



Fiscal Year 2019 Final Report



September 2019

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
FY2019 End of Year Highlights**

Wachusett/Sudbury Region

A. Land Acquisition

Twelve acquisitions were completed in the entire watershed system, totaling 404.8 acres at a cost of \$1,956,000 to the MWRA. Seven of these properties, totaling 111.1 acres were in the Wachusett watershed. One of the properties, a 55-acre parcel in Princeton was a gift.

B. Watershed Preservation Restriction Monitoring

Staff completed baseline documentation reports for two Watershed Preservation Restrictions (WPR) Wachusett. Several high-priority WPRs and Forest Legacy properties were monitored. Extensive work on modernizing the monitoring program to incorporate new technology and processes continued in FY19. The new Monitoring Program will be rolled out in FY20 with a goal to monitor each property every other year.

C. Land Management

Forestry staff prepared and sold 12 timber sales on 535 acres in FY19. 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 FY19.

NR staff continued to develop ways to use the new iPads and data collection apps to simplify workflow and data collection.

NR accumulated all proposed forestry information in preparation for annual review, and distributed to the entire review team. The FY20 Proposed lots were presented and discussed in the third quarter. Field review was completed during the fourth quarter and a final review document was presented to foresters.

NR staff continues working to map invasive plant populations in GIS and collect data for an update to the Terrestrial Invasive Plant Management plans for implementation in FY20.

D. Wildlife Management

The active portion of the bird harassment program operated from early September to early April. For much of that time, on-water harassment was not needed. Some ice conditions along the shoreline, with open water in the middle of the Reservoir, forced the halt of boat use in January. Continued existence of bacterial counts and difficulty harassing from shore led to the need for airboats for a week in February.

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 beaver 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.

Hunting was expanded in the Wachusett Watershed in FY19. Overall, there were about 230 deer taken in the reservoir towns of Boylston, West Boylston and Sterling in the CY2018 hunting season. This is a 225% increase over the average annual deer harvest (71 deer) in those towns since 2010. A majority (61%) of those harvests were antlerless deer. The expansion of deer hunting in the Wachusett Watershed has made a significant impact on the local deer population in its first year of implementation.

Efforts continued to explore the feasibility of using Unmanned Aircraft System (drone) technology to survey for bird activity in the control zone.

E. Public Access Management

Watershed Rangers continue to patrol the watershed. In FY19 over 18,000 visitor contacts were tallied with 498 rule violations noted. Six written warnings and 38 noncriminal citations were issued.

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. Contract for the new Clinton HQ was awarded and the foundation installed. Inspections have been conducted of all the BMPs. Maintenance projects were conducted. Monitoring of River Street was conducted after rainstorms and at least once a month.

H. Watershed Protection Act

Wachusett staff continued to implement the Watershed Protection Act (WsPA). All WsPA applications were reviewed and decisions issued within time frames as required by the regulations. There were 62 applications filed during FY19. Four were Applications for a Variance, 16 were Requests for an Advisory Ruling, and 42 were Requests for Watershed Determinations of Applicability. 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.

I. Education and Outreach

A new Interpretive Services program coordinator was hired who has made great progress in reviving our outreach capability and programs. Interpretive services staff provided programs as outlined in the annual Work Plan by hosting 49 programs, school visits, and events. In total, 667 children and 115 adults resulted in a total attendance of 782 people. There was collaboration with eight organizations and a 4-week series of on-site lessons was conducted at Stillwater Farm Interpretive Site. The Ranger staff conducted 31 education programs with a total attendance of 671 people. Total attendance for two Clinton Dam Days was 4,900 people. Environmental Quality section staff supported the Mass Envirothon.

J. Water Quality and Hydrologic Monitoring

Routine sampling of all tributaries was conducted twice per month or more frequently when problems were noted. Nutrient and total suspended solids samples were collected monthly or more frequently when under-sampled flow conditions existed. 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. Nutrients were collected quarterly. Reservoir transects sampling for bacteria were conducted monthly, with increased frequency (biweekly/weekly) as necessitated by the bird harassment program.

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 tributary locations. Streamflow measurements were conducted and ratings curve updated for each site, with new ratings finalized for Muddy and Trout Brooks. Wachusett EQ staff also regularly monitored groundwater (seven new locations), snow pack, and precipitation to improve understanding of watershed hydrology.

The Water Quality and Hydrology Monitoring Report was completed. The report describes standard operating procedures and station descriptions. It also provides links to other information.

The 2018 draft Water Quality Report is under review. Automation of tables, graphs, production of statistics, and basic text required more time than anticipated and delayed publication. However, this will facilitate far more rapid production of the report in future years.

