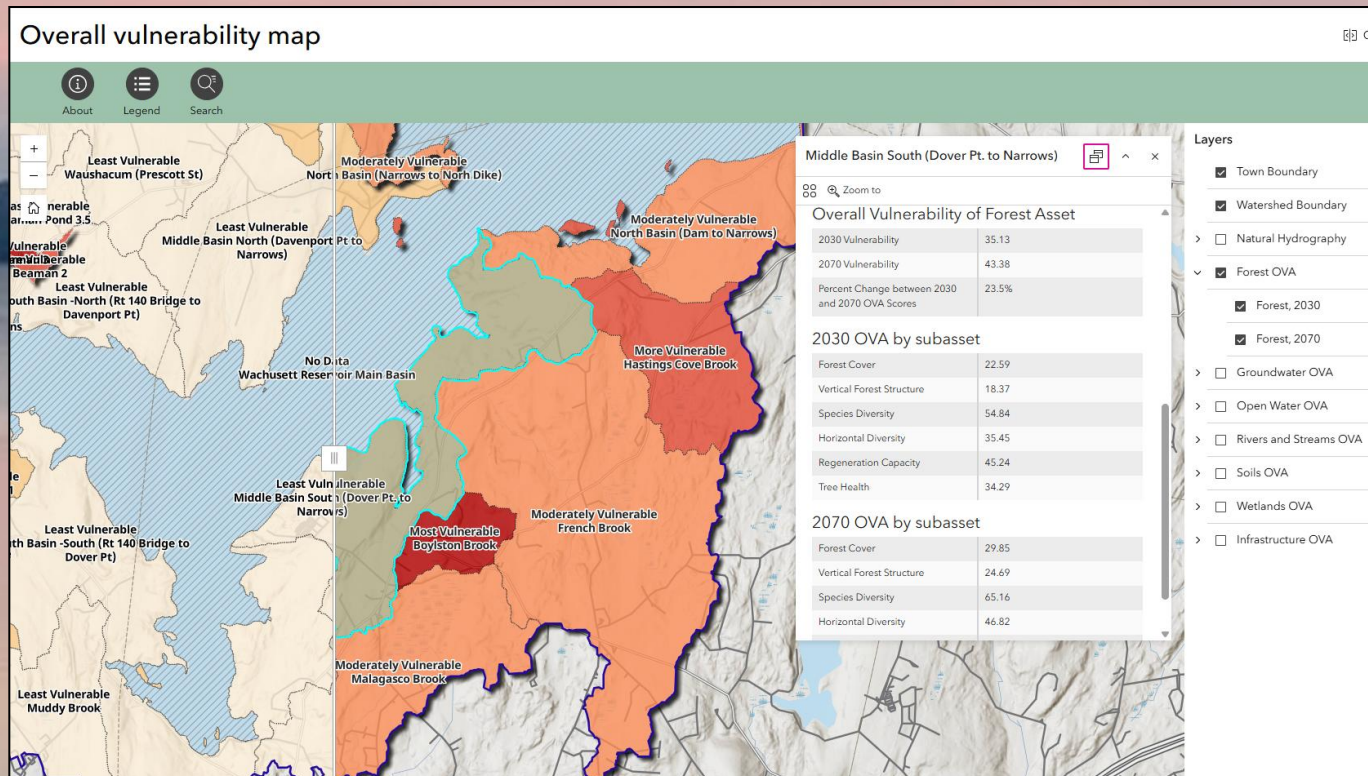
- Programs
 - Forestry\Land Management
 - Infrastructure Maintenance\Engineering Oversight
 - Environmental Quality (aquatic biology, stream/reservoir sampling)
 - Pollution Prevention/ Watershed Assessment
 - Environmental Planning\Regulation
 - Public Access Control (Rangers)
 - Wildlife Management
 - Land Acquisition/ WPR Monitoring
 - GIS
 - Watershed Maintenance
 - Education/Outreach

Champion of Our DCR Mission and Core Principals

- Provide clean water for over 2.7 million Massachusetts residents
- Assure watershed use and development occurs in a manner that will not impact long term water supply protection goals
- Maintain forest filter on 100,000 acres that is resistant and resilient by managing for age and species diversity
- Provide access for passive recreational opportunities that are consistent with water supply goals
- Protect and provide for a variety of species diversity on DWSP lands and waters

Climate Change Vulnerability Assessment:

Identify the vulnerability of natural assets at the sub-watershed level



Climate Change Vulnerability Assessment

Data Gap Projects

1. Forest Canopy Height Mapping using LiDAR
 - *Forestry asset – Forest Complexity (F4) indicator*
2. Historic Ice Cover at Wachusett and Quabbin
 - *Open Water asset – Reservoir Ice Cover (OW10) indicator*
3. Quabbin Shoreline Erosion Potential
 - *Open Water assets – Shoreline Slope (OW1) indicator*
 - *Open Water assets – Shoreline Erosion Potential (OW9) indicator*
4. Wachusett Macroinvertebrates as stream quality indicators
 - *Rivers and Streams asset – Macroinvertebrates (RS3) indicator*



Photo: Exposed shoreline of Quabbin Reservoir

Land Management - Forestry

- Goal:
 - Maintain the production of high-quality water by maximizing our watershed forests' resistance and resiliency in the face of acute (e.g. heavy wind events) and chronic (e.g. insects, browsing) disturbances.
- Desired Forest Characteristics:
 - Deliberately patterned in a mosaic of variously aged patches
 - Diverse in native tree species, favoring long-lived species well- suited to their growing sites
 - Accumulating biomass and assimilating nutrients
 - Capable of a rapid recovery following disturbance



Wildlife Management

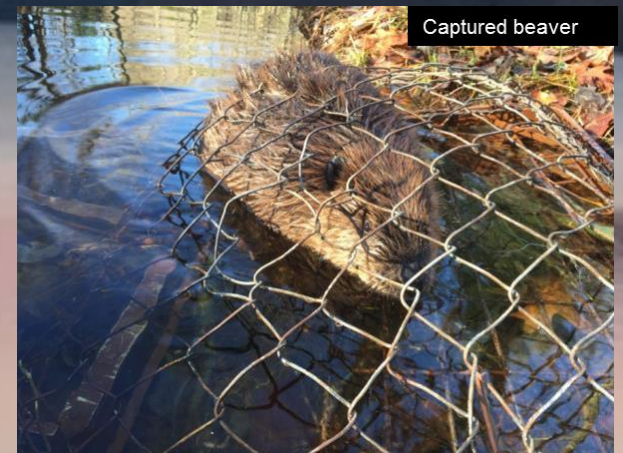
- Goal
 - Protect water quality or infrastructure from impacts of wildlife
 - Protect rare, common, or unique wildlife and habitats



White-tailed deer



Vernal pool



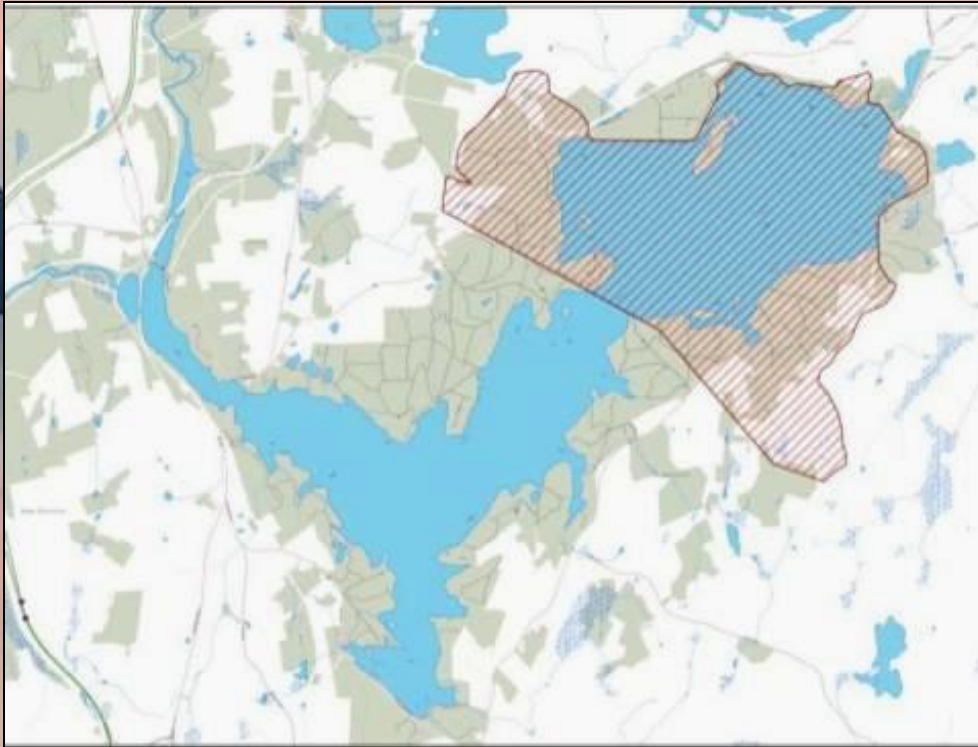
Captured beaver

Wildlife Management – Gull Control

- Bird Harassment Program run at both Reservoirs with active harassment as needed in fall and winter to keep roosting gulls from impacting water quality
- No exceedances of fecal standard



