



Fiscal Year 2020 Final Report



Lockesmith Watershed Preservation Restriction, Petersham

September 2020

Massachusetts Department of Conservation and Recreation
Division of Water Supply Protection
Office of Watershed Management

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**DCR/DWSP Office of Watershed Management
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Wachusett/Sudbury Region

A. Land Acquisition

In FY20, five properties were acquired in the Wachusett Watershed. These properties included: 14.2-acres in Holden (\$82,000; fee), three Stillwater basin acquisitions for a total of 59 acres (\$540,000; fee), and a 34-acre WPR gift (White Oak Land Trust/former Ecotarium property) in Holden/Paxton.

B. Watershed Preservation Restriction Monitoring

Several high-priority WPRs and Forest Legacy properties were monitored in FY20. Extensive work continued on modernizing the monitoring program to incorporate new technology and procedures. The new Monitoring Program continued to operate within the safety recommendations of the Covid-19 pandemic. The Program continued working with DCR Restriction Working Group to draft Enforcement, Reserved Rights and Amendment Procedures for WPRs and published a WPR Handbook for landowners interested in the program.

C. Land Management

Forestry staff prepared and sold 12 timber sales on 535 acres in FY20. Information on all timber sales was prepared and posted on the DCR website as well as on a sign at the timber sale site. Forestry staff provided oversight and supervision on active timber sales in FY20.

NR accumulated all proposed FY21 forestry information in preparation for annual review and distributed to the entire review team. Field review was completed during the fourth Quarter and a final review document was presented to foresters. A Storymap was created to present the proposed lots to the public pending the Commissioner's approval.

All active, proposed, and completed short-term forestry projects were monitored regularly by EQ staff except for periods in March and April when all monitoring activities were suspended. No significant water quality issues noted at any time during FY20.

Improvements to discharge monitoring at long-term forestry monitoring sites were made; including a new weir at the Holden site and plans for a new weir at the Princeton site.

D. Wildlife Management

The active portion of the bird harassment program operated from early September to late March when the program was discontinued due to the Covid-19 pandemic. Boat harassment was only needed for two weeks at the end of 2019 and two weeks in February; some morning observation and harassment was needed. Development and use of a Survey123 app on iPads standardized and simplified data collection and analysis.

Goose control was conducted at the Sudbury, Wachusett, and Quabbin Reservoirs. The Reservoir islands and shorelines were surveyed for nesting geese. The goose population

management program at DWSP Reservoirs has been effective in both limiting the number of goslings hatched each year and gradually reducing the number of resident adults. Efforts to keep the Pathogen Zone free of muskrat and beaver continued this quarter. There were no active beaver sites found in the Pathogen Zone at Wachusett. Mitigation efforts were implemented, and most flooding issues were resolved with a combination of trapping, culvert protection, and overflow piping.

Deer hunting continued in the Wachusett Watershed in FY20. The expansion of deer hunting last year has made a significant impact on the local deer population and will continue into FY21.

E. Public Access Management

Watershed Rangers continue to patrol the watershed. Visitation greatly increased in the third and fourth quarter during COVID-19. In FY20 rangers catalogued 25,142 visitor contacts with 1,211 rule violations noted. Both the number of contacts and the violations were significantly higher than in past years. Rangers observed not only an increase in the number of visitors, but in the number of first time visitors to the watershed that were unfamiliar with many rules and regulations. Twenty four written warnings were issued, and 66 noncriminal citations were issued, also a marked increase over recent years.

F. Watershed Security

Ranger staff continues to maintain an active presence in the watershed. All Wachusett/Sudbury staff informs Rangers of any unusual activities. Interactions and coordination with the State Police, Environmental Police and other enforcement personnel continued throughout the year.

G. Infrastructure

All Wachusett and Sudbury dams, spillways, and dikes were inspected monthly and smaller watershed dams were assessed in the fall and spring. Internal roads were inspected, an Internal Road plan was created, and work projects generated. Liming of both North and South Dike was completed. The construction of the new Clinton Headquarters facility was completed and staff moved into the building in January. New water service line was installed from Wilson Street to the new headquarters building and the carpentry shop. Regular monitoring of River Street was conducted.

Regular inspections of stormwater BMPs were conducted at least twice a year and after large rainfall events; maintenance and repair work occur as needed. A valve was installed in a Gate 25 forebay structure to allow for control of the water level. Granite blocks (900 sf) were obtained for the Rt 62/140 forebay basin. DWSP worked with MassDOT to modify stormwater structures at the Beaman Street Bridge and South Bay.

Hazardous material assessments were conducted on structures proposed for demolition. Hazardous material abatement was conducted on the Hulick riding rink, Mill Street camper, and Chapman trailer. A negative Determination of Applicability was obtained from the Sterling Conservation Commission for the demolition of the Hulick riding rink.

H. Watershed Protection Act

Wachusett staff continued to implement the Watershed Protection Act (WsPA). All WsPA applications were reviewed and decisions issued within timeframes as required by the regulations despite limitations due to Covid-19. There were 61 applications filed during FY20 including

eight applications for a Variance. Two variance hearings were held remotely during the pandemic. Building permits and property transfers for watershed communities were reviewed to identify properties affected by the act and letters were sent to notify owners of WsPA jurisdiction. Work on a written workflow to document the WsPA process was begun.

I. Education and Outreach

The Interpretive Services plan has been updated with statements of significance and overall themes focusing on programming related to the DWSP mission.

New interpretive and informational kiosk wayside panels were designed and installed on kiosks for an overall standardized look. Staff collaborated with partner organizations on joint programming and cross promotion. The new Saturday Hiking Series led by the Interpretive Services Coordinator grew in popularity and promoted water supply protection and responsible recreation. Rangers presented several History of the Dam presentations to user groups from local citizens to engineers. In total, staff offered 53 public programs with a total attendance of 786 people. The October 2019 Dam Day was attended by over 2,960 people, while the spring 2020 Dam Day was cancelled due to the pandemic. New grade level programming and hands on labs for school visits were developed and presented to 5th, 6th and 8th grade classrooms.

During the pandemic, new ways were incorporated to accomplish outreach, including pivoting to online resource sharing. Activity guides and kiosk posters were made available on watershed education web pages. A Virtual Reservoir Tour and Watershed Wildlife videos were created and distributed by request to replace in person visits. The Envirothon 2020 competition was cancelled due to Covid-19; staff were able to provide educational support and guidance for students during the year and plan for 2021.

Extensive work was done on the website, particularly after the declaration of a State of Emergency, to have up to date communication, particularly regarding public access. Fishing, hunting, and education materials were all updated during this fiscal year.

J. Water Quality and Hydrologic Monitoring

Routine sampling of all tributaries was conducted twice per month except for one month when one sample run was missed due to the Covid-19 pandemic. Nutrient and total suspended solids samples were collected monthly. Chloride samples were collected from selected tributaries and from groundwater wells to document changes due to excessive applications of road salt. Water quality samples were collected from Shaft 1 to assess Quabbin transfer. Reservoir sampling was conducted weekly or more frequently for plankton and reservoir profiles except for one month when sampling was paused due to the pandemic, and algal population dynamics were accurately captured throughout the year. Nutrients were collected quarterly. Reservoir transects sampling for bacteria were conducted monthly or more frequently except during periods of ice cover or due to pandemic restrictions.

Stream flow was monitored with ten USGS continuous stream gauges throughout the four watersheds. Additional Wachusett streamflow data was provided by continuous water level recorders at eight additional tributary locations. A new Mayfly datalogger with sensor to continuously record stage, temperature and conductivity was installed at Waushacum Brook. Data are available online in real-time. Streamflow measurements were conducted and rating curves updated for each site, with a new rating finalized for the weir at the Holden Long-term

Forestry Study site. Wachusett EQ staff also regularly monitored groundwater (at seven locations), snow pack, and precipitation to improve understanding of watershed hydrology. The 2018 and 2019 Water Quality Report were both completed during the year. Automation of tables, graphs, production of statistics, and basic text required more time than anticipated and delayed publication of the 2018 report but will facilitate far more rapid production of the report in future years. The format of the 2019 represents an overhaul to the approach, with more information and better graphical formats throughout the report.

Data management and analysis applications were improved by DCR staff including an automated QA/QC check for data uploads, updates to the TribTools App to process data from the new Mayfly station and Holden forestry site, and minor fixes to allow home functionality during remote work necessitated by the Covid-19 pandemic. Sampling and identification of tributary macroinvertebrates has resumed. Organization of historic fish data into standardized R scripts has simplified future data analysis.

Staff continued to work with UMass on a range of topics including the continued update of CEQUAL model, research on impacts of salt to reservoir water quality, and development of a new sampling program for Quabbin/Ware River. A new Inter-Agency Service Agreement (FY21-22) was developed and approved.

Continued efforts to address issue of excess salt applications and the impacts to water quality included training for staff and local DPW employees, changes in Division practices to utilize pre-treatment and planning towards incorporating brine into future plans, development of a grant program to assist watershed communities with salt reduction efforts, and additional collection of usage data from towns and MassDOT.

K. Watershed Monitoring and Assessment

Inspections and investigations of potential water quality threats were conducted by EQ staff and tracked in the shared EQ database until mid-March. Staff were asked to work remotely at that time due to Covid-19 concerns and no mechanism was provided to access shared databases. Staff gathered significant information on activities in the Sudbury watershed.

Staff continued to update water and wetland resources using plans and field observations. Hydrology updates for the Stillwater subwatershed were completed; significant progress was made in the Quinapoxet subwatershed.

The Stillwater Environmental Quality Assessment was completed and sent to the Regional Director to incorporate recommendations into a future workplan. Updated status of agricultural sites, hazardous materials sites, and hazardous release sites was documented regularly for all areas of the Wachusett and Sudbury watersheds.

L. Aquatic Invasive Species

Monitoring for aquatic invasive plants was conducted on the reservoir, adjacent lakes and ponds, and select tributaries. Improvements to and use of ArcGIS tools has improved data collection and data sharing efforts. Staff provided support and oversight of MWRA DASH contractor plant removal efforts throughout the reservoir to continue the successful effort to reduce invasive plant growth. Surveys of aquatic vegetation prior to and following removal efforts were successfully completed and illustrate a dramatic reduction in invasive plant biomass.

DCR biologists documented a lack of regrowth for the second year following the initial 2018 herbicide treatment of Brazilian Elodea in Clamshell Pond and monitored it throughout the year to ensure no additional treatments were needed. Staff again scheduled and coordinated herbicide treatments of invasive plants in the Lily Ponds and South Meadow Pond.

All known areas of Phragmites around the reservoir were cut four times in FY20 (five times during the growing season) and above-ground biomass was significantly reduced.

M. Wastewater Management

EQ staff continued to work with local Boards of Health to review septic system repairs and new installations and received sewer connection information from West Boylston. Information on 732 watershed septic systems were documented in the new wastewater database.

Civil Engineering staff continued to work with MWRA to provide oversight, management and support of the Rutland-Holden trunk sewer and the Rutland Holden Relief trunk sewer. No encroachments were identified. DCR and MWRA agreed to allow Rutland to perform I/I inspection and flow study within the DCR trunk lines; the inspections have been completed.

N. Stormwater Management

An engineering consultant has prepared a 25% design for the elimination of the last remaining direct discharge from Route 110 in the vicinity of Gate 36. Runoff will be diverted off watershed by removing an existing culvert, re-pitching the roadway, and constructing a diversion pipe. Progress continues towards a final design and permitting with MassDOT.

Regular inspections of active constructions sites were conducted to ensure compliance with stormwater regulations and protect resource areas. During FY20, 274 inspections were conducted on 40 sites. Several projects required additional attention and remedial action. Any problems noted were corrected by the contractor in a timely manner. Seventeen sites were completed and are now resolved.

Stormwater infrastructure in the entire Stillwater subwatershed and much of the Quinapoxet subwatershed has been added or field verified. Staff completed training and are now certified to perform culvert assessments.

Several meetings were held with Sterling's new DPW Director who has expressed interest in working cooperatively on BMP maintenance.

O. Emergency Response

Emergency response training was held at Sudbury Reservoir attended by DCR and MWRA staff. Two field trainings were held in the Wachusett Reservoir and watershed attended by DCR, MWRA, West Boylston FD, Sterling FD and Division of Fire Services staff. A joint classroom training with Wachusett, Quabbin, MWRA and MassDEP was held. A new Boom Trailer was acquired. Emergency Notification List has been updated.

P. Support

Core office functions, such as accounting, payroll, human resources, mail services, inquiries and voicemails to the main office, and work orders were all supported, albeit with interruptions concentrated in March, which was impressive given the challenges presented by the second half

of FY20. An external mail drop box was built by carpenters to aid in mail delivery and distribution independent of staff needing to access the building.

Staff continued a trend of developing applications that streamline work flows and facilitate accurate data collection through the use of ArcGIS online. Now that these approaches are becoming integrated, many benefits are being realized such as improved reporting and tracking capabilities. Electronic workflows revealed tremendous value during the pandemic. The creation of the Wachusett/Sudbury Employee Portal was a huge accomplishment for the region this year and involved GIS staff working closely with the RD/ARD. GIS staff provided products to internal DCR staff and provided GIS assistance to watershed towns.

Total FY20 PILOT was \$8,355,687. The total distributed to Wachusett towns was \$3,493,208 (42% of the total); Sudbury towns received \$834,800 (10% of total).

Quabbin/Ware Region

A. Land Procurement

One 26.9 acre WPR was acquired in Petersham for \$62,000 and 118 acres in fee were acquired in the West Branch Swift basin for \$325,000.

B. Watershed Protection Restriction Monitoring

Monitors completed 17 WPR monitoring visits and reports, and eight Forest Legacy WPRs were also monitored. One baseline report was completed by a contractor and reviewed by DCR.

C. Land Management

BMP monitoring was conducted at one stream crossing.

Stiltgrass control in Shutesbury was continued in FY20 and will continue in subsequent years until adequate control or eradication is achieved.

Forestry staff prepared and sold 14 timber sales in FY20. Information on all timber sales was prepared and posted on the DCR website as well as on a sign at the timber sale site. New forestry proposals were submitted for eight lots and are pending public review. Forestry staff provided oversight and supervision on 21 active timber sales in FY20.

Baseline and active harvest water quality monitoring was completed on one lot in the Quabbin watershed and started on one lot in the Ware River watershed.

Work continued on the long-term paired watershed study. Water quality and flow were monitored during three storms (Summer 2019, Fall 2019, January 2020). Stream flow data were downloaded periodically. Weir equations and functionality were verified using routine and storm flow monitoring data. Harvesting began on the experimental watershed during winter 2020 and should be finished early in FY 21. Macroinvertebrate sampling completed in June 2020.

CFI data collection completed in the Ware River watershed and started in the Quabbin watershed. Approximately 14 miles of boundary were marked. Over 25 acres of fields have been cut at Quabbin.

D. Wildlife Management

The gull harassment program operated for 22 consecutive weeks from 10/28/19 to 3/7/20. Active harassment took place on 83 of the 97 scheduled nights. A variety of harassment techniques were used including bangers, screamers, new shotguns, and lower-powered lasers. There were no coliform results above 4 cfu/100mL. All operations were performed safely, and training continues on program orientation, cold water and trailer operations, pyrotechnics, and laser use. Staff scheduling was streamlined and reports, both weekly and annual, were completed.

The Canada goose control zone was surveyed during the nesting season; two nests were located, and eleven eggs were treated to prevent hatching. The annual report was produced.

Five beaver were removed from the Wildlife Pathogen Control Zone, and an additional three beaver were removed from outside the zone. Six fecal samples were sent for analysis, and no *Giardia* or *Cryptosporidium* was detected. In addition, work continued to prevent beaver-related flooding issues including monitoring and maintaining culverts, maintaining culvert fence guards, and repairing beaver-deceiver piping.

Cooperative work continued with MassWildlife to survey and document breeding bald eagles around Quabbin Reservoir. Seven active eagle nests have been verified with a total of 12 eagle chicks; surveys continue to document chick fledging. In addition, loon monitoring and capture continued throughout the summer.

The 2019 Quabbin controlled deer hunt was held in Petersham on December 12 and 13, 2019. Eighteen deer (9 males, 9 females) were harvested by 181 hunters. The Pelham block was open to general hunting for the first time during the 2-week shotgun season. A total of 384 permits were handed out. Plans to hunt Quabbin Park were postponed.

E. Public Access Management

Information on access policies and regulations was distributed through the Quabbin Visitor Center and through numerous public contacts by the watershed rangers. However, the Visitor Center was closed to the public starting March 2020 and remains closed. The rangers logged approximately 29,000 visitor contacts during FY20.

The three Quabbin Boat Launch Areas (BLAs) operated daily from July through mid-October 2019 but the 2020 season was delayed due to Covid-19. The 2020 season opened in May to private boats only, and no rental boats were allowed for the remainder of the season. The boat inspection and decontamination programs were implemented again this year, with both boat washings and cold weather quarantines overseen by DWSP staff. Staff continued to use iPads to implement the boat seal program.

EQ staff conduct regular inspections through EQA fieldwork that occasionally uncover recreation-related water quality concerns. These concerns are analyzed and mitigated as needed.

Work continued on the Ware River Public Access Management Plan. Several stakeholder meetings and advisory committee meetings were held. The plan has been on hold since winter 2020, pending the Commissioner's review.

Staff provided support and maintained the boat launch at Comet Pond. In addition, they supervise and support the needs for portable toilet availability at the BLAs and during the Quabbin Controlled Deer Hunt including the two day scout.

F. Watershed Security

The Watershed Rangers conducted regular patrols of high-vulnerability areas around the reservations, and weekly summaries were submitted to MWRA. Rangers documented almost 29,000 visitor contacts and 635 violations (391 Quabbin, 244 Ware River).

Inspections of gates and bar ways on the reservations were performed and necessary repairs made.

Interactions and coordination with the State Police, Environmental Police and other enforcement personnel continued throughout the year.

Rangers attended a variety of trainings, including National Traffic Incident Management Responder, Emergency EMS1, Chemical Suicide Awareness for First Responders, Protecting First Responders from Opioid Exposure, First Responder/CPR/AED recert, and HAZWOPER.

G. Infrastructure

Civil Engineering staff performed and reported on monthly inspections and piezometer readings. DWSP staff conducted mowing, brush-cutting, and other maintenance operations on dams and dikes. Turf repair efforts continued on the dam and dike with mixed results.