New data management and analysis applications were developed by DCR staff including the creation of a Shiny app rating tool, revision to the flow module (now Tributary Sensor module) that provides better flow data analysis and visualization capabilities, development of Python and R scripts to automate well data processing and import from AGOL to the WQ Database, and creation of a phytoplankton module to account for changes to taxa table and 500,000 historical phytoplankton records.

Staff continued to work with UMass on a range of topics, including the further update of CEQUAL model, research on impacts of salt to reservoir water quality, and development of new sampling program for Quabbin/Ware River. A working group was established to address issue of excess salt applications and the impacts to water quality. Municipal usage data was gathered

from the towns and staff reviewed literature on best practices and new technologies and investigated training opportunities.

A poster titled *30 Years of Phytoplankton in a Drinking Water Reservoir, Methods, Data Assembly, and Preliminary Analysis* was presented at the Northeast Aquatic Biology conference in February 2019.

K. Watershed Monitoring and Assessment

Inspections and investigations of potential water quality threats were conducted by Environmental Quality staff and tracked in the EQ database. During the Fiscal Year, 99 new EQ files were created and a number of existing files were resolved. New files include many with 313 CMR 11.04 (Watershed Protection Act) jurisdiction. Weekly EQ activity reports were distributed detailing monitoring activities.

A guidance document titled *EQA Assessment Methods and Workflows* proposed for use in all watersheds was completed, reviewed, and distributed to staff.

L. Aquatic Invasive Species

Monitoring for aquatic invasive plants was conducted on the reservoir, adjacent lakes and ponds, and select tributaries. 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. DCR biologists documented a lack of regrowth 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 scheduled and coordinated herbicide treatments of invasive plants in the Lily Ponds and South Meadow Pond.

M. Wastewater Management

EQ staff worked with local Boards of Health to review septic system repairs and new installations and received sewer connection information from West Boylston. A comprehensive review was initiated of watershed septic systems with documentation in a database. Review of Boylston records is nearly complete. CE 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.

N. Stormwater Management

DWSP has taken ownership of the stormwater BMP's at the Beaman Street Bridge and South Bay. Regular inspections occur at least twice a year and after large rainfall events; maintenance and repair work occur as needed. Staff repaired three stormwater treatment units (Stormceptors) by installing riser rings to raise the access covers to be flush with the ground.

An engineering consultant has prepared a preliminary 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 construction sites were conducted to ensure compliance with stormwater regulations and protect resource areas. During the fiscal year 236 inspections were conducted on 33 sites. Several projects required additional attention and remedial action. Any problems noted were generally corrected by the contractor in a timely manner, but enforcement action was initiated at two problem sites.

O. Emergency Response

Emergency response training was held and attended by Wachusett staff and area responders at the Sudbury and Foss Reservoir. A new Boom Trailer was purchased, outfitted and supplied. National Park Service conducted "Active Shooter" Security Awareness and Defusing Visitors training for Wachusett Staff. Local FD conducted a Brush Fire Training for Ranger Staff. GZA conducted a Dam Safety Training for Watershed Maintenance Staff. Staff attended EPA Region 1 workshop and tabletop exercise. Emergency Notification List has been updated.

P. Support

Staff continued developing applications that streamline work flows and facilitate accurate data collection through the use of ArcGIS online. GIS staff provided products to internal DCR staff and provided GIS assistance to watershed towns.

High performance computers for GIS users were installed to upgrade performance. An order was placed for computer replacements for all DWSP staff in FY20.

Total FY19 PILOT was \$8,255,642. The total distributed to Wachusett towns was \$3,446,766 (42% of the total); Sudbury towns received \$824,035 (10% of total).

The Regional Director and Assistant Regional Director management positions were filled. A personal assessment was completed to tie tasks to positions and guide organizational structure, future hiring, and backfilling. Staff continued to work to fill vacancies in the Section. Eleven full time positions were posted and filled.

Quabbin/Ware Region

A. Land Procurement

Twelve acquisitions were completed in the entire watershed system, totaling 404.8 acres at a cost of \$1,956,000 to the MWRA. Five of these properties, totaling 293.7 acres were in the Quabbin/Ware watersheds. Four of these projects, all in the Ware River watershed, were Quabbin to Wachusett Forest Legacy projects totaling 119.4 acres at a cost of \$518,000.

B. Land Preservation/Watershed Protection Restriction (WPR) Program

Staff monitored 31 high priority WPRs. Land ownership changes were tracked, and two meetings were held with successor landowners. No major issues with landowners were found.

Extensive work began on modernizing the monitoring program to incorporate new technology and processes.

C. Land Management

BMP monitoring was conducted at one stream crossing.