Gull Control Zones



Wachusett Reservoir – Cosgrove Intake

Quabbin Reservoir –
CVA Intake



Public Access Management



- Rangers patrol dawn to dusk, 7 days per week providing enforcement by educating users
- Coordinated with Mass State and Environmental Police on enforcement as needed



Infrastructure

- Routine Infrastructure Inspection and Maintenance including dams, gravels roadways and stormwater infrastructure
- Observations of large dams and smaller watershed dams



Quabbin Administration Building Roof and Chimney Replacement



QUABBIN – CAMEL BROOK UPGRADED CROSSING

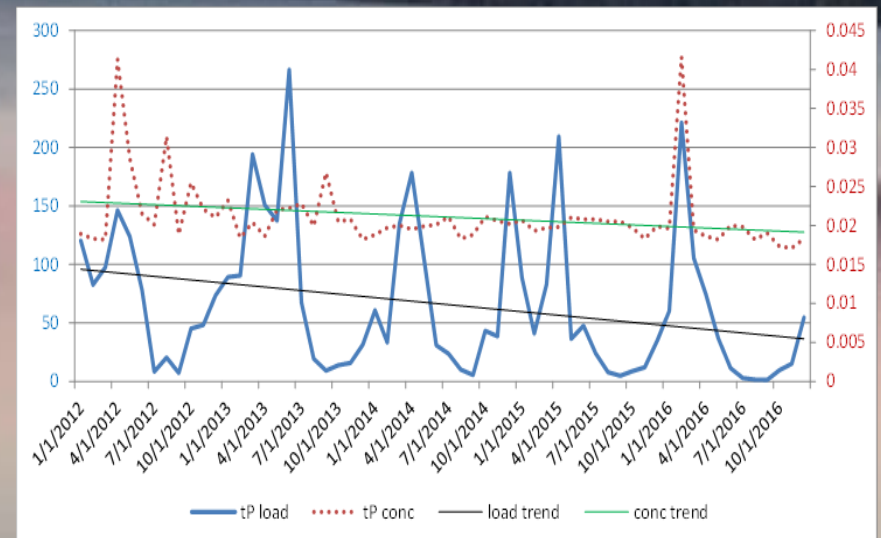


Water Quality and Hydrologic Monitoring

- Routine reservoir and tributary sampling
- Monitoring of stream flow.
- DCR monitors smaller tributaries across all 3 active watersheds
- Phytoplankton monitoring on both Reservoirs



Stillwater River Total Phosphorus Load (kg) and Concentration (mg/L)