Phase I inspections were conducted for East Branch Swift River Regulating Dam and Peppers Mill Pond Dam. Site visits were conducted for Brigham Pond dam, Asnacomet Pond, and Demond Pond.

Boat Launch Area 2 access road was repaved, and a building envelop study was started for the Administration building and Cemetery office. BLA 1's electrical system was upgraded.

Routine grounds maintenance was completed in Quabbin Park, including field mowing, weed-whacking, and the removal of several hazardous trees or limbs. Staff prepared for Memorial Day in the Quabbin Park Cemetery with numerous plantings and assisted with burials in the cemetery.

Road work performed by DWSP staff included clearing several miles of roadside brush, cleaning drains, and filling potholes in Quabbin Park. In addition, major upgrades to several internal roads and drainage structures was completed.

DWSP staff monitored gravel extractions by the towns of New Salem and Petersham and opened two new pits. One pit was in Quabbin for New Salem town use and another in Oakham for DWSP use. Staff also began permitting for another two locations.

H. Watershed Protection Act

Staff implemented the Watershed Protection Act through the review of applications, site visits, meetings with applicants and their representatives, holding variance hearings, and the issuance of decisions. Staff received 26 cases in the Ware River Watershed and processed 23 of them. An additional eight cases were received for the Quabbin Watershed. Staff investigated six violations.

Agendas and minutes were reviewed for all the towns in both watersheds. Staff contacted several towns regarding projects within WsPA jurisdiction.

I. Interpretive Services

The Quabbin Visitor Center was operated for 250 days during FY20 and was closed for 91 days due to the pandemic. About 15,000 people visited the Visitor Center. Approximately 55 educational programs were offered to about 1,800 students.

Although the Visitor Center was closed for most of the year, Staff shared existing and new brochures on the DCR website. IS staff continued their assessment of trails in the Quabbin Park area and identified maintenance needs.

The DCR website was regularly updated with new information about the Quabbin Controlled Deer Hunt, fishing programs, AIS, meeting announcements, the boat decontamination program, plan developments, and forestry projects.

J. Water Quality and Quantity Monitoring

EQ staff conducted routine biweekly water quality monitoring of Quabbin Reservoir watershed (Reservoir and tributaries) and Ware River tributaries. Staff increased plankton sampling at site 202 during August - October, 2019 following a *Chrysosphaerella* bloom, from twice monthly to daily or several times weekly by MWRA request. Sampling at site 206 was reduced to once monthly, but increased frequency when needed to support Wachusett reporting. Plankton monitoring in the reservoir was performed on a monthly and bimonthly basis, depending on the season. Monitoring for AIS in tributaries and other water bodies was conducted according to the monitoring schedule.

Staff established two new stream gage locations in the Quabbin Watershed and developed a SOP for DCR Quabbin Hydrologic Monitoring Program. Staff measured streamflow to develop rating curves across the three DCR stream gages. Monthly samples were collected, and three storm sampling events were collected.

K. Watershed Monitoring and Assessment

Staff regularly conducted site assessments, attended local board meetings, and monitored online databases to identify potential threats to water quality. Staff investigated various potential violations in the watersheds and followed up as needed. The Quabbin Reservation EQA report was completed.

The Yearly Operating Plans for vegetation management work on both the National Grid and Providence & Worcester Railroad rights-of-way were reviewed, and comment letters were submitted.

L. Aquatic Invasive Species

Staff provided AIS information to the public through visitor contacts, displays in the Visitor Center, the DCR website, and distribution of brochures during Boat Decontamination and Cold Weather Quarantine programs.

Boat cards continue to be distributed. EQ, VC, GIS, Maintenance, and BLA staff continue to coordinate on problem-solving and refinement of the data management system. The three BLAs had

8,553 seals placed on private boats for the year. Each landing used the following number of seals: BLA 1 – 2,398; BLS 2 – 2,768; and BLA 3 – 3,387. Boat inspections and Cold Weather Quarantine are completed for FY20.

DWSP staff assisted in the 2020 macrophyte survey on the Quabbin Reservoir. Staff also inspected and maintained the fragment barriers at BLA 2 and BLA 3. Other work included inspecting gear and equipment prior to use in the reservoir for State Police diving exercises.

M. Wastewater Management

No water quality issues were identified from septic systems, and the oversight provided by Title 5 was generally sufficient.

N. Stormwater Management

In Ware River watershed, staff reviewed and commented on Brice-Lemon and Brintnal Estates, both in Rutland. Staff attended Rutland conservation commission meetings for these large-scale construction projects, as well as provide comments on stormwater. No activity in Quabbin watershed requiring construction stormwater oversight.

O. Emergency Response

COVID19 response was significant in FY20. Numerous policies and procedures were written and/or implemented from April to the present. Requisite PPEs were acquired. Regional COVID safety procedures were developed in third and fourth Quarters. 2019 Emergency Contact Information was updated by staff online in SSTA. BLA emergency SOP was also reviewed and updated.

FY20 Spill Response Training was conducted through TIGER training. Two new emergency response trailers were received from MWRA, and the inventory was updated.

Thirteen spill plans were prepared for timber harvesting operations.

P. Support

Staff participated in a wide variety of job-related trainings and workshops, interagency planning teams, and professional organizations.

Total FY20 Payments in Lieu of Taxes (PILOT) was \$8,355,686.80. Quabbin towns received \$2,918,368, or 35% of the total PILOT. Approximately a quarter of the Quabbin town total, \$662,153 (8% of total PILOT), comes from the second payment received for lands annexed when Quabbin was created. Ware towns received \$1,042,154, which is 12% of the total PILOT.

FY2020 Work Plan Final Summary

Wachusett/Sudbury FY 20 Final Report



Update on all tasks in Wachusett/Sudbury workplan for July 1, 2019 through June 30, 2020.

Task No.	Description	Final Report Comments
A. Land Acquisition		
A1	Coordinate due diligence and other tasks/services from DCR and private contractors to complete survey, appraisal, title, engineering, and environmental assessments for proposed acquisitions. Negotiate WPR language, purchase prices and conditions of sale with sellers of property.	One property was acquired, 14.2 acres in Fee in Holden for \$82,000. Three Stillwater basin acquisitions went to record; 59 acres in fee at a total cost of \$540,000. One parcel went to record: a 34 acre WPR gift.
A2	Develop individual parcel presentation materials and meet with MWRA Board for approval.	Two projects, Thorell and Kittredge were brought before the Board and approved.
A3	Convene LAP meetings to review parcels and prioritize land purchases.	Held a LAP meeting in January - discussed proposed new format for review using Story Maps and presented an overview of potential acquisitions.
A4	Continue to work on the LAP Prioritization Model	Several inquiries have been made and the model has been used to assign priority.
A5	Continue to solicit and work with landowners in donating conservation interests in land and assist in advising landowners on the tax incentives available when donating conservation interests.	Ongoing
A6	Establish regularly scheduled land/legal meetings to address attorney assignments and project logistics.	Attorneys were assigned to several projects and due diligence is proceeding on all active acquisitions.
B. Watershed Preservation Restriction Monitoring		
B1	Monitor WPRs on a regular basis, following monitoring procedures	WPR Coordinator and Regional Monitors continued 2020 monitoring. 9 WPR monitoring visits and reports completed.
B2	Complete baseline documentation reports for new WPRs prior to acquisition or within a reasonable time after acquisition, following EOEEA specifications. Baselines will be done in-house or through appropriate contracts.	No WPR baselines completed this year. WPR Coordinator completed field work for 2 baselines.
B3	Meet with Restriction Stewardship Working Group and confer with legal to respond to enforcement issues and requests to exercise reserved rights.	Continued working with DCR Restriction Working Group to draft Enforcement, Reserved Rights and Amendment Procedures.
B4	Track changes in landownership twice a year.	WPR Coordinator and Regional Monitors continued landownership checks.
B5	Write and distribute Watershed Currents, the WPR landowner newsletter.	No work done on newsletter this year.
B6	Implement WPR records procedure with DCR records manager	Ongoing
C. Land Management		
C1	Implement the system-wide comprehensive Land Management Plan (LMP).	All forestry activities are carried out consistent with the Land Management Plan.
C2	Prepare forest harvest proposals for next fiscal year including data on proposed harvest areas, characteristics of stands, soils, cultural resources, wetlands, wildlife, unique features, and priority habitats. Proposals shall also include information on lot layout, landings, stream crossings, wetland crossings, and stonewall crossings.	The preparation of forest harvest proposals for FY21 was completed. No harvest proposals are planned for Sudbury for FY21.
C3	Plan and conduct an internal review of proposed logging operations for the coming year, including assessments of silviculture, water quality, wildlife, and other potential impacts/benefits Review lots to ensure consistency with aspects of the CLMP, including wildlife, forestry objectives, and environmental quality.	All internal reviews were completed. Final internal review document compiled and issued to forestry staff. ArcGIS Online story map created for public review and comment.
C4	Present annual forest harvest proposals at a public meeting. Accept public comment and respond as needed.	The presentation of the harvest proposals was completed.
C5	Plan, lay out, mark products for removal, prepare maps and permits, establish photo monitoring points, file Forest Cutting Plans, seek bids, award permits, and properly advertise and post forest management operations consistent with the Forest Cutting Practices regulations, the LMP, and approved harvest proposals.	Seven lots on a combined 402 acres were prepared and marked. Six of these on 330 acres were also shown with five lots on 262 acres sold. There are presently 3 lots on 161 acres that have been started but are not yet finished. There are another 6 lots on 273 acres that have been prepared, marked and sold that have not been commenced. Like back in the 2nd quarter, four loggers own these lots but now, no logger owns more than 2 of them. This means both that the logger who owned 5 lots back in the 2nd quarter has been getting work done and that we're not in the situation where a majority of our upcoming work is in the hands of one logger: these are both good things. No harvest proposals were submitted for Sudbury for FY20.
C6	Provide supervision and oversight of all forest harvesting operations on DWSP property. Assure compliance with applicable DCR and NHESP regulations and restrictions, approved BMPs, and all Permit conditions. Maintain adequate site visit records. Monitor post-harvest and collect photo point images consistent with internal policy.	9 lots on a combined 447 acres were supervised during FY20. 6 lots on a combined 286 acres were completed. No timber sales were active during FY20.
C7	Monitor water quality at active harvesting stream crossing sites to measure effectiveness of BMPs.	All active, proposed, and completed forestry projects were monitored regularly. No significant water quality issues noted at any time during FY20.

Task No.	Description	Final Report Comments
C8	Continue to implement long-term paired watershed monitoring to assess impact of DWSP forest management on tributary water quality.	Improvements to discharge monitoring with new weir at Holden site and preparation for new weir at Princeton site. Dry conditions in FY20 restricted monthly sampling to six events.
C9	Conduct periodical regeneration and invasive species surveys to monitor forest health and development resulting from silvicultural activities or other natural disturbances and processes.	The production of the final report will take place in FY21.
C10	Conduct periodic reviews and monitoring of land management activities and forest conditions to assure compliance and consistency with Land Management Plan.	Ongoing, no specific activity this year.
C11	Collect data and maintain GIS datalayers related to forest structure, composition, regeneration, roads, boundary information, stone walls, wetlands, streams, and other data to guide the land management program. Maintain GIS data documenting the location, extent, and intensity of all silvicultural operations.	Completed as needed.
C12	Assess all new fee land acquisitions, documenting existing conditions of forests, access roads, bridges and culverts, boundary markings, and restoration needs. Integrate these lands into existing GIS datasets and land management, public access, and other watershed management programs.	Assessments completed and recorded as needed.
C13	Locate, mark, and maintain property boundaries periodically or as needed.	28.4 miles of boundary lines were maintained during FY20. Since regular boundary maintenance began in FY15, 150 miles have been maintained which averages to 25 miles/year. The past 2 years have averaged 29 miles/year. With 257 total miles of maintainable boundary line and a goal of a 10-year return frequency, 25.7 miles/year need to be maintained. After 6 years of maintenance, we're right on track to meet the 10-year goal.
C14	Develop scope of work and manage contracted property boundary survey work.	Completed 7 projects
C15	Document and pursue resolution of all property boundary encroachments.	Rangers continue to develop and plan a tiered system for Encroachment letters. Encroachment database has been maintained and updated with new encroachments. An Encroachment Management Hub was built for use by management using Operations Dashboard. This allows management to easily track the number of encroachments and to easily view the complete history of a selected encroachment. This Hub also allows for the easy assignment of tracking ID numbers.
C16	Identify, plan, and oversee non-forest or other unique habitat restoration, field reclamation, and maintenance work.	In addition to the field maintenance and habitat restoration projects, this year NR worked with AmeriCorps volunteers to rebuild the Poutwater Pond boardwalk, enhancing the visitor experience and providing better protections for the sensitive bog mat habitat.
C17	Maintain other non-forested, non-infrastructure lands as described in the LMP (e.g., viewsheds, gravel pits, etc.)	No activity this fiscal year.
C18	Identify, prioritize, and implement terrestrial invasive plant (TIP) control projects in line with the Terrestrial Invasive Plant Management Strategy (TIPMS). Respond as needed to newly discovered and controllable TIP populations.	The focus this year has been to continue control efforts on targeted populations of invasive species in habitat restoration areas and in Early Detection/Rapid Response situations. Eradication remains the goal for the small infestations of mile-a-minute, Canada thistle, and Japanese stiltgrass in this watershed. No progress this FY on the drafting of a new TIPMP, although some preliminary literature reviews were conducted on several species.
C19	Collect data and maintain datasets, GIS datalayers, and related maps and reports of rare and listed plants and communities.	Ongoing as needed, though occurrences on Wachusett/Sudbury lands currently monitored by volunteers from the Native Plant Trust.
C20	If available, use unmanned aerial system (UAS) to document forest conditions, map openings, identify invasive plant populations, assess internal road conditions, or conduct other activities.	No UAS work this FY.
C21	Continue to work with DCR Asian Longhorned Beetle Program and USDA to oversee beetle eradication in watershed areas.	Ongoing as needed.
C22	Hazardous Tree Removal	Ongoing as needed. The Tree Work List smartsheet has been kept up to date.
C23	Maintain deer exclosures and sample vegetation periodically to assess impacts of herbivore browsing.	Deer exclosures remained intact during the FY. Experimented with chemical fern control at one exclosure site during Q1, both inside and outside the fence, and early indications were promising. Follow up monitoring will continue in FY21.
C24	Organize, inventory, and categorize permit, lease, and easement information and enter information into the database.	on-going
C25	Participate in process to transfer lands surrounding Framingham Reservoirs 1 and 2 to DCR Parks.	Progress made towards transferring property to State Park, however work was halted due to State of
D. Wildlife Management		
D1	Continue the active harassment of gulls within the Pathogen Control Zone at Wachusett Reservoir, using human presence, boats, pyrotechnics, passive scare devices, and other techniques. Continue to identify and test new harassment techniques.	Another successful bird harassment season, with bacteria concentrations below regulatory levels and all birds successfully moved as needed. Use of Survey 123 App on iPad simplified data collection and analysis efforts
D2	Observe and document the nocturnal roost of gulls on the reservoir weekly during the months of September- March.	Roost count surveys commenced in September and were completed in early April. The gull count ranged from a low of 0 to a high of 1,400 on 2/12/20.
D3	Control Canada geese populations at Wachusett Reservoir by treating eggs during nesting season to prevent hatching.	Completed two surveys/treatments in April. A total of 3 nests with 12 eggs were treated. Two other nests were found, but chicks had either already hatched or were in the process of hatching.
D4	Identify places in MA where human derived food is available and work to prevent feeding through educational signage, interaction and enforcement.	Regional gull surveys took place in Q2 and Q3. Educational signage was inventoried and new signage installed at Shaw's in Clinton. Regular interaction with the public to deter feeding.