Plan to update the Terrestrial Invasive Plant Strategy in FY20. Stiltgrass control in Shutesbury was initiated this FY and will continue in subsequent years until adequate control or eradication is achieved.

Forestry staff prepared 19 cutting plans and sold 17 timber sales in FY19. Information on all timber sales was prepared and posted on the DCR website as well as on a sign at the timber sale site. Public tours were provided for some of these forestry projects. Forestry staff provided oversight and supervision on 20 active timber sales in FY19. Twelve timber sales were completed.

Water quality and flow were monitored during three storms. Stream flow data were downloaded periodically. Weir equations and functionality were verified using routine and storm flow monitoring data. A flow chart was developed to streamline the decision making process regarding storm sampling. Four automatic samplers were added to the project for FY20 monitoring.

Several new pieces of equipment were purchased that will greatly improve ability to maintain fields and roads. Over 25 acres of fields have been cut at Quabbin and 61 acres in the Ware River.

D. Wildlife Management

The gull harassment program operated on 81 nights (of 111 scheduled nights) from 10/29/18-3/29/19. New and expanded tools were used this season, including bangers, screamers, new shotguns, and lower-powered lasers. There were no coliform results above 11 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 Goose Control Zone and the two associated regulating ponds at Fishing Areas 2 & 3 were surveyed in April for geese nesting activities. There were five nests found and all 29 eggs were treated to prevent hatching. The Annual Report was completed.

Beaver were removed from the Pathogen Control Zone. In addition, work to prevent beaver-related flooding issues included monitoring and maintaining culverts, maintaining culvert fence guards, and repairing beaver-deceiver piping.

Research and monitoring of Common Loon and Bald Eagle nesting at the Quabbin Reservoir continued. Six active eagle nests were documented and produced nine chicks. A lead sinker collection program was implemented to collect old lead sinkers for recycling; this program was publicized through information signs and fliers.

The annual Quabbin Controlled Deer Hunt was administered by DWSP staff. Scanners were implemented during scouting and the hunt for more efficient check-in/out of hunters. A final report summarizing biological data obtained from the hunt was completed. A moose sighting survey was again conducted during the controlled hunts.

The statuses of select wildlife species, including bats and Whip-poor-wills, were monitored. Work included the long-term monitoring of beaver on the Prescott Peninsula and population density estimates of deer and moose. Pellet surveys were conducted in Quabbin Park.

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. The rangers logged approximately 26,000 visitor contacts during FY19.

The three Quabbin Boat Launch Areas (BLAs) operated daily from July through mid-October, 2018, and then again from mid-April through June, 2019. The boat inspection and decontamination program was implemented again this year, with both boat washings and cold weather quarantines overseen by DWSP staff. New technology was deployed that implemented the boat seal program using iPads.

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

Staff hosted a number of special events during the year, including the monthly “Tuesday Teas” for former valley residents and Memorial Day services at the Quabbin Park Cemetery.

Work continued on the Ware River Public Access Management Plan. DCR’s Public Engagement Plan goals accomplished in FY19 included:

- 1) Communication of Decision Criteria and Approach to Public Engagement through the lengthy public process concluding in June and described in “Goals of the 2018-2019 Update to the Ware River Watershed Public Access Management Plan(6/2019).”
- 2) In-depth issue identification through the 2018 Stakeholder Issue Survey and in-person meetings with 12 key stakeholder groups – MWRA, US Army Corp of Engineers, MA Fish and Wildlife, DCR Parks, New England Mountain Bike Association (NEMBA), Snowmobile Association of Massachusetts (SAM), local horseback riders, Sierra Club, Ware River Watershed Advisory Committee (WRWAC), Appalachian Mountain Club, local Police Departments, and the Comet Pond Association).
- 3) Solution Analysis was accomplished through collection, organization and analysis of public input, including GIS based analysis of trail input, internal management discussions, and ongoing updating of stakeholder groups at WRWAC meetings;

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 BLA’s 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 logged 480 violations, issued nine written warnings, and served seven non-criminal citations.

Inspections of gates and barways 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.

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.

Beginning on November 30, CE staff initiated its Spillway Watch Program as flows began discharging from the lower spillway channel. The Spillway Watch Program continued for the remainder of the year and triggered Stage I response levels as downstream releases approached, but never exceeded, 500 MGD. The effort and extent of the response level is based on reservoir elevations, downstream flooding potential, and elevated internal pore pressures on reservoir dam structures; as reservoir elevations increase, the Spillway Watch Program's components or level of effort may change accordingly. The Spillway Watch Program was suspended on July 12, 2019 as reservoir levels dipped below the lower spillway elevation 528.0'.