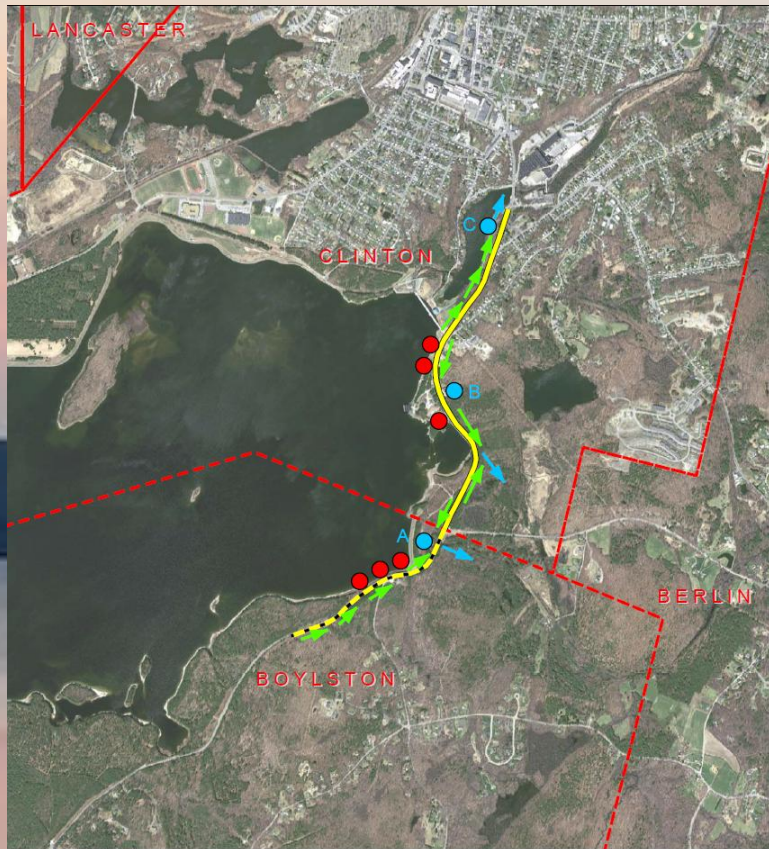


Stormwater Management

Long Term Commitment to Stormwater Treatment and Spill Prevention

- **Wachusett Direct Discharge Project**
 - Causeway project completed
 - South Bay and Beaman Street Bridge substantially complete. Final work in spring 2018
- **DCR bmps monitored inspected and maintained**
 - DCR responsible for maintenance
 - 13 stormwater basins and 8 stormwater treatment units from Direct Discharge Project