Task No.	Description	Final Report Comments
D5	Aquatic Mammal Control: Remove beaver and muskrat in the Aquatic Wildlife Pathogen Control Zone at Wachusett.	5 beaver were removed from the pathogen zone in FY20. An additional 11 beaver were trapped on the reservoir. 5 beavers were also trapped at Malden Street dam in Holden. Integrated Wildlife Control was hired in
D6	Respond to problems of burrowing animals on dams and dikes; take appropriate action.	Dikes were regularly monitored for burrowing activity. 4 woodchuck burrows were smoked (treated) in FY20. Two coyote burrows were discovered in Q2 and were treated with ammonia to discourage the animal from future use. All treated and old burrows were filled in FY20.
D7	Research and manage for common loons on DWSP waterbodies; provide nesting platforms, capture and sample birds for contaminants.	Loon monitoring and management occurred in Q1 and Q4.
D8	Continue long-term wildlife resource monitoring program.	Surveys completed in Q1 and commenced again in Q4. Report-writing and data analyses were completed.
D9	Work with MA Department of Fisheries and Wildlife (DFW) to survey for and document breeding bald eagles on the reservoir.	Monitored newly constructed eagle nest on Wood Island in Q3. Nest failed in Q4. Reported to DFW.
D10	Plan for the White-tailed Deer Management Program on DWSP lands at Wachusett; Administer the applications, permits, and orientations for the Wachusett Reservoir Zone Deer Hunt	Applications were launched for hunts. Orientation dates were scheduled. Permits issued. Hunt was completed for the Reservoir Zone and the land designated for hunting at the Sudbury reservoir. Results analyzed and a Deer Report was published (attached).
D11	Coordinate with the Massachusetts Natural Heritage and Endangered Species Program concerning rare species occurrences and protection	Conducted a whip-poor-will survey at Wachusett using protocols outlined by NHESP. Worked with State Ornithologist to expand American kestrel monitoring/ management. Reported sightings of rare birds on DCR property.
E. Public Access Management		
E1	Proactively patrol watershed lands to ensure compliance with DCR regulations and policies. Tally visitor contact and produce quarterly and annual summary reports. Conduct trend analysis on visitor statistics and rule violations.	24,759 Visitor contacts, 1,206 C.M.R. Violations, Large increase for Visitor contacts in fourth quarter during Covid-19.
E2	Continue to cooperate with state, environmental, and local police for help with enforcement when required.	Rangers have continued to work with and assist all local, state and environmental law enforcement agencies with any needs or requests.
E3	Continue to use DCR social media accounts for advertisement of interpretive programs, including general or emergency information (such as closings).	Ongoing
E4	Develop public outreach regarding allowed uses on DCR Wachusett lands.	Ongoing
E5	Continue updates and improvements to access points with signs, gates and improved parking areas. Conduct regular inspections of gates and access barriers.	Rangers while proactively patrolling the watershed lands regularly inspect all signage, parking and gate conditions. Rangers replace and relocate signage when necessary and fill out work order requests.
E6	Regularly evaluate and modify policies within the current Public Access Plan and publish annual appendices with policy modifications or to regulate new proposed uses on DWSP lands.	Ongoing
E7	Continue to conduct "special operations" such as night operations, ATV, and snowmobile operations, as needed.	Rangers conducted multiple 'Night Operations' at the Sudbury and Wachusett Watersheds.
E8	Enforce rules and regulations of 313 CMR 11.09 through the use of citations. Issue written warnings and/or non-criminal citations for repeat offenders and serious violations.	1,206 C.M.R. Rule Violations, 25 written warnings, 66 Citations issued. High volumes of visitors in the last quarter during the pandemic led to a large increase in violations.
E9	Evaluate and modify, if necessary, specific access plan policies as part of the draft Wachusett Reservoir Watershed 2020 Public Access Plan update	Public review was hindered by Covid-19 restrictions. Work on the Sudbury and Wachusett public access plans will resume next fiscal year.
F. Watershed Security		
F1	Maintain an active presence in the watershed. Monitor watershed lands, roadways, and railways for unusual or suspicious activities; provide appropriate response.	Watershed Rangers proactively patrol all watershed property.
F2	Continue ongoing communication and coordination with local, state, and federal emergency responders; coordinate with MWRA on all security issues.	Watershed Rangers continue to communicate with all Divisions in Watershed. Rangers continue to communicate and update any issues with all law enforcement agencies and MWRA.
F3	Continue program of enhancing security infrastructure around Wachusett Reservoir.	Watershed Rangers are trained several times annually to respond to all types of emergencies.
G. Infrastructure		
G1	Assess Wachusett and Sudbury dams, spillways, and dikes monthly. Forward all significant issues to the Regional Director and the MWRA. Coordinate with MWRA on biannual dam safety inspections for compliance with 302 CMR 10.00.	Monthly dam inspections were conducted and executive summary reports issued
G2	Assess DWSP smaller dams semi-annually; review maintenance plans and revise as necessary.	Assessed the smaller dams at least twice per year and prepared work orders as necessary
G3	Continue maintenance plans for the improvement of the Wachusett and Sudbury dams and dike structures. Monitor conditions and maintenance activities and revise plans, as necessary.	On-going. Prepared work plans as needed following monthly dam assessments.
G4	Conduct annual inspection/evaluation of Wachusett internal roads, drainage structures and shoreline access points; update GIS data layers as needed and develop list of maintenance and repairs needs.	Finished yearly road inspection and developed work plans as necessary
G5	Develop annual plan for internal road repair/reconstruction projects.	Annual work plan for road projects was completed and crews will accomplish as resources allow.
G6	Monitor the stability of River Road in Clinton.	Monitor River Street after large rain storms and at least once a month.

Task No.	Description	Final Report Comments
G7	Conduct projects using in-house staff and resources. Provide oversight to ensure protection of water resources.	Completed a number of road projects and maintenance work and continuing to work on new parking and maintenance projects.
G8	Conduct regular inspection and maintenance of all DWSP BMPs.	No response from DCR Contracts on how to proceed with retaining a contractor for BMP maintenance. Issued a contract for installation of a valve system in one of the forebays at Gate 25 BMP. This will allow DCR to control water level in the basin. We secured granite blocks to modify the forebay at 62/140. We prepared an RFQ for rehabing the 62/140 basin, however no contractors bid on the work. We will be reissuing the request.
G9	Evaluate conditions of Sudbury watershed internal roads and develop work plan, as necessary.	Evaluated 60% of trails. Mapping trails not identified in current GIS layers
G10	Provide supervision, coordination, oversight, and technical support or assistance for all engineering, construction, and renovation work in Section.	On-going
G11	Maintain records regarding property plans & data; reservoir and facility construction and maintenance operations.	On-going.
G12	Implement annual Major Projects	
G12.1	Coordinate and monitor the Clinton HQ construction project	The Clinton HQ building is occupied and three computers have been set up. The HVAC will connect up the HVAC controller to the network and provide training in early July for staff. Still waiting on IT for procuring telephone system and a contractor to run telephone lines underground. Tickets were put in over 4 months ago.
G12.2	Coordinate and monitor the Clinton Garage bay addition project	Clark & Green had reviewed the design plans for the garage addition. They determined that building code requires a fire sprinkler is need for the garage. Clark and Green has been hired to design a sprinkler system for the garage. They will incorporate the fire sprinkle into the design plans for the garage addition.
G12.3	Oversee Ranger station evaluation study	Delayed by funding priorities. Scheduled for FY24
G12.4	Develop and oversee contract for demolition of Walker residence (Princeton); Kush buildings (Sterling); Reed Arena (Sterling); Radio Shack (Clinton); Grove Street buildings (Clinton) and Stillwater Barn (Sterling).	No demolition was conducted, however hazardous materials assessments were conducted and properties have been prioritized for demolition for FY21. Stillwater Barn roof repairs need to be addressed, but funding is required.
G12.5	Design and permit replacement for culvert between Gate 35 and intersection 183	On hold while other higher priority projects are designed and completed
G12.6	Design harden boat ramps for Sudbury Reservoir at 911 Field and East Main St.	Permitting for the ramps will occur in July and August
G12.7	Rehabilitate the 62/140 storm water basin	Secured granite blocks for modifying forebay. Finished plan and issued a RFQ for the work through the TRD-02-Excavation contract. No contractor bid on the work, so we will need to re-bid.
G12.8	Oversee study for JAH windows replacement and AC system	Scheduled for FY23
G13	Provide access to water quality monitoring stations and perform occasional maintenance activities at stream gages	All necessary maintenance was completed at sampling stations and stream gages
G14	Evaluate and coordinate the monitoring of facilities for compliance with state and federal regulations. Develop and update required documents, as necessary	SPCC Plan will be updated with tasks and responsibilities in FY21. Staff has worked to find a contractor to service the O/W separator to no avail as of yet. Existing statewide contract review considers while we also weigh the option of putting out a separate contract for service.
H. Watershed Protection Act		
H1	Continue implementation of the WsPA. Review and track all WsPA applications and activity in database. Issue decisions within timeframes as required by the regulations. Add all relevant information to the EQ electronic database.	Processed 61 applications during FY20 including 8 variances. Staff continued to monitor activities related to previous decisions, update information in the database, and document and improved standard protocols.
H2	Convene the Watershed Protection Act Working Group regularly to discuss policy and address specific problems related to the WsPA	All quarterly meetings held successfully regardless of Covid-19
H3	Review permits for watershed towns on a monthly basis with letters sent to property owners of affected parcels.	Ongoing review of building permits from watershed towns.
H4	Review property transfers for seven towns on a monthly basis with letters sent to new property owners of affected parcels informing them of the WsPA and how they may obtain additional information.	Ongoing review of property transfers in all watershed communities.
H5	Review files from previous year on an ongoing basis, including contact with owners and site visits as needed.	Progress slowed due to inability to work directly with or update the database while working remotely
H6	Provide Town Halls with WsPA maps, brochures and applications on a regular basis.	No activity this quarter.
I. Education and Outreach		
I1	Review, implement, and amend the Wachusett Interpretive Services Plan. Coordinate all educational and outreach programs and document activities, successes, and any problems.	The Interpretive Services plan has been updated with statements of significance and overall themes focusing on programming related to the DWSP mission.
I2	Inspect kiosks and brochure boxes quarterly, submit work orders, and update as necessary. Have IS review all; develop overall plan. Look into improving our kiosks and bulletin boards throughout the watershed.	New interpretive and informational kiosk wayside panels were installed on kiosks for an overall updated and standardized look.

Task No.	Description	Final Report Comments
I3	Perform inventory of signage and make recommendations for improvements and additions of stewardship signs	Rangers have evaluated and addressed some of the signage issues. There are certain areas that may need addressing. Rangers utilized backer boards at gate entrances to address some ongoing issues. For example, during this pandemic many people were coming to the property with dogs which are not allowed on Watershed property. Many of the visitor responses were they didn't know or didn't see the sign. Rangers posted a "No Dogs Allowed" at gate entrances where the problems were occurring. After doing this, the number of dog violations began trending down.
I4	Analyze and update current brochures. Determine need for new brochure topics and develop as needed.	All brochures have been updated with current links and the latest information.
I5	Partner with other organizations on watershed programs	Collaborated with partner organizations throughout the year on joint programming and cross promotion. Pivoted to online resource sharing and developing materials to support watershed educators during pandemic.
I6	Conduct watershed, wildlife, forests, and history educational programs in the local school districts.	Developed and presented new grade level programming and hands on labs for school visits. Incorporated new ways to outreach with virtual programming.
I7	Provide educational materials, teacher training, and support for Mass Envirothon.	Although the 2020 competition was cancelled due to Covid-19, staff were able to provide educational support and guidance for students during the year and plan for 2021
I8	Provide education through visitor contacts and formal presentations.	Rangers conducted multiple programs throughout the year for many different user groups. Some were hands on experiences like hiking through different areas of the Watershed. Many visitors not only enjoy the natural surroundings of the DCR Watershed lands but also its history. Rangers presented several History of the Dam presentations to user groups from local citizens to engineers.
I9	Publish bi-annual Downstream newsletter.	No activity.
I10	Maintain and update website.	Extensive work was done on the website, particularly after the declaration of a State of Emergency, to have up to date communication, particularly regarding public access, on the web site. Fishing, hunting, and education materials all posted in a timely manner. All online brochures have been update with the correct MWRA resident distribution number and ADA dog information has been added to the dog waste online brochure.
J. Water Quality and Hydrologic Monitoring		
J1	Continue routine sampling of tributaries for bacteria, turbidity, temperature, and specific conductance. Continue monthly sampling for nutrients and TSS at 10 tributaries.	Routine monitoring program continued throughout the year with only one complete sampling run missed due to the Covid-19 pandemic
J1.1	Routine tributary sampling every two weeks	All routine sampling completed, with the exception of the 6 missed sampled due to COVID-19.
J1.2	Nutrient sampling every month	No routine samples missed
J1.3	Regular data uploads	Backlog of data uploads will be completed in July during scheduled office visits.
J2	Continue weekly or more frequent sampling of the reservoir for plankton, pH, temperature, and dissolved oxygen. Sample nutrients quarterly. Conduct reservoir transect sampling in conjunction with gull harassment program.	Sampling was paused for a month due to limitations caused by Covid-19, but algal population dynamics were accurately captured throughout the year. Elevated concentrations of Chrysophytes from Quabbin necessitated additional sampling in the late summer and fall
J2.1	Plankton sampling	A total of 128 phytoplankton samples were analyzed this fiscal year. More than 50 profiles were collected.
J2.2	Nutrient sampling	All quarterly nutrient samples collected.
J2.3	Bacteria transect sampling	Transect sampling occurred throughout the year except during periods of ice cover or Covid-19 limitations.
J3	Produce annual water quality summary and sampling plan.	Completion of both 2018 and 2019 WQ reports. New format of 2019 report sets the standard for future summaries.
J4	Maintain continuous stream flow gages in all four watersheds through USGS contract. Coordinate with USGS to ensure proper performance of all gages, and accurate and timely reporting of data.	Continued coordination with USGS with all data approved. New JFA for FY21 is in place
J5	Augment hydrologic data in Wachusett watershed through monitoring of stream flows, groundwater levels, and precipitation. Take snow pack measurements. Develop and maintain accurate rating curves.	Final HOBO download for FY2020 data is pending. All FY2020 data should be processed with corrections applied in Q1 FY2021. 17 Discharge measurements taken in FY2020. 1 new rating curve (weir equation) developed for the weir at the Holden Long-term Forestry site. No other ratings could be confirmed because of office closure due to COVID-19. All data added through the end of March. No data added after office closure due to COVID-19. No remote access to databases.
J6	Determine needs for stormwater sampling based on analysis of historical data. Sample storm events as determined necessary.	No activity
J7	Generate solute loading estimates for flow monitored tributaries using Flux, RCMODEL, or other statistical software. For FY19 expand to include smaller tributaries and Quabbin transfer.	End of FY Status - Left off mid-way through researching new modeling methods using several R packages. Expecting to resume this work in Q1 of FY 2021
J8	Continue contract to work with UMass to use results of water quality models and other watershed/water quality analyses to help to make watershed management decisions. Project will include topics in Quabbin/Ware watersheds as appropriate.	Progress meetings and presentations New FY21-22 project scope developed and approved.

Task No.	Description	Final Report Comments
J9	Identify and outline system-wide water quality issues. Bring to ResOPs and/or WQSAT for discussion and integrate into water quality modeling work with UMass.	Local communities and massDOT provided information to help assess total salt inputs to the watershed. Developed proposed grant program to assist towns with salt reduction efforts. Trained staff and local DPWs on better winter practices, and moved forward with purchase of bring maker for pretreatment
J10	Continue to work with MWRA, Quabbin EQ, NEIWPCC and other stakeholders to characterize cyanobacteria and cyanotoxins in the reservoir.	Staff continue to work with all stakeholders to characterize cyanobacteria and cyanotoxins in the reservoir.
J11	Continue to develop database backed tools and applications (R,GIS,MS Access) to facilitate data management, review and analysis, writing reports and modeling efforts.	All apps remain functional, however only WAVE may be used remotely at this time. WIT and TribTools can only be used while at the office since we don't have remote access to databases. This has caused a substantial backlog of data that needs importing to databases.
J12	Continue data compilation/interpretation for 30-Year Water Quality Report (1988-2017). Include assessment of impacts of climate change on water quality and hydrology.	Significant progress made during the middle of the year but progress slowed considerably due to lack of database access due to Covid-19
J13	Increase understanding of reservoir dynamics by collecting profiles in South Basin, Andrews Harbor, etc. in late summer or early fall when the interflow is well established.	Analysis of profile and chrysophyte data collected during summer of 2019 continued
J14	Complete identification and assessment of all macroinvertebrate samples and write summary report.	Sampling and identification of macroinvertebrates has resumed
J15	Continue cooperative study of current population status, life history, and sustainable yield of lake trout. Use GIS to predict spawning areas in the reservoir.	Publication of Creel Survey Report led to proposal to reduce harvest limits. Organization of historic data has simplified future analytical efforts.
J16	Develop a study to identify trends in the long-term phytoplankton and water quality data sets and identify variables influencing these dynamics.	Progress continued on this long-term project
J17	Initiate basic fish monitoring by collaborating with MA DFW to conduct fish in the reservoir. Explore if spring electroshocking is a feasible way to collect Lake Trout in the reservoir.	Continued monitoring of reservoir fish populations in collaboration with MA DFW
K. Watershed Monitoring and Assessment		
K1	Continue to review local records and conduct watershed surveillance to identify potential issues in the watershed that could impact water quality. Work with local boards and land owners when problems are identified. Document all work in EQ database.	Staff monitored a SSO at Foss Reservoir and requested the Division purchase lime to assist towns when not easily obtained during cooler months. Worked in conjunction with Sudbury watershed Conservation Agents and Commissions on several projects to ensure no negative impacts to resources would occur. Watershed inspections hampered slightly during Covid-19 pandemic but staff remained in communication with local boards and commissions and addressed numerous issues remotely
K2	Review files in EQ database and resolve any inconsistencies with paper records. Maintain records of all water quality related issues and EQ actions taken in EQ database. Make improvements to structure and data as needed	Addition of Sudbury parcels and ROWs to EQ database. Planned review and improvement of EQ database postponed until database access is restored
K3	Continue to update water and wetland resources using plans, field observations, and other available data. Add centerlines to streams and wetlands and correct any inaccurate wetland boundaries.	Completed hydrology updates for entire Stillwater subwatershed and made significant progress towards completion of the Quinapoxet subwatershed. Flowpaths through wetlands were added.
K4	Finalize Stillwater District EQA and use recommendations to develop tasks for FY21 Work Plan.	Report completed and in the process of being sent to RD to incorporate recommendations into FY21 workplan
K5	Update status of agriculture sites, hazardous material sites, hazardous materials spills, USTs, and ASTs.	The discovery of PFAs in potable water in Princeton was a new reportable release this year under the MCP. Weekly monitoring of DEP files and sampling results was conducted to determine the extent of groundwater impact. There are several agricultural sites within this area and questions have arisen from the public regarding animals drinking contaminated water. A comprehensive list of potential chemical usage, hazardous materials storage, USTs/ASTs and spills and releases has been compiled for the Sudbury watershed. An agricultural inspection app has been developed for use of iPads in the field.
K6	Develop and implement outreach strategies and programs for topics identified through EQAs.	A PowerPoint presentation on salt usage will be completed and ready to be presented to Wachusett and Sudbury watershed Conservation Commissions in the fall.
L. Aquatic Invasive Species		
L1	Inspect reservoir, lakes, ponds and tributaries for presence of AIS.	Ongoing - see specific tasks below
L2	Conduct surveys, gather information, and make recommendations for management actions on an individual basis if/when new infestations are found in accordance with the updated Wachusett AIS management plan.	Ongoing - see specific tasks below
L3	Conduct aquatic vegetation surveys prior to and after aquatic herbicide treatments planned for the Lily Ponds, South Meadow Pond complex, and Clamshell Pond.	Egeria densa was not observed during a June 22 survey of Clamshell Pond and therefore no treatment was necessary. This is the second year following one year of management with diquat that this invasive species was not detected. Trapa natans were not observed during the survey.
L4	Continue to use appropriate methods to prevent the spread of pioneering stands of Phragmites along the reservoir shoreline.	All known areas of Phragmites around the reservoir were cut four times in FY20 (five times during the growing season) and above-ground biomass was significantly reduced.
L5	Perform aquatic vegetation survey work prior to Thomas, Oakdale, and cove vegetation management. Provide report to MWRA and contractors to guide 2019-2020 plant removal efforts.	Surveys of aquatic vegetation prior to and following removal efforts were successfully completed and illustrate a dramatic reduction in invasive plant biomass

Task No.	Description	Final Report Comments
L6	Monitor, advise, and assist contractors with any necessary plant removal operations.	Improvements to and use of ArcGIS tools has improved data collection and data sharing efforts
L7	Enforce the decontamination procedures for all watercraft entering the reservoir by inspecting each vessel and collecting completed decontamination certification forms.	All watercraft inspected prior to launch in the reservoir.
L8	Continue education efforts through formal presentations and visitor contacts.	Planned ranger training did not occur due to Covid-19 restrictions. A kiosk sign about AIS management projects was developed during the year.
L9	Distribute AIS brochure.	No action taken
L10	Monitor beaver activity; if necessary make recommendations to NR for removal where contributing to spread of invasive plants.	Recommendations were made to NR staff based upon field observations
M. Wastewater Management		
M1	Provide plan review and interpretation, if requested, to Boards of Health.	Continued to assist local boards and provide technical support upon request.
M2	Compile septic system information (installation date, repair date, location, etc) from watershed communities in wastewater database. Include linked electronic plans where available.	Information on 732 systems was added to the wastewater database.
M3	Obtain sewer connection information from Holden and West Boylston; add to Wastewater database and GIS datalayer	This task is no longer necessary.
M4	Continue to provide management support, with the MWRA, of the Rutland-Holden trunk sewer and Rutland Holden Relief trunk sewer. Coordinate inspections and maintenance projects for the sewer lines. Prepare and submit quarterly bills to the user communities in a timely manner.	All sewer communities have submitted payments that were due, excluding the final quarter of FY20.
M5	Research and provide sewer management information for legal issues regarding the Trunk and Relief sewer lines, as necessary.	No court date has been assigned for the Holden lawsuit against DCR and Worcester.
M6	Evaluate and manage new trunk line connections. Monitor trunk line for encroachments; resolve any problems.	No issues regarding connections or encroachments in FY20
M7	Develop a report summarizing the results of the flow study and guidance information on managing sewer capacity in DCR lines.	Flow study to be submitted to DEP by Rutland's contractor by 12/31.
N. Stormwater Management		
N1	Treat remaining 2 direct discharges, Rt 110 Sterling	Project continuing and we will be submitting the 25% drawings to DEP this coming quarter
N2	Continue to work with towns and private landowners for regular maintenance of BMPs to ensure proper performance	Several meetings with Sterling's DPW Director to discuss maintenance of BMPs.
N3	Work with watershed towns to ensure compliance with MS4 requirements.	Staff is in the process of becoming certified to perform culvert assessments. As conditions are determined and reported, additional grant funding will be open under DER allowing watershed towns an additional path for MS4 compliance where 319 Grants are not applicable.
N4	Maintain and enhance GIS data layer of storm water and drainage conveyance structures data layer. Add flow direction to storm sewer network.	Stormwater infrastructure in the entire Stillwater subwatershed and much of the Quinapoxet subwatershed has been added or field verified. Field work was suspended for most of the quarter resuming on the last week of June. Preparations were made to utilize interns for field data collection until program was cancelled due to COVID 19 concerns.
N5	Conduct regular inspections of all construction sites greater than one acre.	40 active construction sites monitored during FY20. A total of 274 separate inspections were completed. 5 new sites were added and 17 sites were determined to be complete/resolved
N6	Continue work with local DPWs to identify locations of concern, evaluate options for BMP installation, and ways to cooperatively implement recommendations.	Several meetings were held with Sterling's new DPW Director who would like to work cooperatively on BMPs. One basin was installed on Hobbs Road and another BMP is in the process of being constructed on Mortimer Road.
O. Emergency Response		
O1	Coordinate Emergency Spill Response training with MWRA and local responders.	Boat/Boom operations, Small water response operations and Joint training were conducted and attended by DCR, MWRA, Wbfd, SFD, DFS and DEP.
O2	Update contact list and information in Comprehensive Emergency Management Plan, EAPs, and other emergency response plans.	Framingham Reservoir 1 & 2 Dam and Unionville Pond Dam EAPs were updated and submitted to the Office of Dam Safety and stakeholders.
O3	Organize and maintain emergency response supplies and services.	Boom Trailer 1 was replaced this FY. Extensive mouse damage to boom on Boom trailer 3 was repaired.
O4	Review and modify the Training and Exercise Plan as necessary. Work with other agencies to provide trainings and exercises.	There were five trainings and exercises with 101 attendees.
O5	Provide ICS and Emergency Response training to appropriate staff.	Two sets of ICS classes were conducted this fiscal year
O6	Evaluate, monitor and oversee spill clean-ups that impact or threaten water resources of DWSP property. Work with appropriate local, state and federal agencies to ensure that containment, cleanup, and mitigation of the spill are proceeding in a manner that protects drinking water quality	There were unidentified releases into Sudbury Reservoir and Foss Reservoir. Staff responded to a sheen on the Reservoir and assisted Boylston FD placing absorbent pads and boom at Gate 18.
O7	Coordinate Small Boat Operator Program	Program discontinued

Task No.	Description	Final Report Comments
	P. Support	
P1	Prepare and submit to MWRA and the Water Supply Protection Trust Annual Work Plans, budgets, progress reports, and program goals and objectives. Track Section progress in meeting program goals.	All work plans, budgets, and progress reports were submitted in a timely fashion. Section progress was tracked quarterly.
P2	Administer the Payment in Lieu of Taxes (PILOT) program.	Total FY20 PILOT is \$8,355,687. Payment to Wachusett towns total \$3,493,208, or 42% of total. Payment to Sudbury towns total \$834,800, or 10% of total. All payments completed. Communication made with MWRA and Department of Revenue to assure timely and accurate payments.
P3	Configure and maintain ArcGIS Online applications and field data collection tools to suit individual user needs.	Many advancements were made in ArcGIS Online this year - new users were on-boarded to help with specific projects and overall use increased. As staff see what others are doing, they seem to get more ideas on how they can leverage the platform to help with their data collection or mapping needs. The creation of the Wachusett/Sudbury Employee Portal was a huge accomplishment for the region this year and involved GIS staff working closing with the RD/ARD.
P4	Publish features and map tiles as hosted web layers for ArcGIS Online users.	We continue to make data available in ArcGIS Online, with a goal of having parity with the local vector and raster data.
P5	Integrate Encroachment Collector database with MS Access Encroachment database maintained by WR.	The Wachusett/Sudbury encroachment management workflow was migrated from MS Access into ArcGIS Online. This will allow staff to collect and monitoring encroachments in real time.
P6	Develop staff training for Migrating from ArcMap to ArcGIS Pro.	None.
P7	Provide in-person staff training for Migrating from ArcMap to ArcGIS Pro.	None.
P8	Maintain and update all GIS databases on the shared G Drive; ensure all digital data is current and available to staff and has updated metadata.	Database kept up-to-date.
P9	Use GPS equipment to capture and maintain data for all staff. Coordinate use of GPS equipment and download and process all GPS data.	The regional iPad fleet was expanded this year and on-boarded to a Mobile Device Management system to allow for easier management of apps and iOS. This has provided additional capacity for mobile field data collection using Collector and Survey123.
P10	Create parcel maps for Land Acquisition Coordinator meetings with landowners, LAP meeting and MWRA board.	All requests for maps were completed in a timely manner. The transition to ArcGIS Online Story Maps for providing LAP members with an easy way to review properties prior to a LAP meeting was made; this Story Map is now owned/maintained by WGIS.
P11	Support municipalities and other partners by providing GIS products and technical support.	All data requests were completed in a timely manner.
P12	Create 'original owner' GIS layer that includes original parcel boundaries, and attribute information detailing the following: original owner name, deed book/page, original acres, acquisition date.	None.
P13	Create Sudbury Reservoir bathymetry contours by digitizing contour information from scanned paper plans.	Bathymetric contour data for Sudbury and Foss reservoirs were received from MWRA and distributed to staff in the local fGDB and in AGOL.
P14	Operate administrative offices, including answering phones, greeting visitors, etc.	Early challenges due to COVID 19 were were worked out by staff to retrieve voice messages, process mail and deliveries.
P15	Provide payroll assistance and personnel services for all Section employees.	Provided. Appropriate support staff are able to remotely monitor SSTA entries and status and make any corrections as necessary.
P16	Provide contract administration, financial management, record-keeping, purchasing of goods and services, and other financial support services.	A total of 234 encumbrances and a total of 1,010 invoices were processed throughout FY2020.
P17	Coordinate with EEA IT to provide local MIS support for the Section. Update IT Plan as required addressing technology needs for the coming year.	IT was able to connect one staff to VPN. During the 4th quarter, many staff were able to successfully convert to working from home, in some cases with state laptops and computers. IT was able to support staff trying to work remotely and accomplish normal work functions. New computers were installed in the new Clinton HQ building.
P18	Administer Logging Permit program, including mailings, bid openings, financial management, database management, permit and key issuance, etc.	Staff were able to administer as needed during COVID 19.
P19	Plan and implement vehicle and equipment purchases and leases.	Received 2 out of the 4 vehicles ordered in FY20. Due to assembly line shut down for COVID-19- two vehicles were not received by the June 30 deadline. Will take on in FY21.
P20	Inspect, provide regular maintenance, and repair vehicles, boats and other motorized equipment.	399 Work Orders were submitted. Garage Staff received 175 work orders, Watershed Maintenance group received 224 work requests. The new Work Order system on AGOL showed it's value during COVID 19. Regional Coordinator was able to manage and dispatch work requests remotely. This new system has been a huge improvement.
P21	Provide routine repairs and maintenance to all Wachusett facilities.	Building Maintenance Group received 110 work requests. Staff were able to procure and stock up on PPE and sanitization supplies for all staff.
P22	Complete watershed-wide vulnerability assessment to identify potential impacts of climate change on the water supply	Southborough and West Boylston were approved as MVP communities and are now eligible for climate change grant funding for projects

Quabbin/Ware FY 20 Final Report



Update on all tasks in Quabbin/Ware workplan for July 1, 2019 through June 30, 2020.

Task #	Primary Task	Final Report Comments
A. Land Acquisition		
A1	Acquire land. Coordinate due diligence and other tasks/services from DCR and private contractors to complete survey, appraisal, title, engineering, and environmental assessments for proposed acquisitions. Negotiate WPR language, purchase prices, and conditions of sale with sellers of property.	In FY2020, one WPR on 26.9 acres in Petersham was acquired for \$62,000 and 118 acres in fee within the West Branch Swift basin was acquired for \$325,000.
A2	Convene LAP meetings to review parcels and prioritize land purchases.	Held a LAP meeting in January - discussed proposed new format for review using Story Maps and presented an overview of potential acquisitions.
A3	Develop individual parcel presentation materials and meet with MWRA Board for approval.	No parcels went before the BOD for consideration.
A4	Continue to work on the LAP Prioritization Model	ongoing
A5	Continue to work with landowners on donations of land conservation interests, solicit donations, and provide information on potential tax incentives available for such donations.	ongoing
B. Watershed Preservation Restrictions		
B1	Monitor WPRs on a regular basis, following monitoring procedures	WPR Coordinator and Regional Monitors completed 17 monitoring visits and reports. Eight (8) Forest Legacy WPR monitoring visits and reports completed.
B2	Complete baseline documentation reports for new WPRs prior to acquisition or within a reasonable time after acquisition, following EOEEA specifications. Baselines will be done in-house or through appropriate contracts.	1 WPR baseline completed by a contractor. WPR Coordinator completed field work for 1 baseline.
B3	Meet with Restriction Stewardship Working Group and confer with legal to respond to enforcement issues and requests to exercise reserved rights.	Continued working with DCR Restriction Working group to draft Enforcement, Reserved Rights, and Amendment Procedures.
B4	Track changes in landownership twice a year.	WPR Coordinator and Regional Monitors continued landownership checks.
B5	Write and distribute Watershed Currents, the WPR landowner newsletter	Progress was made to transform the NR pages on the DCR website. Work will be completed in beginning of FY2021.
B6	Continue to implement WPR records procedure with DCR records manager.	Ongoing
C. Land Management		
C1	Implement the system-wide comprehensive Land Management Plan.	Plan implemented.
C2	Prepare forest harvest proposals for next fiscal year including data on proposed harvest areas, characteristics of stands, soils, cultural resources, wetlands, wildlife, unique features, and priority habitats. Proposals shall also include information on lot layout, landings, stream crossings, wetland crossings, and stonewall crossings.	Eight new forestry proposals were drafted and reviewed by internal staff. Staff are still working on some oak salvage areas proposed in previous years. Oak mortality due to gypsy moths has slowed this year.
C3	Plan and conduct an internal review of proposed logging operations for the coming year, including assessments of silviculture, water quality, wildlife, and other potential impacts/benefits Review lots to ensure consistency with aspects of the CLMP, including wildlife, forestry objectives, and environmental quality.	Foresters completed proposal narratives and maps by Q4. All internal reviews conducted during Q4, and final internal review comments compiled and returned to forestry staff during Q4. ArcGIS Online storymap for public review and comment prepared for posting.
C4	Present annual forest harvest proposals at a public meeting. Accept public comment and respond as needed.	FY 21 lot proposals pending Commissioner approval before public review process can begin.
C5	Plan, lay out, mark products for removal, prepare maps and permits, establish photo monitoring points, file Forest Cutting Plans, seek bids, award permits, and properly advertise and post forest management operations consistent with the Forest Cutting Practices regulations, the LMP, and approved harvest proposals.	14 timber sales were prepared and sold.
C6	Provide supervision and oversight of all forest harvesting operations on DWSP property. Assure compliance with applicable DCR and NHESP regulations and restrictions, approved BMPs, and all Permit conditions. Maintain adequate site visit records. Monitor post-harvest and collect photo point images consistent with internal policy.	21 active timber sales were supervised.
C7	Monitor water quality at active harvesting stream crossing sites to measure effectiveness of BMPs.	Reviewed quarterly lot showings and conducted monitoring at stream crossings as needed. Baseline and active harvest monitoring completed at 1 lot in Quabbin watershed, and baseline monitoring was begun at 1 lot in Ware River watershed.
C8	Continue to implement long-term paired watershed monitoring to assess impact of DWSP forest management on tributary water quality.	Continued to collect monthly samples. 3 storm-event samples were collected (Summer 2019, Fall 2019, Jan 2020). Forestry treatment occurred starting winter 2020. Ensured all instrumentation is operating properly and maintained data-download schedule. Repaired and replaced damaged precipitation gauge. R scripts were developed to streamline data processing and calculate event loading. Calibration phase data has been summarized, analyses are ongoing. Macroinvertebrate sampling completed in June 2020, ID of pre-harvest samples on-going. Coordinated with EQ-Wachusett on further loading analyses. Continued to coordinate with Forestry staff on timber operation timelines, and with NR and MWRA staff on monthly grab sampling.
C9	Conduct periodical regeneration and invasive species surveys to monitor forest health and development resulting from silvicultural activities or other natural disturbances and processes.	Ware River CFI plots completed and Quabbin CFI plots were started.
C10	Conduct periodic reviews and monitoring of land management activities to assure compliance and consistency with land management plans.	Ongoing.
C11	Collect data and maintain GIS datalayers related to forest structure, composition, regeneration, roads, boundary information, stone walls, wetlands, streams, and other data to guide the land management program. Maintain GIS data documenting the location, extent, and intensity of all silvicultural operations.	Continued the collection of GIS data related to forestry projects such as lot proposals, timber sales, CFI and boundary maintenance.
C12	Complete assessments on all new land acquisitions, including descriptions of fire/access roads, bridges, restoration needs, and forest conditions. Integrate these lands into land management, public access, and other watershed management programs.	One assessment completed this year.
C13	Locate, mark, and maintain property boundaries periodically or as needed.	Approximately 14 miles of boundary were marked this year.