Aerial Map

Stormwater BMP Locations

Route 70 Drainage Improvements
Wachusett Reservoir

Project Area within Clinton

Project Area within Boylston

BMP Location & Number

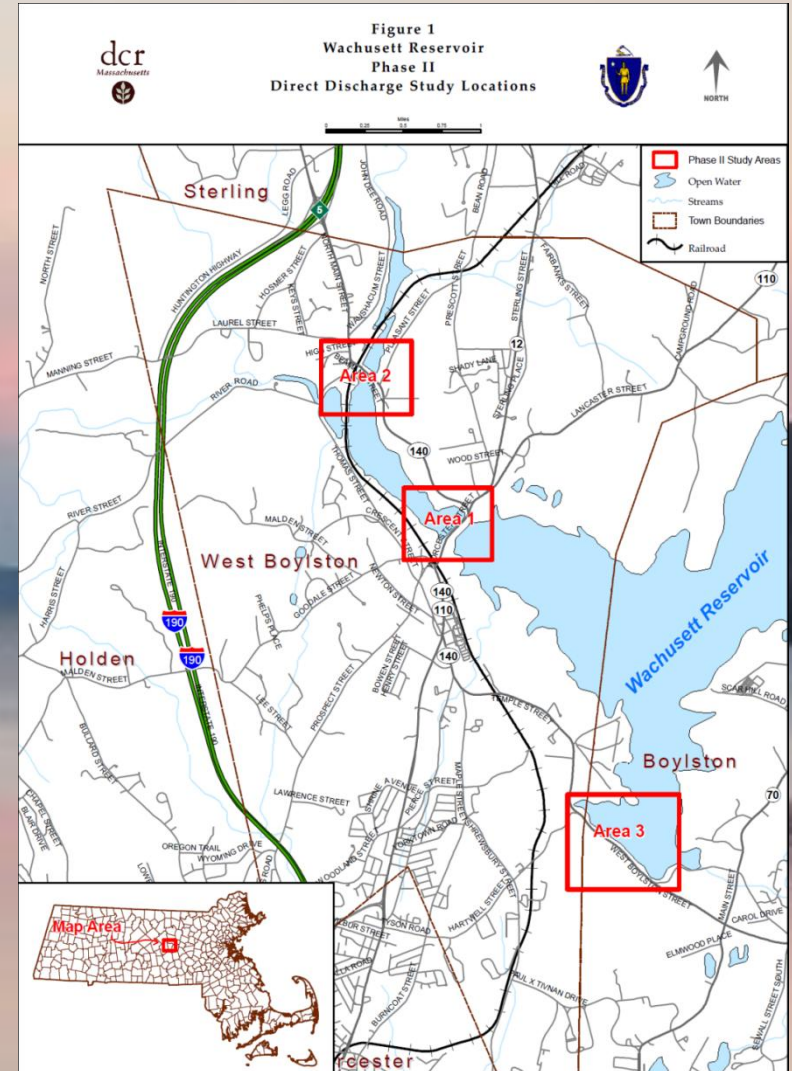
Figure 2

July 2012

Eliminated Discharge to Reservoir

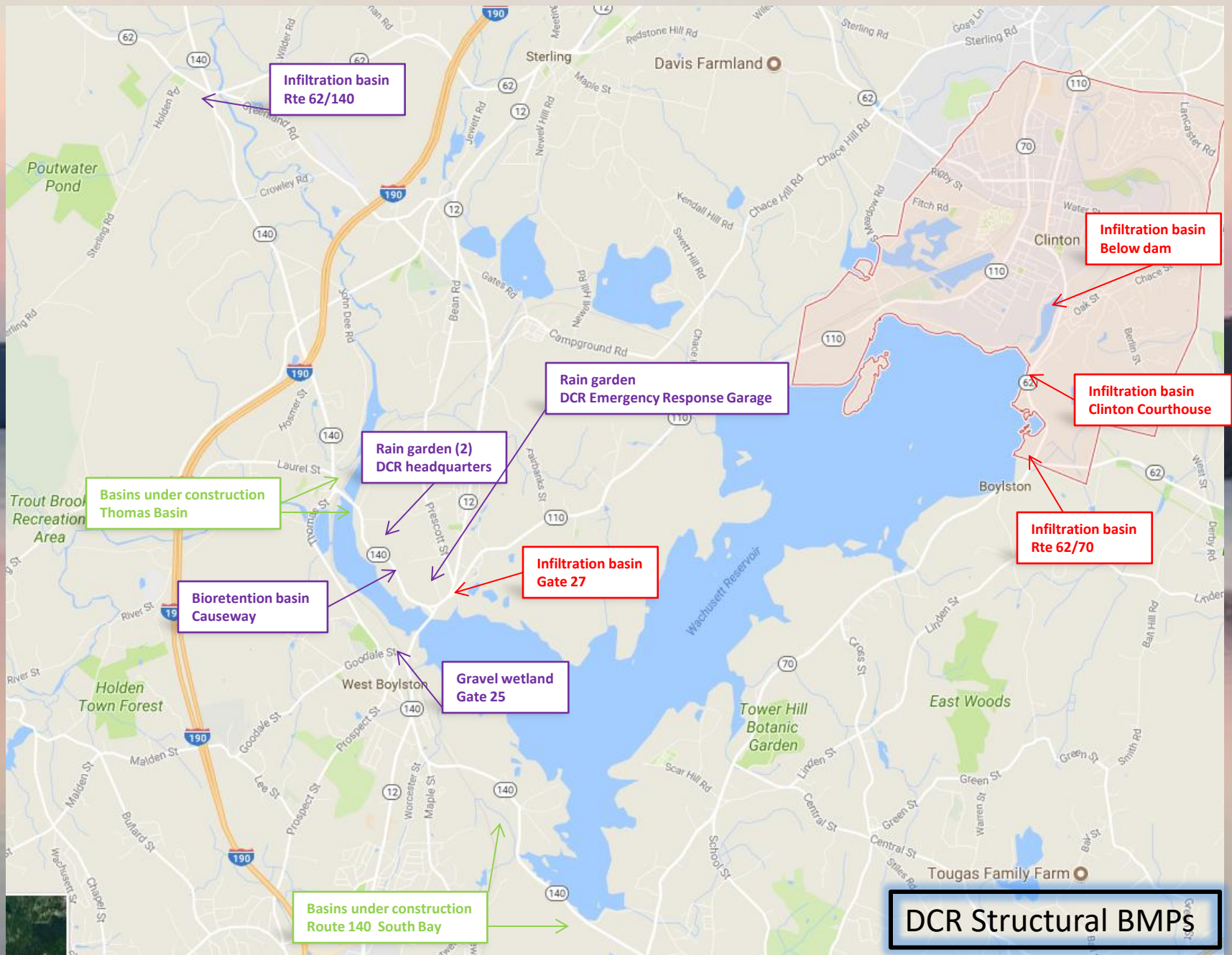
New Discharge Outside Watershed

New Drainage System



Phase I

Phase II





Causeway



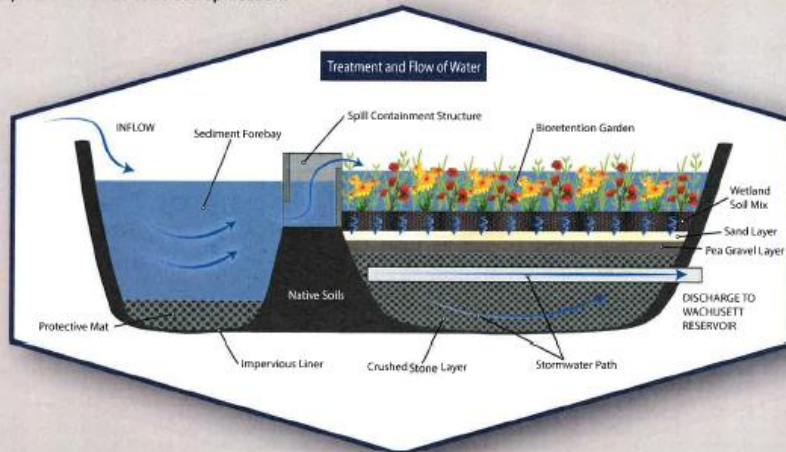
Rte 12 Bridge

Interpretative Kiosk for New Stormwater Basins

Wachusett Reservoir Direct Discharge Elimination Project

What is Stormwater Runoff?

Stormwater runoff is generated from rain events and snowmelt that flow over land and impervious surfaces like pavement or rooftops. The stormwater runoff picks up pollutants like trash, chemicals, nutrients and oils that can harm our lakes, rivers, streams, and coastal waters. Stormwater runoff carrying accidental spills from hard surfaces like streets, parking lots and driveways can threaten drinking water stored in surface reservoirs. Additionally, nutrients such as nitrogen and phosphorus which are found in animal wastes, fertilizers and faulty septic systems, are a significant source of pollution to nearby water bodies. Excess nutrients degrades water quality - a process referred to as eutrophication.



How can you help?