Task #	Primary Task	Final Report Comments
C14	Develop scope of work and manage contracted property boundary survey work.	Several major encroachments were discovered while surveying these boundaries.
C15	Document and pursue resolution of all property boundary encroachments.	New AGOL program developed to track and monitor encroachments. Several encroachments were resolved and others are ongoing.
C16	Identify, plan, and oversee non-forest or other unique habitat restoration, field reclamation, prescribed fire implementation and maintenance work.	The Twin Hill fields were mowed and invasive work was completed for Buckthorn. This project is funded by EEA stewardship funding.
C17	Maintain the non-silvicultural lands described in the land management plan (e.g., viewsheds, gravel pits).	Viewscapes maintained. New gravel pit identified and developed for the town of New Salem.
C18	Develop a Terrestrial Invasive Plant Plan. Identify and implement terrestrial invasive management projects. Respond as needed to newly discovered and controllable populations of terrestrial invasive species.	TIPMP draft was intended, but CFI and other duties pushed this to the back. In this FY the only TIP control efforts at Q or WR involved stiltgrass at several sites at Quabbin and contracted buckthorn control at Twin Hill and Barre Heath.
C19	Collect data and maintain datasets, GIS datalayers, and related maps and reports of rare and listed plants and communities.	Rare plant monitoring in concert with NHESP occurred as planned/needed this FY. We were rewarded with renewal of flowering population of purple milkweed in Quabbin Park after a long absence and aggressive efforts to protect plants from high deer pressure in the Park.
C20	If available, use a UAS (unmanned aerial system) to document forest conditions, map openings, identify invasive plant populations, internal road conditions, or other activities.	Agreement reached w/Mass DOT. DOT made 2 site visits to Quabbin this summer. Worked with DOT on logistics using UAS for the gull roost project, but nothing has been planned for other projects.
C21	Complete 2019 Continuous Forest Inventory	Ware River CFI 10-year cycle completed in FY20 as planned. Quabbin CFI data collection began during Q4 and is expected to be completed by Q3 or Q4 of FY2021.
D. Wildlife Management		
D1	Continue the active harassment of gulls within the Pathogen Control Zone at Quabbin Reservoir, using human presence, boats, pyrotechnics, passive scare devices, and other techniques. Continue to identify and test new harassment techniques.	Active harassment operations began 10/28/19 and ended 3/27/20. The last 2 weeks of scheduled patrols were canceled due to the COVID-19 State of Emergency, but monitoring of bird activity and bacteria counts continued; daytime harassment was conducted once during that time. Bacteria counts remained low throughout the season, without any exceedances. The program operated successfully, safely, and without injuries. A new program supervisor oversaw daily operations. New initiatives included use of an iPad for daily reports, periodic use of laser harassment, purchase and testing of a more powerful laser.
D2	Observe and document the nocturnal roost of gulls on Quabbin Reservoir.	No nighttime roost observations were made in FY20 due to scheduling and inclement weather conflicts.
D3	Control Canada geese populations in the Pathogen Zone on Quabbin Reservation by treating eggs during nesting season to prevent hatching.	The Canada goose control zone was surveyed for active nests; there were 2 nests located and 11 eggs were treated to prevent hatching.
D4	Identify places in MA where human derived food is available and work to prevent feeding through educational signage, interaction and enforcement.	Surveys were done to identify places where human food is available in attracting gulls to an area. One new feeding area was found and monitoring efforts continued to search for new alternative gull feeding areas.
D5	Remove beaver and muskrat in the Aquatic Wildlife Pathogen Control Zone at Quabbin. Address beaver concerns outside the control zone.	There were 5 beaver removed from the Wildlife Pathogen Control Zone and 3 beaver from outside the control zone. No muskrats were observed.
D6	Respond to problems of burrowing animals on dams and dikes; report problems and take appropriate action.	One active woodchuck burrow was treated on Winsor Dam to prevent further tunneling activity. A kestrel nesting box was installed below the Goodnough Dike to encourage nesting in the area. Kestrels feed on small rodents and if they establish occupancy they may help control the small rodent populations in the fields below the dike.
D7	Research and manage for common loons on DWSP waterbodies; provide nesting platforms, capture and sample birds for contaminants.	Research and management for common loons on DWSP waterbodies continued and the annual loon report was completed.
D8	Continue long-term wildlife resource monitoring program.	Long-term wildlife resource monitoring for birds, bat activity, and vegetation surveys were done on the habitat restoration areas on the Quabbin and Ware River Watersheds.
D9	Work with DFW to survey and document breeding bald eagles around Quabbin Reservoir.	Cooperative work continued with DFW to survey and document breeding bald eagles around Quabbin Reservoir. Seven active eagle nests have been verified with a total of 12 eagle chicks; surveys continue to document chick fledging.
D10	Administer the applications, permits, and orientations for the annual Quabbin Controlled Deer Hunt; analyze results of hunt.	2019 Quabbin controlled deer hunt was held in Petersham on December 12 & 13. Eighteen deer (9 males, 9 females) were harvested by 181 hunters. The Pelham block was open to general hunting for the 2-week shotgun season. A total of 384 permits was handed out. Pelham harvest numbers still being compiled by MassWildlife. Data has been analyzed and summaries produced.
D11	Coordinate with the Massachusetts Natural Heritage and Endangered Species Program concerning rare species occurrences and protection.	Coordinating research efforts continued with the Natural Heritage and Endangered Species Program (NHESP) on surveying for uncommon to rare species such as whip-poor-wills, bats, turtles, and snakes throughout the watersheds, with additional monitoring efforts on the habitat restoration focus areas. Collaboration continues with NHESP on reclamation of a kettle bog within the Quabbin Reservoir Pottapaug island areas.
D12	Develop and implement a deer management plan for Quabbin Park	Quabbin Park hunt has been proposed for the 2020 season. If the hunt does take place, the hunters that were accepted and completed the orientation last year will be allowed to hunt in 2021.
E. Public Access Management		
E1	Proactively patrol watershed lands to ensure compliance with DCR regulations and policies. Tally visitor contacts and produce quarterly and annual summary reports. Conduct trend analyses on data collected (e.g., rule violations, access permits, encounters).	Daily logs submitted by all Rangers. Incident reports collected in Survey 123. Weekly visitor contacts reported by Watershed including violations. Summary statistics provided to Division Director for quarterly and annual reports to Water Supply Trust and MA DEP-WERO. Watershed Rangers documented a total of 28,831 visitor contacts and 635 violations. Quabbin 26,105 visitor contacts and 391 violations. WRW 2,726 visitor contacts and 244 violations.
E2	Continue to cooperate with state, environmental, federal, and local police for help with enforcement when required.	Watershed Rangers continue to work with MEP, MSP, and local PD and FD.
E3	Use Agency social media accounts for advertisement of interpretive programs, including general info or emergency info (e.g., closings).	Changes submitted to Joel Zimmerman, throughout the quarter, to post updates on website regarding park close time changes and updates relating to Covid-19.
E4	Continue public access updates and improvements with signs and gates. Conduct regular inspections of locks, signage, gates, and access barriers. Develop, install, and maintain appropriate signage throughout the watersheds, including walkway signs and signs indicating access restrictions. Develop and distribute materials to inform visitors of access rules, policies, and general watershed protection information. Update and maintain kiosks and bulletin boards with appropriate visitor information.	Rangers continue public access updates and improvements with signs and gates daily. Rangers conduct regular inspections of locks, signage, gates, and access barriers daily. Rangers develop, install, and maintain appropriate signage throughout the watersheds, including walkway signs and signs indicating access restrictions as needed via work orders. Rangers develop and distribute materials to inform visitors of access rules, policies, and general watershed protection information as needed. Ongoing inspection of signage within the watersheds. Signs are replaced or repaired on an as needed basis.
E5	Continue to implement Quabbin and Ware Public Access Management Plan policies. Enforce rules and regulations of 313 CMR 11.09 through the use of citations. Issue written warnings and/or non-criminal citations for repeat offenders and serious violations. Complete semi-annual Compliance and Enforcement Reporting to MassDEP.	Watershed Rangers documented a total of 28,831 visitor contacts and 635 violations. Quabbin 26,105 visitor contacts and 391 violations. WRW 2,726 visitor contacts and 244 violations.
E6	Continue to conduct "special operations" such as night operations, ATV, and snowmobile operations, as needed	WRW Rangers participated in one joint ops completed in late winter. One citation issued. MEP now more familiar OHV use in Hubbardston area. DWSP citation books issued to 16 MEP officers in the Central region. Quabbin Rangers have conducted 2 joint boat patrols; one with MEP and one with MSP. 14 citation books issued to MSP.

Task #	Primary Task	Final Report Comments
E7	Operate the shoreline and boat fishing program in designated portions of Quabbin Reservoir in a manner that minimizes threats to water quality and accommodates visitors with accessibility needs. Implement the Quabbin Boat Seal program at BLAs and produce annual report.	Fishing season opened on May 19, 2020 to private boats only. No rental boats were allowed this season due to Covid-19. Credit card machined was used at all 3 BLAs in addition to cash sales.
E8	Provide ongoing support and consultation to DCR's Division of Parks regarding Comet Pond beach. Maintain boat ramp launch at Long Pond and boat ramp launch and parking lot at Comet Pond.	DWSP staff removed the barrier at Comet Pond; cut new access road into Long Pond; and assisted Park staff with snow removal.
E9	Coordinate and/or support special programs and events, including Memorial Day services, public meetings, paraplegic hunts, and Tuesday Tea events.	IS Staff has continued to stay in contact with members of the various associated boards (FOQ, SRVHS) and will attend board meetings when they resume. IS staff has provided regular updates to groups and individuals regarding when special events can resume.
E10	Continue to implement universal accessibility projects throughout the Quabbin/Ware Region.	Assessment will continue of any universal accessibility projects.
E11	Continue to control and monitor research and other public access through an internal review process and permit system. Maintain electronic databases for permit issuances, access notification, and any problems.	Seventeen (11 renewals and 6 new) research permits were reviewed and approved. Annual reports received from most research projects.
E12	Complete Ware River Public Access Management Plan Update 2019.	WRPAM Plan update remained on-hold pending internal review and discussion Meetings were scheduled. but due to COVID-19 were cancelled. Team regularly requests new meeting times with internal DCR staff.
E13	Implement Quabbin Park Cemetery Management Plan	In progress.
E14	Implement Quabbin Park Operation and Maintenance Plan	Quabbin Park mowing plan updated to reduce the amount of maintained lawn and introduce more wildlife and pollinator friendly habitat. This also reduces the amount of lawn that needs to be maintained.
F. Watershed Security		
F1	Continue regular ranger patrols to provide watershed security. Perform regular security checks at key access points and MWRA facilities. Use daily logbooks to record all encounters and violations. Produce periodic reports.	Rangers patrol 7 days a week for watershed security, including security checks at MWRA facilities. Rangers keep daily field logs. Ranger Captain submits reports based on field logs and recommendations of rangers in the field. Patrols have been modified due to COVID-19 Pandemic.
F2	Inspect, maintain, and monitor gates, barways, and signage throughout the watersheds for security and access control. Install barriers (such as guardrails or fences) as needed to protect properties and control public access.	Watershed Ranger regularly conduct manual security inspections of signage, gate/lock systems and bar-ways.
F3	Coordinate security monitoring and related activities at high vulnerability locations with MWRA.	On-going
F4	Work with local state and federal responders to ensure current agency emergency contact information.	Rangers attended the following trainings FY20: National Traffic Incident Management Responder, Emergency EMS1, Chemical Suicide Awareness for First Responders, Protecting First Responders from Opioid Exposure, First Responder/CPR/AED recert, and HAZWOPER. One Ranger is currently attending Intermittent Police Academy. 2 New Emergency Response Trailers recieved from MWRA. Ranger Captain and Lt. met with TIGER training for ER Trailer inventory/shakedown and recommendations for equipment needed or needing to be replaced.
G. Infrastructure		
G1	Conduct monthly inspections and issue findings on Winsor Dam and spillway and Goodnough Dike. Implement basic maintenance activities as needed. Coordinate inspections with MWRA and consultants. Plan for or conduct dam repair work as called for in dam inspection reports.	Monthly inspections conducted all year and findings shared with Division and MWRA staff. Regular maintenance conducted on dam and dike. Turf repair efforts continued on dam and dike with mixed results.
G2	Conduct periodic inspections and issue findings on DCR's bridges and small dams in the Quabbin/Ware Region. Assure compliance with all dam safety requirements for small dams on DWSP lands, including the preparation or updating of Emergency Action Plans.	Phase I inspections conducted for East Branch Swift River Regulating Dam, and Peppers Mill Pond Dam. Site visits were conducted for Brigham pond dam, Asnacomet pond, and Demond pond.
G3	Provide oversight and technical support or assistance for engineering, construction, and renovation work in the Quabbin/Ware Region.	Frequent meetings and efforts in Q1 & Q2 led to the development of the Quabbin South Master Plan and ultimately triggered some much needed discussion. Although the Plan hasn't been formally presented (anticipated in August of 2020), many aspects of the plan were recognized. Having a Master Plan sheds light on a variety of projects and the implications of the ongoing work and how decisions made now affect the goals of the Master Plan.
G4	Maintain records regarding reservoir and facility construction, as well as maintenance and repair operations. Provide surveying and drafting services, maintain records, and respond to in-house and other requests for information related to land ownership, property lines, buildings, and construction projects.	Providing support to various entities (internal and external) has been a priority over the past fiscal year. The process has been enhanced with several ArcGIS Online tools and data management options. Collaboration and communication has been instrumental to ironing out the process of resolving boundary issues. A total of 9 projects were awarded and completed in FY20 for an approximate value of \$105,000. This was a substantial effort led by CE Staff and supported by Forestry Staff to delineate several parcels that didn't have proper or adequate monumentation. Eight of the nine projects were in Ware River Watershed. We had 2 additional projects that were bid in FY20, but funding wasn't available.
G5	Conduct building maintenance activities, including painting, carpentry, cleaning, minor repairs, and other routine maintenance.	Hired a new Institutional Maintenance Foreman to oversee the buildings. Work continued on maintenance projects. Significant effort implement in Building cleaning due to COVID19. New SOPs were implemented. New supplies were obtained. Educational signage was installed.
G6	Conduct periodic inspections of drinking water sources and septic systems at the various Regional office buildings. Assure compliance with applicable state and federal regulations.	Began conducted monthly bacteria sampling this year until limited by the COVID-19 State of Emergency. Testing for PFAS was conducted with MWRA support, with results reported below levels of concern. Developed sampling plan and obtained MWRA lab support for analysis of samples from the "new" Stockroom well, upper and lower zones, as well as a new exploratory well to supply the Administration Building. The Quabbin Admin building continues to remain in compliance with MassDEP sampling requirements for NTNC PWSs.
G7	Conduct periodic inspections, maintenance, or oversight of heating systems, fuel pump operations, and fuel deliveries.	New staff trained on woodchip heating system, continued problems with the WEX Card system that needed repair.
G8	Develop specifications, bid packages and contracts for facility and infrastructure projects scheduled for FY20	BLA 2 access road repaved, building envelope study started for the Admin building and Cemetery office, continued work on new maintenance garage, and BLA 1 electrical system upgraded.
G9	Conduct maintenance and management activities in Quabbin Park, including roads, roadsides, parking areas, drainage structures, fields, vistas, snowplowing, and other management activities.	Modified Snow Removal program to reduce salt use, ongoing work to maintain roads and infrastructure in the Park.
G10	Continue to conduct routine operational and maintenance activities in the Quabbin Park cemetery, coordinate with local funeral homes and other entities for burials, and provide administrative support services. Conduct Quabbin Park Cemetery business and record keeping.	Conducted routine operational and maintenance activities in the Quabbin Park cemetery - approximately 15 burials were completed. New irrigation system was installed and operational. New specialized lawns and ground equipment was obtained. Significant hazardous trees were removed in and around the Quabbin Park Cemetery.
G11	Conduct maintenance activities on DWSP roads, including grading, culvert and ditch maintenance, mowing sides of forest roads, and snowplowing. Continue to collect data on road conditions and culvert locations. Continue to use BMPs in road maintenance activities. Continue to seek out and explore alternative funding opportunities to complete stream crossing upgrades and improvements.	Major upgrades to several internal roads and drainage structures completed. Regular seasonal road maintenance continued despite COVID-19.
G12	Continue to investigate improved Emergency Spill Response access.	This project is on hold.

Task #	Primary Task	Final Report Comments
G13	Assess gravel pits and gravel resources on DWSP lands in the Quabbin/Ware Region. Develop overall management strategy with summaries of each known gravel pit. Annually review and monitor gravel extraction.	Two new pits opened, one in Quabbin for New Salem town use and another in Oakham for DWSP use. Began permitting for another two locations. Completed Best Management Practices report for DEP August submittal. Conducted inspections and monitored DPW extractions at New Salem and Petersham pits.
G14	Investigate sedimentation on and around Hangar ramp.	No activity due to reduced staffing and prioritization of other tasks.
	H. Watershed Protection Act	
H1	Implement the Watershed Protection Act regulations in 14 Quabbin Reservoir and Ware River Watershed towns. Review and process all WsPA applications, and track the status of applications and associated projects using an Access database. Inspect sites throughout the duration of any activity to ensure compliance. Investigate and resolve violations of WsPA regulations.	Received 26 cases in the Ware River Watershed and processed 23. Received and processed 8 cases in the Quabbin Watershed. Investigated 6 violations and conducted site visits in both the Ware and Quabbin Watersheds including a Zone A review with DEP.
H2	Continue to review or evaluate public notices, local board agendas and minutes, and information provided by local sources for additional jurisdictional activities or enforcement actions.	Reviewed agendas and minutes for all the towns in both watersheds. Contacted several towns regarding projects within WsPA jurisdiction.
H3	Convene WsPA Working Group meetings.	WsPAWG met four times over FY20. Effective communication between staff and WsPA implementation continued despite requirements to work from home.
H4	Educate and interact with local boards and officials in the watersheds about watershed protection regulations. Educate local officials, realtors, prospective buyers, land development consultants, and homeowners on WsPA regulations and procedures.	Fielded calls from town officials, developers, engineering firms, realtors, and homeowners and assisted them with the Watershed Protection Act.
H5	Provide technical assistance support to local boards through contact, meetings, and/or through regulatory review process.	Attended three town meetings and an open space workshop.
	I. Education and Outreach	
I1	Implement the Interpretive Services Plan for the Quabbin Watershed.	With the retirement of Cliff Read - Section Supervisor, IS Staff will review the 1988 Quabbin Watershed Interpretive Services Plan for updates and changes in FY21.
I1	Staff and operate the Visitor Center at Quabbin to educate visitors about watershed management and related topics. Coordinate with visiting groups to provide orientation at the Visitor Center and in Quabbin Park. Maintain records on Visitor Center activities.	The Quabbin Visitor Center operated for 250 days and was closed for 91 days due to the pandemic. A total of 14,806 people visited the Visitor Center. During the closure, staff responded to about 16 calls per day.
I3	Continue established programs of public education, including school programs and field trips on DWSP properties. Expand outreach efforts in Quabbin Park. Expand the Quabbin Reservoir watershed curriculum using materials developed by MWRA, MassDEP, EPA, ProjectWild, Project Learning Tree, Project WET, and other appropriate watershed resources. Continue to support watershed school system teachers through in-service workshops and offerings for school groups.	IS staff conducted 54 programs to about 1,842 participants of organized groups, schools, or universities. Staff also worked on developing remote programming and online resources to schools and educational groups.
I4	Collaborate with other organizations and watershed communities to reach more diverse audiences. Identify specific groups and their educational needs.	Staff attended regular meetings of the Board of Directors for the Friends of Quabbin, Swift River Valley Historical Society and Dana Reunion Committee to represent the DCR, provide input and respond to inquiries. Administrative support was provided by staff for the Quabbin and Ware River Advisory Committees for their meetings. IS Staff remained in contact with board members from FOQ, SRVHS, Dana Reunion and collaborated on a virtual Quabbin Park Cemetery Memorial Day ceremony.
I5	Develop watershed exhibits and portable displays for use in talks and presentations, both in the Quabbin Visitor Center and in watershed communities.	Although the Quabbin Visitor Center was closed for much of the year, the IS Staff were able to share existing and new brochures and exhibits on the DCR Quabbin website. https://www.mass.gov/info-details/quabbin-reservoir-watershed-education-programs#kiosk-posters
I6	Maintain self-guided Quabbin Park interpretive walkways focusing on natural resource management and water quality protection; include interpretive signs with information related to watershed protection programs, forest succession, history of the reservoir, wildlife. Utilize outside sources of assistance (e.g., Student Conservation Association) for walkway maintenance.	The annual SCA project was cancelled. IS staff worked on trail inventory and assessment in AR GIS.
I7	Improve the educational signage regarding drinking water protection in the Quabbin Visitor Center and in Quabbin Park.	Signs were created as needed.
I8	Continue to support and participate in the Envirothon, America's leading natural resource education program for high school students.	The 2020 Envirothon was cancelled.
I9	Publish bi-annual Downstream newsletter.	Newsletter suspended.
	J. Water Quality and Hydrologic Monitoring	
J1	Provide environmental oversight for Regional activities to minimize adverse water quality impacts. Conduct pre-project reviews of all DWSP projects and activities within 100' wetland buffers.	Limited work on Regional activities due to staffing constraints and, more recently, COVID-19. Reviewed potential improvements for maintenance/trail access near Pepper's Mill Pond, but ultimately did not pursue based on extensive effort and expense.
J2	Continue routine and non-routine water quality sampling and analysis (including algae and nutrients) in order to track water quality parameters and trends in the reservoir and tributaries. Continue analyses for nutrients and calcium on selected tributaries. Review water quality data and prepare annual report summarizing changes over time. Modify sampling plan as needed.	Annual report nearing completion. Drafted DEP response to Chrysosphaerella bloom and DCR/MWRA response. Routine tributary monitoring program modified to accommodate COVID19 precautions and staffing constraints. Water quality data is periodically reviewed.
J3	Perform Shaft 8 Intake Zone Inspections prior to MWRA diversions.	No inspections were completed, since only one diversion was conducted, and it was done without prior notification to DCR.
J4	Monitor plankton in Quabbin Reservoir.	Increased plankton sampling at 202 August-October following Chrysosphaerella bloom, from twice monthly to daily or several times weekly by MWRA request. Modified sampling plan in April to conduct biweekly monitoring while taking precautions for COVID-19. Sampling at 206 reduced to once monthly, but increasing frequency when needed to support Wachusett reporting.
J5	Collect, interpret, and manage data on reservoir elevations, water transfers and releases. Share data with DWSP staff and MWRA.	The reservoir elevation at the start of the Fiscal Year (July 1, 2019) was 528.72 ft. Flow over the lower spillway took place from July 1 - July 15. The elevation steadily dropped from July to November, reaching a low of 524.20 ft on November 23. It then steadily increased through the winter and spring seasons, peaking at 530.07 ft on May 19. A single row of stop logs were installed across all 5 bays of the lower spillway in March, delaying spill until April 11 when the reservoir elevation exceeded 528.67 ft. The elevation would then recede below the 528.67 ft elevation on June 22, marking the end of 73 consecutive days of spilling. In total, 4700 MG spilled over the lower and upper spillways throughout FY20. Transfer from Quabbin to Wachusett was active on several occasions throughout FY20, sending 41,301 MG in total.
J6	Conduct short-term water sampling of forest harvesting operations on DWSP lands.	FL WR 19-19-2 monitoring will be continued onto the next fiscal year. Baseline and active-harvest monitoring was completed at Forestry Lot 1056.
J7	Investigate re-establishing wind monitoring station to help determine wind impacts to changes in water quality parameters	No activity due to reduced staffing and prioritization of tasks. MWRA monitoring buoy to be equipped with MET station.

Task #	Primary Task	Final Report Comments
J8	Continue improvements to database app for compiling of water quality, quantity, and other relevant data for data and trend analyses.	Worked with other EQ staff to train on database development and R-scripting. Completed new scripts for data import. Worked to standardize data formatting to be consistent with Wachusett conventions. Continued importing historical and incoming data into WQ database, created/refined import scripts, and coordinated with EQ-Wachusett staff on database development. Completed data request from agency partners (MWRA, FW), using R-scripts for QA/QC and metadata sharing. Used R to develop data processing and visualization tools for ongoing water-isotope study. In the process of developing workflows for MWRA buoy data and YSI EXO sonde data.
J9	Implement streamflow monitoring at selected sites. Coordinate flow monitoring with annual water quality sampling plan.	Established two new stream gage location in the Quabbin Watershed. Developed SOP for DCR Quabbin Hydrologic Monitoring Program. Developed HOBO launch schedule for stream gauge work and downloaded quarterly data. Measured streamflow to develop rating curves across the three DCR stream gages. Downloaded and processed HOBO data according to data management schedule. Maintained log of data download and processing
J10	Continue to implement long-term monitoring of paired sub-basins in order to assess impact of forestry on water quality. Increase monitoring frequency once harvesting is initiated.	Continued to collect monthly samples. 3 storm-event samples were collected (Summer 2019, Fall 2019, Jan 2020). Forestry treatment occurred starting winter 2020. Ensured all instrumentation is operating properly and maintained data-download schedule. Repaired and replaced damaged precipitation gauge. R scripts were developed to streamline data processing and calculate event loading. Calibration phase data has been summarized, analyses are ongoing. Macroinvertebrate sampling completed in June 2020, ID of pre-harvest samples on-going. Coordinated with EQ-Wachusett on further loading analyses. Continued to coordinate with Forestry staff on timber operation timelines, and with NR and MWRA staff on monthly grab sampling.
J11	Work with MWRA to install continuous water quality monitoring buoy at Quabbin Reservoir	Worked with MWRA and Wachusett staff to finalize buoy details, implement buoy deployment, and begin data sharing and importation protocols. EQ staff became familiarized with EXO2 sonde and conducted side-by-side comparisons with Eureka multiprobe. MWRA provided supplies for EQ to conduct routine EXO2 calibration while retaining responsibility for sonde/buoy maintenance. Water Quality monitoring buoy was unable to be installed at Quabbin in FY20.
K. Watershed Monitoring and Assessment		
K1	Complete Environmental Quality Assessments in the Quabbin Reservoir and Ware River watersheds according to a prescribed schedule. Include AIS surveys of lakes, ponds, and tributaries. Present EQAs to RD.	Quabbin Reservation EQA report completed. West Branch Ware EQA report to be completed in July.
K2	Prioritize recommendations in completed EQAs as necessary and complete short- and long-term remedial actions.	In Ware River watershed, working with land owner on bridge replacement options. No activities this year in Quabbin watershed.
K3	Update and assess land use/land cover statistics for watershed, sanitary districts, and sub-districts when new GIS coverages are available.	Supported work on Ware River Public Access Management Plan by providing land cover/land use stats. Provided MA DEP with updated versions of both Quabbin and Ware River Hydrography for inclusion in NHD.
K4	Use site inspections, environmental quality assessments, local board meetings, and information from Watershed Rangers to identify and mitigate possible violations of state and federal regulations. Monitor progress and pursue enforcement if needed.	In Ware River watershed, investigated dumping of trash and lawn debris, drainage ditches into Demond Pond, diesel spill from a truck, tree clearing within the 200-ft protection zone. All identified issues in Quabbin watershed were resolved.
K5	Conduct routine inspections of the Winsor basin/CVA intake area. Inspect MWRA CVA screen washing when necessary. Report debris and aquatic organisms trapped on screens.	CVA inspections were completed routinely, and wildlife sightings reported to NR staff.
K6	Coordinate with other agencies to exchange information and review projects in watershed.	Reviewed MEPA Environmental Monitor for projects and YOPs in watersheds. Staff reviewed Brintnal Estates, Rutland.
K7	Monitor MassDEP databases regularly for new c.21E information.	No new 21E sites. Database reviewed regularly. No new sites this year. File review conducted at site as part of EQA.
K8	Review periodic reports on closed landfills in the watersheds. Coordinate with town and/or MassDEP to review monitoring reports.	No new reports to review. Prepared summary of landfills and transfer stations in Quabbin watershed, per MWRA request on potential PFAS sources.
K9	Review and comment on Yearly Operational Plans related to herbicide use. Monitor and inspect no-spray and limited spray zones along rights-of-way.	YOPs for National Grid and Providence & Worcester railroad were reviewed this fiscal year. National Grid work was outside of Quabbin and Ware watersheds. Comments on Providence & Worcester YOP were submitted to MDAR.
K10	Work with loggers and utility rights-of-way contractors to reduce the risk of introducing invasive species into the watersheds.	All logging equipment was inspected for AIS before it was allowed on DWSP property.
K11	Monitor utility maintenance, repair, or replacement projects on DCR lands for water quality problems.	Continued to issue needed access permits and monitor sites. Issued permits and coordinated work on National Grid powerlines, including work on Bassett Island.
K12	Continue to identify, map, and monitor locations of agricultural operations that could impact water quality through the EQA process.	Continued to map farming activities in West Branch Ware. Completed agricultural survey of Quabbin Reservation district for EQA.
L. Aquatic Invasive Species		
L1	Continue program to monitor AIS in tributaries and other water bodies. Review and update the AIS monitoring and AIS emergency action plan.	Coordinated and conducted aquatic macrophytes survey with MWRA consultants. Monitored water bodies in Quabbin and Ware River watersheds for AIS. Drafted and revised the AIS Management Plan Update throughout the year.
L2	Conduct public education about AIS.	Educated fishermen about AIS and Asian jumping worms during Boat Decontamination and Cold Weather Quarantine. Public education done primarily opportuniti
L3	Continue the Quabbin Boat Seal program to minimize the risk of AIS infestation of Quabbin Reservoir. Conduct Cold Weather Decontamination Program and Boat Inspection Program. Maintain database; investigate and pilot test electronic data collection.	Coordinated with GIS, VC, and administrative staff to prepare for 2020 Quabbin Fishing Season. Updated database, assisted with data requests, and managed boater ID distribution/mailling. Provided technical support to BLA1 on opening day. Over 6,000 tag events have already been logged in the system automatically, saving time on data entry. For FY20, a total of 8,553 boat seals were placed: BLA 1, 2,398; BLA 2, 2,768; and BLA 3, 3,387. Boat Decontamination (BD) and Cold Weather Quarantine (CWQ) events were held as scheduled until the COVID-19 pandemic and State of Emergency, which delayed BDs and BLA opening until May 19 and 21, respectively. BD events were postponed and rescheduled several times, and were conducted on a compressed schedule with extended hours once BLAs opening was confirmed. PPE and revised procedures were implemented for COVID-19 precautions. For FY20, a total of 17 events were held, 12 BD and 5 CWQ dates with 157 and 102 inspections, respectively.
L4	Implement a program of detection, monitoring and control of invasive aquatic species and other macrophytes in the Quabbin and Ware River watersheds, including education and training of Boat Launch Area attendants and other appropriate staff. Work in conjunction with the DCR Lakes and Ponds, MWRA and MWRA contractors. Evaluate and make changes in program as needed.	Focused on maintaining ongoing programs while addressing the Chryso bloom with limited staffing. Attempted to fill vacant EA I position, then post a LTS position, to bolster staffing.
L5	Implement Quabbin/Ware Region's AIS Management Plan.	A revised draft is under review, following a staff retirement, and pending restaffing to implement plan.
M. Wastewater Management		
M1	Identify potential problem sites or areas through review of local records, water quality data, and other pertinent information.	In Ware River watershed, reviewed Rutland and Hubbardston Conservation Commission agendas. Monitored Brice Lemon construction site. Monitored solar farms in Hubbardston. In Quabbin watershed, followed up on issues identified at conservation commission meetings. Reviewed bridge construction plans and attended project planning meetings with DOT. Checked MEPA Environmental Monitor for projects in both watersheds.
N. Stormwater Management		

Task #	Primary Task	Final Report Comments
N1	Advise local boards on stormwater management issues related to construction activities.	In Ware River watershed, reviewed and commented on Brice-Lemon and Brinthal Estates, both in Rutland. Attended Rutland conservation commission meetings for these large-scale construction projects, as well as provide comments on stormwater. No activity in Quabbin watershed requiring construction stormwater oversight.
N2	Continue to collect data on and update maps of culverts and other stormwater conveyance structures in the Quabbin and Ware River watersheds. Maintain culvert database.	The ArcGIS tool developed for mapping stormwater conveyances evolved over the course of FY20. It was first tested by collecting location, characteristics, and conditions for structures located along the Mass Central Rail Trail. A group of priority filters was built to identify the structures in need of attention throughout Quabbin & Ware River watersheds. An effort was made to make the tool available to those in different sections (EQ, Forestry, Watershed Maint., primarily to streamline processes such as communications and inventory updating. During these efforts, common terminology was agreed upon, which included a name change from "Stream Crossings" to "Road Infrastructure". Definitions for all the terms within the ArcGIS map are readily available via a "Road Infrastructure" Glossary PDF. A total of 173 inspections were completed throughout FY20.
N3	Develop Internal Road Management Plan	Road management plan for the Quabbin and Ware River watersheds was drafted in preparation for submitting to DEP. Final plan to be completed in early FY '21.
	O. Emergency Response (Preparedness)	
O1	Develop and/or update Emergency Response materials for the Quabbin and Ware River watersheds, with up-to-date contact information, emergency procedures, and roles/responsibilities.	COVID19 response was significant in FY20. Numerous policies and procedures were written and or implemented from April to the present. Requisite PPEs were acquired. Regional COVID safety procedures were developed in Q3 and Q4. 2019 Emergency Contact Information updated by staff online in SSTA. BLA emergency SOP reviewed and updated. DCR/MWRA response coordination updated in both Regions.
O2	Update SOPs for spill response and define DCR staff roles in both assessment and response. Work with MWRA to maintain emergency response trailers and/or other spill response supplies and equipment.	2 New Emergency Response trailers ordered and received from MWRA. Updated inventory, supplies provided by MWRA. Continued equipment start/maintenance. Captain and Lieutenant met with TIGER Training to inspect, inventory and recommend replacement or new equipment needed.
O3	In conjunction with MWRA, coordinate spill response and/or incident command system (ICS) training to staff.	FY20 Emergency Spill Response Trainings funded by MWRA for DWSP staff were completed. TIGER training issued a summary report this FY. Boat inspections were new this FY as part of the Response training preparedness. In addition, Rangers attended the following trainings FY20: National Traffic Incident Management Responder, Emergency EMS1, Chemical Suicide Awareness for First Responders, Protecting First Responders from Opioid Exposure, First Responder/CPR/AED recert, and HAZWOPER. One Ranger is currently attending Intermittent Police Academy.
O4	Coordinate cleanup operations for any spills that impact or threaten water resources or DWSP property. Work with the appropriate local, state and federal agencies to ensure that spill containment, cleanup, and mitigation is conducted in a manner that protects water quality.	No issues this year.
O5	Develop and implement spill response plans for all timber harvesting operations on DWSP lands.	13 spill plans were prepared.
	P. Support	
P1	Manages administrative office, provides administrative support, responsible for accounts receivable: BLA revenue, forestry, Cemetery, Misc.	Ongoing.
P2	Manage payroll through SSTA and HR/CMS.	Ongoing.
P3	Provide contract administration, financial management, record-keeping, purchasing of goods and services, and other financial support services.	Contract administration, financial management, record-keeping, purchasing of goods and services, and other financial support services are continual activities. Processed 342 encumbrance/purchase order requests and 971 invoices in FY2020
P4	Coordinate with EOEEA IT to provide local MIS support for the Quabbin/Ware Region. Develop an annual IT Plan with input from Regional staff that addresses technology needs for the coming year.	Renewed subscriptions to Dropbox and Smartsheet.
P5	Provide personnel services and assistance for all Quabbin/Ware Region employees.	Ongoing.
P6	Prepare annual work plans, budgets, quarterly progress reports, and program goals; track progress and submit reports to Division Director, MWRA, and the Water Supply Protection Trust Board.	Monthly Budget vs Actual, Project Summary, and Encumbrance Balance Summary reporting was completed for a substantial part of FY2020. The budget and spending was reviewed and adjusted quarterly based on changing needs and unforeseen circumstances.
P7	Provide GIS and GPS services and associated mapping for all Regional plans, reports and projects, as needed. Keep GIS datalayers updated as new information becomes available. Begin implementation of ArcGIS Online and GIS mobile device applications for selected staff.	Lots of progress was made this year in the acquisition of new iPads and GPS for field data collection. GIS staff and users have adapted well to working from home due to COVID. ArcGIS Online use was expanded to many new projects and initiatives throughout the region.
P8	Update digital information, including all new DWSP land purchases, WsPA maps and parcels, and provide analyses for use in DWSP reports and publications.	Property boundaries for the Quabbin/Ware Section were completed for Phillipston
P9	Plan and implement vehicle and equipment purchases.	Two new vehicles were received in FY20. Three vehicles couldn't be delivered before the end of the FY and had to be purchased in FY '21. This delay was due to COVID19 shutting down auto assembly lines.
P10	Conduct truck, boat, and equipment inspections and maintenance as needed, utilizing the Facility Asset Management Information System (FAMIS). Maintain up-to-date records of all vehicles and equipment (in FAMIS and file system).	Fleetwave has replace FAMIS in asset inventory. Repairs and maintenance are being tracked in Fleetwave. Work order requests and completions are being tracked in SmartSheet. Further efficiencies for data entry are planned for FY21.
P11	Maintain vital records collection for former Quabbin valley towns, issue official records and conduct genealogical and historical research upon request. Manage audio-visual collection of the Region including photographs, slides, oral history tapes and media coverage of Regional activities and Quabbin-related topics.	After several years of work with the DCR Archivist, the Digital Commonwealth Project and the Boston Public Library Digital Services the 2,700+ images in the Swift River Real Estate Series were uploaded to the Digital Commonwealth website and made available to the public. Due to the Covid 19 situations discussions with the Swift River Valley Historical Society about Metropolitan District Water Supply Commission photographs in their collection were suspended.
P12	Administer the Payment in Lieu of Taxes (PILOT) program	FY20 PILOT:\$8,355,686.80. Quabbin towns received \$2,918,368, or 35% of the total PILOT. Approximately a quarter of the Quabbin town total, \$662,153 (8% of total PILOT), comes from the second payment received for lands annexed when Quabbin was created. Ware towns received \$1,042,154, which is 12% of the total PILOT. Staff communicated in a timely manner with watershed communities as State of Emergency created several obstacles for completing payments.
P13	Assemble a working group to develop a scope that defines a vulnerability assessment for the watershed system and develop timeline for completion.	No activity.