Pick up after you pet and dispose of waste • Use slow release fertilizers and apply only in appropriate concentrations • Apply pesticides and herbicides according to manufacturer specifications • Properly dispose of grass clippings and leaf litter • Wash cars on pervious areas that do not drain to catch basins • Maintain equipment and vehicles to prevent leaks and drips • Properly maintain all septic systems

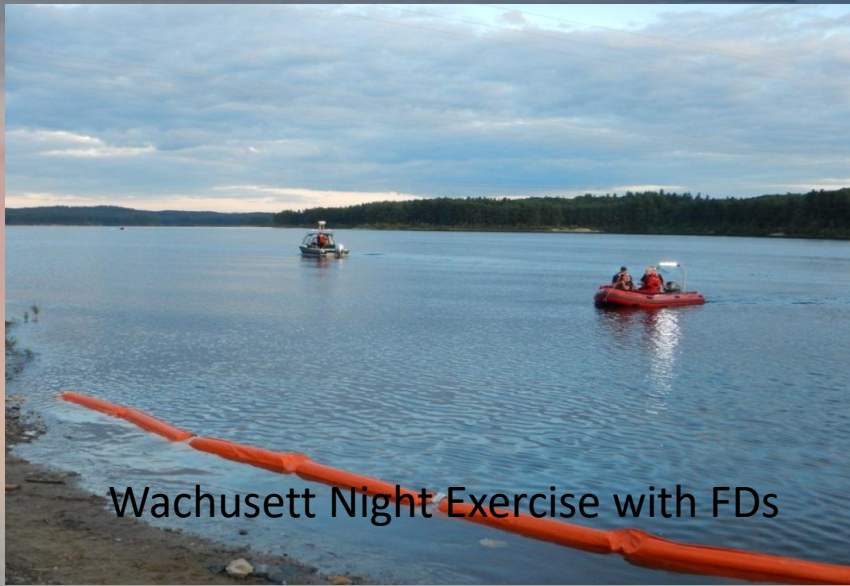
Why was this constructed?

This project is a bioretention system similar to a large rain garden which also provides accidental spill containment. It is designed to collect stormwater runoff from approximately 2.5-acres of impervious areas around the reservoir. This stormwater treatment system contains accidental spills entering storm drains, and uses special shrubs, plants, soils, bacteria and natural processes to remove key stormwater pollutants including nitrogen and phosphorus. The Massachusetts Department of Conservation and Recreation is charged with protecting the reservoir and the watershed lands around it to ensure a clean drinking water supply. Removing pollutants from stormwater entering the drinking water source and containing potential accidental spills from roadways improves the water quality, ecological health and overall protection of the Wachusett Reservoir. With proper maintenance, this bioretention system will treat approximately 3 million gallons of runoff per year.



Emergency Response -Training & Exercises

- Working with MWRA, staff train to control releases
- Trainings and exercises with DCR, MWRA, DEP, MSP, local fire and police



Wachusett Night Exercise with FDs



Questions?