**Watershed Ranger Activity, Wachusett/Sudbury Region
FY2020**

Visitor Contacts: 25,142

Violations: 1,211

313 CMR 11.09	CMR	# of Violations	Written Warning	Citation
Wachusett				
2a1	Entrance/Exit only through gates or designated areas.	30	1	3
2a2	Allowed on Watershed land 1 hour before sunrise to 1 hour after sunset	33	2	6
2a3	No powered boats except in designated areas.	2	1	0
2a4	No acts which may pollute the water system. No litter thrown or left. Must use sanitary facility.	16	0	0
2a5	All acts injuring the property are prohibited. No person shall injure, deface, destroy remove or carry off any property, including historic artifacts and natural materials. No removal of gravel, topsoil, stones, boulders or other material. No building or constructing any object or structure on property. Collection of berries and mushrooms is allowed for personal use only.	7	0	0
2a6	No cooking or fires.	6	0	2
2a7	No wading or swimming in reservoir except wading while using boots to launch boats in designated areas.	130	6	6
2a8	No wading or swimming in Tributary or Surface Waters, except in designated areas.	16	0	0
2a9	No organized sport activities.	0	0	0
2a10	Division and employees of are not responsible for damage to or loss of property sustained by fishermen, or for any loss of life which may be incurred in connection with public use of the reservoirs and watershed system	0	0	0
2a11	No profanity or other disorderly conduct offensive to general public. No possession or drinking alcoholic beverages	6	1	0
2a12	No Motorized Vehicles. No recreational vehicles, except snowmobiles in designated areas. Motor vehicle parking in designated areas only. Operators of motor vehicles shall obey all regulatory signage unless otherwise directed. No willfully obstructing the free passage of vehicles or persons within the system.	66	1	37
2a13	No animals, except for horses and dogs at Ware River designated areas.	309	1	2
2a14	Bicycles, skis and other non-motorized transportation permitted in designated areas only.	69	0	0
2a15	No landing aircraft or causing to descend except in an emergency.	1	0	0
2a16	No parades, games, fairs, bazaars, carnivals, fishing derbies, gifts or solicitation for raising funds without written approval.	0	0	0
2a17	No lotteries, raffles, gambling or games of chance. No possession of machinery for the former.	0	0	0
2a18	No groups of more than 25 people without written permit.	0	0	0
2a19	No engaging in business, sale or display of goods or wares without written permit.	0	0	0
2a20	No commercial signs or advertising.	2	0	0

313 CMR 11.09	CMR	# of Violations	Written Warning	Citation
2a21	No persons (unless authorized by law, license, or permit) shall have possession of or discharge any weapon, firearm, fireworks or other explosive on or within the watershed system except at times and areas designated. All forms of target shooting are prohibited.	0	0	0
2a22	No hunting, shooting, or trapping animals except at designated times and areas.	0	0	0
2a23	All persons within the watershed system shall obey the lawful directions of regulatory signs, police officers, DCR Rangers, or persons in charge, or of Federal or Commonwealth wardens or enforcement officers.	83	3	3
2a24	Any part of the watershed lands may be closed for the public access at any time by the commissioner.	207	0	3
2a25	The possession of all types of metal detectors or similar devices is prohibited on all of the Watershed System property.	0	0	0
2d1	Persons in compliance with Commonwealth Fish and Game Laws and Regulations will be allowed to fish from shore of Wachusett Reservoir in areas designated by the commission or its designee.	50	3	1
2d2	Boating is prohibited in Wachusett Reservoir.	2	1	1
2d3	Fishing from the shoreline of the Reservoir shall be allowed only during a season designated by the Commission or its designee.	159	0	0
2d4	Any violation of 313 CMR 11.09 will be deemed sufficient cause for revocation of fishing privileges for not less than one year	0	0	0
Sudbury				
2e1	Persons in compliance with Commonwealth Fish and Game Laws and Regulations will be allowed to fish from shore of Sudbury Reservoir in areas designated by the commission or its designee.	13	4	0
2e2	Boating is prohibited on Sudbury Reservoir.	4	0	2
Total Violations		1,211	24	66

**Watershed Ranger Activity, Quabbin/Ware Region
FY2020**

Visitor Contacts: 26,105 (Q) + 2,726 (WR) = 28,831

Violations: 391 (Q) + 244 (WR) = 635

313CMR 11.09	CMR	# of Violations		Written Warning		Citation	
		Q	WR	Q	WR	Q	WR
1a	No person shall take or divert water from watershed system	3	1	0	1	0	0
2a1	Entrance/Exit only through gates or designated areas.	7	0	0	0	0	0
2a2	Allowed on Watershed land 1 hour before sunrise to 1 hour after sunset	0	0	1	0	1	0
2a3	No powered boats except in designated areas.	0	0	0	0	0	0
2a4	No acts which may pollute the water system. No litter thrown or left.	4	28	0	1	0	
2a5	All acts injuring the property are prohibited. No person shall injure, deface, destroy remove or carry off any property, including historic artifacts and natural materials. No removal of gravel, topsoil, stones, boulders or other material. No building or constructing any object or structure on property.	3	13	0	1	0	0
2a6	No cooking or fires.	13	28	0	0	0	0
2a7	No wading or swimming in reservoir except wading while using boots to launch boats in designated boat launch areas.	25	0	0	0	0	0
2a8	No wading or swimming in Tributary or Surface Waters, except in designated areas.	0	52	0	0	0	0
2a9	No organized sport activities except by written permission.	0	0	0	0	0	0
2a10	Any violation of 350 CMR 11.09 can result in loss of fishing privileges.	0	0	0	0	0	0
2a11	Breach of peace, profanity or other disorderly conduct offensive to general public. No possession or drinking alcoholic beverages	2	3	0	0	0	0
2a12	No Motorized Vehicles. No recreational vehicles, except snowmobiles in designated areas. Motor vehicle parking in designated areas only. Operators of motor vehicles shall obey all regulatory signage unless otherwise directed. No willfully obstructing the free passage of vehicles or persons within the system.	23	82	1	3	8	1
2a13	No animals, except for horses and dogs at Ware River designated areas.	149	4	0	0	1	0
2a14	Bicycles, skis and other non motorized transportation permitted in designated areas only.	17	0	0	0	0	0
2a15	No person shall bring, land or cause to descend any aircraft within the Watershed System except in an emergency.	2	0	0	0	0	0
2a16	No parades, games, fairs, bazaars, carnivals, fishing derbies, gifts or solicitation for raising funds without written approval.	0	0	0	0	0	0
2a17	No lotteries, raffles, gambling or games of chance. No possession of machinery, instruments or equipment for the former.	0	0	0	0	0	0
2a18	No groups of more than 25 people without written permit.	0		0	0	0	0
2a19	No engaging in business, sale or display of goods or wares without written permit.	0	1	0	0	0	0
2a20	No commercial signs or advertising.	0	0	0	0	0	0
2a21	No persons shall have possession of or discharge any weapon, firearm, fireworks or other explosive on or within the watershed system except at times and areas designated. No target shooting.	0	0	0	0	0	0
2a22	No hunting, shooting, or trapping animals except at designated times and areas.	1	1	0	0	0	1
2a23	All persons within the watershed system shall obey the lawful directions of regulatory signs, police officers or persons in charge or of Federal or Commonwealth wardens or enforcement officers.	71	16	0	1	10	4
2a24	Any part of the watershed lands may be closed for the public access at any time to protect the lands and waters.	0	0	0	0	0	0

313CMR 11.09	CMR	# of Violations		Written Warning		Citation	
		Q	WR	Q	WR	Q	WR
2a25	The possession of all types of metal detectors or similar devices is prohibited on all of the Watershed System property.	10	0	0	0	0	0
2b1	Persons in compliance with Commonwealth Fish and Game Laws and Regulations will be allowed to fish from shore in areas designated by the Commission or its designee. A valid state fishing or sporting license is required by any person renting or launching a boat at any commission facility subject to 313 CMR 11.09. Reasonable fees for the use of boats, for rental of outboard motors for fishing purposes, or use of Commission facilities including parking and boat ramps, may be charged by the Commission.	30	2	0	0	0	0
2b2	Persons permitted to fish from boats shall at all times be responsible for the sanitary conditions of the boat. Persons under 16 years of age must be accompanied by a person possessing a valid fishing license in order to boat on Quabbin Reservoir.	0	0	0	0	0	0
2b3	Only boats of a minimum length of 12 feet, and of a type considered safe by the Commission representative in charge, shall be used. No inboard motors, collapsible boats, sailboats, pontoon boats, square sterned canoes, or similar craft will be permitted in the water except in areas designated for boating by the Commission or it's designee. Outboard motors shall have a rating of not more than ½ the BIA or OBC rated horsepower for the boat and shall not exceed 20 horsepower, except that outboard motors for Commission boats less than 14 feet six inches shall not exceed 10 horsepower. Boats less than 14 feet shall be limited to 3 occupants, and boats of that length and in excess thereof may be licensed to carry 4 occupants. No boats shall carry more than 4 occupants. Canoes and jon boats of a minimum of 12 feet, and a type considered safe by the Commission representative in charge, shall be used only in areas designated for boating by the Commission on Pottapaug Pond above the regulating dam and at Gate 31 above the regulating dam. Canoes less than 16 feet and jon boats less than 14 feet six inches in length will be limited to 2 occupants, and canoes and jon boats in excess thereof may be licensed to carry 3 occupants. All boats must be in compliance with current Commonwealth Boating Laws. All boats must be clean and contain no refuse of any kind. Commission personnel shall have the right to inspect all private boats launched at Commonwealth facilities and may deny access in order to protect water quality or safety of occupants. Chock blocks must be used on vehicles when removing boats from the reservoir.	0	0	0	0	0	0
2b4	No person shall operate a motor boat at a speed other than responsible and proper or in such a manner as to annoy or endanger the occupants of other boats.	0	0	0	0	0	0
2b5	Fishing from the shorelines of the Quabbin Reservoir and its Tributaries within the Watershed System or from boats shall be allowed only during the season designated by the Commission or its designee. All privately owned boats, motors and other equipment must be removed from the property of the Commission each day.	5	0	0	0	0	0
2b6	Boats shall not leave the mooring areas before dawn and must at the time posted at each mooring area. The beaching of boats at any point except at the designated mooring and landing areas is strictly prohibited except in cases of extreme emergency.	4	0	0	0	0	0
Total Violations		369	231	2	7	20	6

FY2020 Final Expenditures

**DCR Division of Water Supply Protection
Office of Watershed Management
FY2020 Expenditures**

Object Class	Object	Object Name	Total Expenditures	FY2020 Budget	Expended vs Budget Variance
AA	A01	Salaries: Inclusive	\$9,434,697	\$10,486,239	(\$1,051,542)
	A06	Stand-By-Pay	\$9,015	\$0	\$9,015
	A07	Shift Differential Pay	\$9,705	\$23,000	(\$13,295)
	A08	Overtime Pay	\$254,100	\$265,000	(\$10,900)
	A10	Holiday Pay	\$37,873	\$35,000	\$2,873
	A11	Salaries-Supplemental	\$0	\$0	\$0
	A12	Sick-Leave Buy Back	\$57,416	\$35,000	\$22,416
	A13	Vacation-In-Lieu	\$56,554	\$50,000	\$6,554
	A14	Stipends, Bonus Pay and Awards	\$0	\$20,000	(\$20,000)
	AA1	Salaries: Supplemental	\$17,335	\$10,000	\$7,335
AA Total			\$9,876,695	\$10,924,239	(\$1,047,544)
BB	B01	Other Out Of State Travel	\$3,511		
	B02	In-State Travel	\$555		
	B03	Overtime Meals	\$0		
	B05	Conference, Training, Registration, and Membership Dues	\$4,943		
	B10	Exigent Job Related Expenses	\$395		
	B11	Employer Refund of Non-Tax Benefits	\$3		
	B91	Employee Reimbursement Accounts Payable	\$0		
BB Total			\$9,408	\$20,000	(\$10,592)
CC	C04	Contracted Seasonal Employees	\$25,809		
CC Total			\$25,809	\$50,000	(\$24,191)
DD	D09	Non-Fringe Benefit Cost Recoupment (payroll tax)	\$0	\$267,771	(\$267,771)
	D09	Fringe Benefits Costs Recoupment	\$3,592,951	\$3,739,590	(\$146,639)
	D15	Workers' Compensation Chargebacks	\$100,000	\$100,000	\$0
	D21	Health Ins Costs of Employ/Leave in Excess of 1 Yr Chgback	\$0	\$10,000	(\$10,000)
DD Total			\$3,692,951	\$4,117,361	(\$424,410)
EE	E01	Office & Administrative Supplies	\$8,437		
	E02	Printing Expenses & Supplies	\$5,377		
	E04	Central Reprographics Chargeback	\$860		
	E06	Postage	\$2,500		
	E12	Subscriptions, Memberships & Licensing Fees	\$383		
	E13	Advertising Expenses	\$890		
	E14	Exhibits/Displays	\$2,140		
	E15	Water Treatment - Office Water	\$1,192		
	E16	Indirect Cost Recoupment	\$0		
	E19	Fees, Fines, Licenses, Permits & Chargebacks	\$25,423		
	E20	Motor Vehicle Chargeback	\$32,001		
	E22	Temp Use Space/Confer-Incidental Includes Reservation Fees	\$2,752		
	E30	Credit card Purchases	\$1,352		
	E53	S&J: Non-reportable to claimant, sole payee	\$10,000		
	EE2	Conference, Training and Registration Fees	\$3,445		
EE Total			\$96,750	\$130,000	(\$33,250)
FF	F01	Food, Beverages & Preservation	\$0		
	F03	Laundry and Cleaning Supplies	\$414		
	F05	Laboratory Supplies	\$3,715		
	F06	Medical & Surgical Supplies	\$38,247		
	F09	Clothing & Footwear	\$53,157		
	F10	Facility Furnshings	\$8		
	F11	Laundry & Cleaning Supplies	\$29,195		
	F13	Live Animals & Related Supplies	\$613		
	F16	Library and Teaching Supplies and Materials	\$787		
	F18	Recreation, Religious & Social Supplies & Materials	\$13,957		
	F19	Manufacturing Supply & Materials & Raw Materials	\$5,389		
	F21	Navigational & Nautical Supplies	\$8,800		
	F24	Motor Vehicle Maintenance and Repair Parts	\$85,971		
	F27	Law Enforcement & Security Supplies	\$8,077		
FF Total			\$248,330	\$228,000	\$20,330
GG	G03	Electricity	\$64,466		
	G05	Fuel For Vehicles	\$108,807		
	G06	Fuel For Buildings	\$103,766		
	G08	Sewage Disposal & Water	\$3,836		
	G11	Natural Gas	\$578		
	GG1	Natural Gas Supply	\$0		
GG Total			\$281,453	\$295,000	(\$13,547)
HH	H09	Attorneys/Legal Services	\$5,500	\$6,000	(\$500)
	HH1	Financial Services	\$6,055	\$35,000	(\$28,945)
	HH2	Engineering, Research and Scientific Services	\$144,381	\$289,000	(\$144,619)
	HH3	Health and Safety Services	\$3,950	\$25,000	(\$21,050)
HH Total			\$159,886	\$355,000	(\$195,114)

**DCR Division of Water Supply Protection
Office of Watershed Management
FY2020 Expenditures**

Object Class	Object	Object Name	Total Expenditures	FY2020 Budget	Expended vs Budget Variance
JJ	JJ2		\$0		
	J10	Auxiliary Financial Services	\$0		
	J27	Laundry Services	\$9,711		
	J33	Photographic & Micrographic Services	\$0		
	J44	Surveyors	\$16,592		
	J50	Instructors/Lecturers/Trainers	\$0		
	JJ1	Legal Support Services	\$7,395		
JJ Total			\$33,698	\$45,000	(\$11,302)
KK	K02	Educational Equipment	\$0		
	K03	Programmatic Facility Equipment	\$33,601		
	K04	Motorized Vehicle Equipment	\$242,906		
	K05	Office Equipment	\$114		
	K06	Printing, Photocopying, and Micrographics Equipment	\$0		
	K07	Office Furnishings	\$8,599		
	K10	Law Enforcement & Security Equipment	\$0		
	K11	Heavy Equipment	\$19,800		
	K12	Television Broadcasting Equipment	\$1,520		
KK Total			\$306,540	\$540,000	(\$233,460)
LL	L11	Heavy Equipment Lease-Purchase	\$29,292		
	L23	Programmatic Facility Equipment Rental or Lease	\$60,346		
	L24	Motorized Vehicle Equip. Rental or Lease	\$402		
	L25	Office Equipment Rental or Lease	\$2,609		
	L26	Printing/Photocopy & Micrographics Equip Rent/Lease	\$19,263		
	L31	Heavy Equipment Rental or Lease	\$0		
	L42	Educational Equipment Maintenance & Repair	\$0		
	L44	Motorized Vehicle Equipment Maintenance & Repair	\$24,790		
	L45	Office Equipment Maintenance & Repair	\$195		
	L46	Print, Photocopying & Micrograph Equipment Maint/Repair	\$2,238		
	L50	Law Enforcemnt/Security Equipment Maintenance/Repair	\$0		
	L51	Heavy Equipment Maintenance/Repair	\$7,580		
	L63	Programmatic Equipment Maintenance & Repair	\$6,125		
LL Total			\$152,840	\$133,000	\$19,840
NN	N15	Building/Vertical Structure Construction	\$1,068,417		
	N16	Major Const/Renovation Bldg & Land Improvements	\$32,470		
	N17	Major Building Maintenance and Land Improvements	\$3,284		
	N19	Land Acquisition and Eminent Domain	\$165		
	N21	Highway Horizontal/Lateral Constssruction	\$12,125		
	N22	Highway Horizontal/Lateral Maintenance & Improvements	\$45,012		
	N23	Highway Maintenance Materials	\$31,118		
	N41	State Park & Recreation Facilities Construction	\$198,954		
	N50	Non-Major Facility Infrastructure Maintenance and Repair	\$72,383		
	N52	Facility Infrastructure Maintenance & Repair Tools & Supplie	\$119,684		
	N60	Lawn & Grounds Equipment Maint & Repair	\$2,642		
	N61	Lawn and Grounds Equipment	\$56,467		
	N63	Rental or Lease of Facility	\$0		
	N64	Garden Expenses, Tools and Supplies	\$63,300		
	N71	Exterminators/Integrated Pest Management	\$5,129		
	N72	Hazardous Waste Removal Services	\$4,761		
	N73	Non-Hazardous Waste Removal Services	\$53,887		
	N74	Snow Removal and Groundskeeping Services	\$17,291		
	N98	Reimbursement for Travel/Other Expense Infrs Projects	\$0		
	NN1	Engineering, Research and Scientific Services	\$281,006		
NN Total			\$2,068,096	\$2,230,000	(\$161,904)
PP	P01	Grants To Public Entities	\$0		
PP Total			\$0		\$0
TT	T04	Payments and Refunds	\$129,260		
TT Total			\$129,260	\$130,000	(\$740)
UU	U01	Telecommunications Services Data	\$0	\$16,000	(\$16,000)
	U02	Telecommunications Services - Voice	\$106,788	\$50,000	\$56,788
	U03	Software & Information Technology Licenses (IT)	\$444	\$6,000	(\$5,556)
	U04	Information Technology (IT) Chargeback	\$13,211	\$18,000	(\$4,789)
	U05	Information Technology (IT) Professionals	\$0	\$2,000	(\$2,000)
	U06	Information Technology (IT) Cabling	\$8,601	\$15,000	(\$6,399)
	U07	Information Technology (IT) Equipment	\$41,353	\$102,000	(\$60,647)
	U09	Information Technology (IT) Equip Rental Or Lease	\$0	\$0	\$0
	U10	Information Tech (IT) Equipment Maintenance & Repair	\$9,840	\$2,000	\$7,840
UU Total			\$180,236	\$211,000	(\$30,764)
Grand Total			\$17,261,952	\$19,408,600	(\$2,146,648)

FY2020 Final Revenue

**DCR Division of Water Supply Protection
Office of Watershed Management
FY20 Revenue Summary**

Revenue Budget	Description	AP 1	AP 2	AP 3	AP 4	AP 5	AP 6	Total Collected Revenue
2010/0300/WMP1/DCR/0500	INTERMENT FEES	\$750.00	\$565.00	\$610.00	\$205.00	\$0.00	\$0.00	\$2,130.00
2010/0300/WMP1/DCR/3148	FISH & BOATING/DEER HUNT	\$37,187.00	\$29,587.00	\$33,381.00	\$13,036.00	\$0.00	\$0.00	\$113,191.00
2010/0300/WMP1/DCR/4000	RENTS	\$0.00	\$0.00	\$140.10	\$0.00	\$0.00	\$109.89	\$249.99
2010/0300/WMP1/DCR/4500	FORESTRY SALES	\$7,809.00	\$40,997.50	\$17,376.80	\$51,762.00	\$23,844.00	\$89,546.50	\$231,335.80
2010/0300/WMP1/DCR/6900	MISCELLANEOUS	\$0.00	\$200.00	\$500.00	\$0.00	\$0.00	\$0.00	\$700.00
2010/0300/WMP1/DCR/6901	PRIOR YEAR REFUNDS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010/0300/WMP1/DCR/6995	HYDROPOWER/TR LINES	\$0.00	\$59,915.92	\$144,016.43	\$57,786.63	\$25,710.57	\$24,372.62	\$311,802.17
TOTALS		\$45,746.00	\$131,265.42	\$196,024.33	\$122,789.63	\$49,554.57	\$114,029.01	\$659,408.96

Revenue Budget	Description	AP 7	AP 8	AP 9	AP 10	AP 11	AP 12	Total Collected Revenue
2010/0300/WMP1/DCR/0500	INTERMENT FEES	\$0.00	\$0.00	\$75.00	\$75.00	\$1,337.00	\$400.00	\$4,017.00
2010/0300/WMP1/DCR/3148	FISH & BOATING/DEER HUNT	\$10,955.00	\$0.00	\$0.00	\$7,075.60	\$14,414.00	\$12,305.00	\$157,940.60
2010/0300/WMP1/DCR/4000	RENTS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6,110.13	\$6,360.12
2010/0300/WMP1/DCR/4500	FORESTRY SALES	\$0.00	\$35,542.25	\$8,000.00	\$37,169.00	\$47,442.58	\$123,867.63	\$483,357.26
2010/0300/WMP1/DCR/6900	MISCELLANEOUS	\$200.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,350.00	\$3,250.00
2010/0300/WMP1/DCR/6901	PRIOR YEAR REFUNDS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010/0300/WMP1/DCR/6995	HYDROPOWER/TR LINES	\$2,728.32	\$0.00	\$3,680.42	\$6,799.13	\$1,919.00	\$14,498.84	\$341,427.88
TOTALS		\$13,883.32	\$35,542.25	\$11,755.42	\$51,118.73	\$65,112.58	\$159,531.60	\$996,352.86

Note: Does not include Special Assessment Revenues-MWRA Assessment & Debt Service Reimbursement.

<u>Category</u>	<u>FY20 Projected</u>	<u>FY20 Actual</u>
Hydropower/Transmission	\$300,000	\$341,428
Forestry	\$500,000	\$483,357
Recreation	\$225,000	\$157,941
Internment/ Rents/Misc.	\$50,000	\$13,627
TOTAL	\$1,075,000	\$996,353

FY2020 Final Land Acquisition

**DCR Division of Water Supply Protection
FY2020 Office of Watershed Management Land Acquisitions**

DCR utilized \$1.227million of MWRA funds on land acquisition in FY20 to purchase the control of 327.6 acres of land, 192.0 acres in fee and 135.6 acres as Watershed Preservation Restrictions (WPR).

An additional 34 acres in WPR were also obtained as a gift in FY20.

Owner	Town	File #	Acres Fee	Acres WPR	Total Acres	Date Recorded	Price
Wachusett Reservoir Watershed							
Jefferson Meadows (D'Amore)	Holden	W-001201	14.2	0.0	14.2	8/20/2019	\$82,000
Town of Princeton	Princeton	W-001218	9.5	0.0	9.5	10/24/2019	\$15,000
Martin	Princeton	W-001221	46.0	0.0	46.0	12/16/2019	\$250,000
Kush	Sterling	W-001213	3.5	0.0	3.5	12/30/2019	\$275,000
White Oak Land Conservation Society	Holden/ Paxton	W-001020	0.0	34.0	34.0	5/27/2020	Gift
Sub-total			73.2	34.0	107.2	\$622,000	
Quabbin Reservoir Watershed							
Pope	Petersham	W-001198	0.0	26.9	26.9	8/29/2019	\$62,000
Butterworth	Petersham	W-001177	0.0	108.7	108.7	10/29/2019	\$218,000
Historical Enterprises	Shutesbury	W-001220	118.8	0.0	118.8	12/13/2019	\$325,000
Sub-total			118.8	135.6	254.4	\$605,000	
TOTAL FY20 LAND ACQUISITIONS			192.0	169.6	361.6	\$1,227,000	

FY2020 Final

Payments in Lieu of Taxes

**DCR Division of Water Supply Protection
Office of Watershed Management**

FY2020 Payments in Lieu of Taxes (PILOT)

The total PILOT paid under MGL c. 59, s. 5G for Fiscal Year 2020 was \$8,355,686.80.

This figure represents a 1.21% increase over the FY19 PILOT of \$8.255 million. This increase is less than the 3.0% estimated increase provided to MWRA in the FY2020 Work Plan. Most towns tax rates were below those utilized to derive the estimated figure of \$8.5 million stated in the FY20 Work Plan.

FY20 PILOT utilized the valuations set by the Department of Revenue (DOR) in 2017 that were subsequently adjusted in FY20 using DOR's Equalized Valuation method (EQV). EQV adjustments are made every other year by DOR. The FY20 figures also incorporated all fee acquisitions made between FY17 and FY19.

Seven towns saw their PILOT increase. Five of these were due solely to an increase in valuation based on the EQV process and/or an increase in the community's tax rate. Three of the five towns in which DCR purchased land in fee had no impact to PILOT from these acquisitions. The impact to the two towns that saw an increase in PILOT where DCR also bought land was expected and minimal. The towns of Hubbardston and Princeton would have had an increase in PILOT of 9% and 4% respectively, even without adding in these new properties; the inclusion of 76.5 acres to Hubbardston and 114.7 acres to Princeton added an additional 1% to each town's PILOT.

The hold harmless clause maintained payment levels in FY20 for the rest of the watershed communities, totaling \$1,905,762.



Department of Conservation and Recreation
Division of Water Supply Protection
Office of Watershed Management
FY20 Payments in Lieu of Taxes
Final - April 2020

Community	2017 DOR Property Valuation	FY19 Tax Rate	FY19 PILOT	EQV Adjustment	2020 DOR Property Valuation w/EQV	Increase in Valuation	% Change	2017-2018 Acquisitions (acres)	Assessed Acres	Valuation per Acre	Added Valuation for Acquisitions	Total 2020 Property Valuation	FY20 Tax Rate	FY20 Minimum PILOT Due	FY20 PILOT	Hold Harmless	Increase	% Increase
Barre	\$6,196,400	\$18.12	\$186,168.60	1.0629	\$6,586,200	\$389,800	6.3%	0	5,420.9	\$1,215	\$0	\$6,586,200	\$17.87	\$117,695.39	\$186,168.60	\$68,473	\$0	
Belchertown	\$11,835,800	\$18.32	\$257,074.40	1.0659	\$12,615,800	\$780,000	6.6%	0	3,190.2	\$3,955	\$0	\$12,615,800	\$18.17	\$229,229.09	\$257,074.40	\$27,845	\$0	
Belchertown - Annexed Lands	\$1,576,600	\$18.32	\$50,625.10	1.0659	\$1,680,500	\$103,900	6.6%	0	670.0	\$2,508	\$0	\$1,680,500	\$18.17	\$30,534.69	\$50,625.10	\$20,090	\$0	
Berlin	\$1,900,900	\$25.83	\$49,100.25	1.0701	\$2,034,200	\$133,300	7.0%	0	46.6	\$43,690	\$0	\$2,034,200	\$27.84	\$56,632.13	\$56,632.13	\$0	\$7,532	15.3%
Boylston	\$29,059,700	\$16.04	\$595,938.71	1.1173	\$32,468,400	\$3,408,700	11.7%	0	2,758.2	\$11,772	\$0	\$32,468,400	\$16.54	\$537,027.34	\$595,938.71	\$58,911	\$0	
Clinton	\$5,701,400	\$28.20	\$205,948.72	1.1574	\$6,598,800	\$897,400	15.7%	0	469.2	\$14,063	\$0	\$6,598,800	\$26.85	\$177,177.78	\$205,948.72	\$28,771	\$0	
Framingham	\$5,502,600	\$33.61	\$261,930.91	1.1572	\$6,367,600	\$865,000	15.7%	0	235.4	\$27,055	\$0	\$6,367,600	\$32.30	\$205,673.48	\$261,930.91	\$56,257	\$0	
Hardwick	\$7,274,600	\$16.04	\$121,776.80	1.0533	\$7,662,300	\$387,700	5.3%	0	4,686.9	\$1,635	\$0	\$7,662,300	\$15.98	\$122,443.55	\$122,443.55	\$0	\$667	0.5%
Hardwick - Annexed Lands	\$36,900	\$16.04	\$941.41	1.0533	\$38,900	\$2,000	5.4%	0	150.0	\$259	\$0	\$38,900	\$15.98	\$621.62	\$941.41	\$320	\$0	
Holden	\$32,372,600	\$17.45	\$919,615.57	1.1166	\$36,147,200	\$3,774,600	11.7%	0	3,814.9	\$9,475	\$0	\$36,147,200	\$17.00	\$614,502.40	\$919,615.57	\$305,113	\$0	
Lebbardsston	\$21,254,800	\$15.22	\$323,498.06	1.1209	\$23,824,505	\$2,569,705	12.1%	76.5	8,567.7	\$2,781	\$212,672	\$24,037,200	\$14.82	\$356,231.30	\$356,231.30	\$0	\$32,733	10.1%
Leominster	\$162,800	\$18.54	\$8,688.49	1.0992	\$178,900	\$16,100	9.9%	0	42.5	\$4,205	\$0	\$178,900	\$17.98	\$3,218.42	\$8,688.49	\$5,470	\$0	
Ludlow	\$221,800	\$19.82	\$10,524.06	1.0285	\$228,100	\$6,300	2.8%	0	50.8	\$4,490	\$0	\$228,100	\$20.62	\$4,703.42	\$10,524.06	\$5,821	\$0	
Marlborough	\$1,984,300	\$24.95	\$112,802.46	1.0981	\$2,179,000	\$194,700	9.8%	0	570.4	\$3,820	\$0	\$2,179,000	\$25.22	\$54,954.38	\$112,802.46	\$57,848	\$0	
New Salem	\$16,884,600	\$17.57	\$520,470.61	1.0600	\$17,897,700	\$1,013,100	6.0%	49.6	22,413.1	\$799	\$38,600	\$17,936,300	\$18.04	\$323,581.68	\$520,470.61	\$196,889	\$0	
New Salem - Annexed Lands	\$5,812,600	\$17.57	\$201,603.91	1.0600	\$6,161,400	\$348,800	6.0%	0	11,580.0	\$532	\$0	\$6,161,400	\$18.04	\$111,151.66	\$201,603.91	\$90,452	\$0	
Northborough	\$4,934,100	\$17.15	\$103,466.89	1.0966	\$5,410,700	\$476,600	9.7%	0	360.9	\$14,994	\$0	\$5,410,700	\$17.25	\$93,334.58	\$103,466.89	\$10,132	\$0	
Oakham	\$9,675,500	\$14.51	\$147,067.60	1.0110	\$9,781,900	\$106,400	1.1%	0	2,537.1	\$3,856	\$0	\$9,781,900	\$13.55	\$132,544.75	\$147,067.60	\$14,523	\$0	
Orange	\$479,400	\$22.52	\$10,796.09	1.0856	\$520,400	\$41,000	8.6%	0	82.8	\$6,285	\$0	\$520,400	\$20.33	\$10,579.73	\$10,796.09	\$216	\$0	
Pelham	\$11,306,000	\$21.59	\$338,086.39	1.0364	\$11,717,500	\$411,500	3.6%	0	5,974.0	\$1,961	\$0	\$11,717,500	\$21.89	\$256,496.08	\$338,086.39	\$81,590	\$0	
Pelham - Annexed Lands	\$813,200	\$21.59	\$38,096.61	1.0364	\$842,800	\$29,600	3.6%	0	1,080.0	\$780	\$0	\$842,800	\$21.89	\$18,448.89	\$38,096.61	\$19,648	\$0	
Petersham	\$10,525,200	\$16.93	\$296,721.61	1.0147	\$10,679,900	\$154,700	1.5%	5.1	12,225.1	\$874	\$4,500	\$10,684,400	\$17.37	\$185,588.03	\$296,721.61	\$111,134	\$0	
Petersham - Annexed Lands	\$5,255,300	\$16.93	\$203,305.78	1.0147	\$5,332,600	\$77,300	1.5%	0	10,000.0	\$533	\$0	\$5,332,600	\$17.37	\$92,627.26	\$203,305.78	\$110,679	\$0	
Phillipston	\$140,500	\$16.65	\$11,912.74	1.0402	\$146,100	\$5,600	4.0%	0	162.8	\$988	\$0	\$146,100	\$16.94	\$2,474.93	\$11,912.74	\$9,438	\$0	
Princeton	\$14,859,200	\$16.02	\$256,766.98	1.1002	\$16,348,100	\$1,488,900	10.0%	114.7	2,915.7	\$5,607	\$642,840	\$16,990,900	\$15.85	\$269,305.77	\$256,766.98	\$0	\$12,539	4.9%
Rutland	\$20,933,800	\$17.89	\$525,860.45	1.1137	\$23,314,000	\$2,380,200	11.4%	0	6,489.0	\$3,593	\$0	\$23,314,000	\$17.61	\$410,559.54	\$525,860.45	\$115,301	\$0	
Shutesbury	\$7,398,700	\$23.26	\$299,391.54	0.9712	\$7,185,600	-\$213,100	-2.9%	0	4,861.6	\$1,478	\$0	\$7,185,600	\$24.04	\$172,741.82	\$299,391.54	\$126,650	\$0	
Southborough	\$17,383,800	\$16.74	\$294,207.30	1.0417	\$18,108,700	\$724,900	4.2%	0	1,310.6	\$13,817	\$0	\$18,108,700	\$16.66	\$301,690.94	\$301,690.94	\$0	\$7,484	2.5%
Sterling	\$44,254,600	\$17.27	\$776,225.68	1.0890	\$48,193,300	\$3,938,700	8.9%	0	5,144.5	\$9,368	\$0	\$48,193,300	\$16.81	\$810,129.37	\$810,129.37	\$0	\$33,904	4.4%
Templeton	\$50,800	\$17.24	\$1,082.18	1.0857	\$55,200	\$4,400	8.7%	0	92.1	\$600	\$0	\$55,200	\$16.83	\$929.02	\$1,082.18	\$153	\$0	
Ware	\$6,669,600	\$20.21	\$193,261.40	1.0592	\$7,064,400	\$394,800	5.9%	0	4,845.0	\$1,458	\$0	\$7,064,400	\$20.63	\$145,738.57	\$193,261.40	\$47,523	\$0	
Ware - Annexed Lands	\$4,491,700	\$20.21	\$167,580.62	1.0592	\$4,757,600	\$265,900	5.9%	0	3,865.0	\$1,231	\$0	\$4,757,600	\$20.63	\$98,149.29	\$167,580.62	\$69,431	\$0	
Wendell	\$1,322,200	\$22.61	\$29,894.94	1.0080	\$1,332,800	\$10,600	0.8%	0	654.7	\$2,036	\$0	\$1,332,800	\$23.86	\$31,800.61	\$31,800.61	\$0	\$1,906	6.4%
West Boylston	\$20,540,500	\$18.85	\$683,581.59	1.0875	\$22,337,800	\$1,797,300	8.8%	10.3	2,920.5	\$7,649	\$78,706	\$22,416,500	\$18.58	\$416,498.57	\$683,581.59	\$267,083	\$0	
Westborough	\$2,796,700	\$18.33	\$51,627.08	1.0717	\$2,997,200	\$200,500	7.2%	0	190.8	\$15,710	\$0	\$2,997,200	\$18.32	\$54,908.70	\$54,908.70	\$0	\$3,282	6.4%
TOTAL	\$331,609,200		\$8,255,641.51		\$358,796,105	\$27,186,905	8.2%	256.1			\$977,317	\$359,774,100		\$6,449,925	\$8,355,686.80	\$1,905,762	\$100,045	1.21%

NOTES:

1. Watershed PILOT, per MGL c. 59 s.5G, is determined by multiplying the DOR valuation by the local commercial tax rate.
2. The process used by MA Department of Revenue (DOR) for valuing State Owned Land (SOL – which includes DCR Watershed Management) under MGL c. 58 changed in FY 19. Under the new process, DOR determined a base year SOL valuation for each community as of January 1, 2017. After a hearing and appeal process, base year SOL valuations were finalized. Going forward under the new process, the base year valuations will be adjusted every two years by a percentage equal to the change in a city or town's equalized cash value (EQV). Valuations are also updated annually to include the value of any acquisitions and/or dispositions in a community.
3. "Hold Harmless" is a provision in the legislation that requires any payment never to be less than the previous year's payment. Therefore, if either valuations or tax rates drop, the municipality is guaranteed a consistent payment.