Routine grounds maintenance was completed in Quabbin Park, including field mowing, weed-whacking, and the removal of a number of 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 18 miles of roadside brush, cleaning drains, and filling potholes in Quabbin Park. In addition, six miles of watershed roads were graded by DWSP staff.

DWSP staff also monitored gravel extractions and responded to gravel pit issues.

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. There were a total of 37 WsPA cases during the fiscal year.

EQ staff reviewed projects in Rutland and Hubbardston as well as local board meeting agendas.

I. Interpretive Services

The Quabbin Visitor Center was operated for 358 days during FY19, with approximately 21,000 visitors. Approximately 100 educational programs were offered to more than 4,000 students. Staff handled more than 4,100 phone inquiries.

Displays in the Visitor Center and the satellite site at the Quabbin Tower were updated. Kiosks at the BLAs and other locations were updated. Staff planned and coordinated trail work by volunteers with the Student Conservation Association. 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. Few instances of water quality trigger level exceedences in 2019. EQ staff developed a semi-quantitative approach based on historic and seasonal trends to inform resample efforts following elevated E. Coli in routine monitoring samples. A draft of the 2018 Water Quality Report was submitted for review and completion is expected in the first quarter of FY20.

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.

Streamflow monitoring work was primarily focused on streamflow measurements at long-term forestry sites, where progress was made on verifying existing discharge equations. Stream-gauging pilot site is ongoing; the purchase of a high-accuracy FlowTracker2 flow meter is allowing for a more accurate method for rating-curve development. Scouting for additional gauges has been completed, with one to two core Quabbin tributary sampling locations being targeted for gauge development within the year. Quabbin and Wachusett staff are collaborating to develop standardized systems for managing flow data and rating curve development.

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 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, presentations to local organizations, visits to Long Pond and Comet Pond, and distribution of brochures during Boat Decontamination and Cold Weather Quarantine programs.

Workflow has been established to manage boater records, with tag in/tag out data being processed and organized in the database using R-scripts. Boat card 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 8,410 seals placed on private boats for the year. Each landing used the following number of seals: BLA 1 – 2,070; BLS 2 – 2,764; and BLA 3 – 3,576. Boat inspections are ongoing. CWQ will begin in October of 2019.

DWSP staff assisted in the 2019 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 construction projects.

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

Staff reviewed and monitored stormwater issues for two solar projects, a house upgrade, Brice-Lemon, and Britnal Estates. No issues identified in either watershed.

O. Emergency Response

FY19 Spill Response Training included: Terrestrial Spill Response; River/Small Water Body Spill Response Operations; Night Emergency Response Operations; and Fishing area-specific Spill/Boom/Boat Operations; and Winter Emergency Response Operations Planning with both Quabbin and Wachusett.

Seventeen spill response plans were developed 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 FY2019 Payments in Lieu of Taxes (PILOT) was \$8,255,642. The total distributed to Quabbin towns was \$2,915,796 (35% of the total); Ware towns received \$1,009,421 (12% of total).

FY2019 Work Plan Final Summary

Wachusett/Sudbury FY 19 Final Report



Final report on tasks in Wachusett/Sudbury Work Plan for July 1, 2018 through June 30, 2019

Task #	Task Description	Lead Group	Product	Percent of Task Completed	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.	NR	Protected land	100%	12 acquisitions were recorded in the watersheds totaling 404.8 acres at a cost of \$1,956,000
A2	Develop individual parcel presentation materials and meet with MWRA Board for approval.	NR	Protected land	100%	Eight projects were approved by the MWRA BOD in 3 separate meetings.
A3	Convene LAP meetings to review parcels and prioritize land purchases.	NR	LAP Recommendations	100%	One LAP meeting was convened in June, 2019.
A4	Work with the North Quabbin Regional Landscape Partnership to acquire land and WPRs with a Quabbin to Wachusett (Q2W) Forest Legacy Grant.	NR	Protected land	100%	Four Q2W projects went to record totaling 120 acres at a cost of \$518,000
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.	NR	Ongoing communications	100%	One gift in fee of 55 acres was recorded this year.
A6	Establish regularly scheduled land/legal meetings to address attorney assignments and project logistics.	NR	Meetings	100%	ongoing
B. Watershed Preservation Restriction Monitoring					
B1	Complete baseline inspections for all new WPRs prior to acquisition or within reasonable time after acquisition using established protocols and modern technologies. Make baseline inspection reports available to appropriate staff. Baselines will be completed in house or through appropriate contracts	NR		50%	Conducted 31 monitoring visits in the Watershed. Extensive work on modernizing the monitoring program to incorporate new technology and processes. New monitoring program will begin in FY20.
B2	Monitor each WPR every two years; monitor high-priority ones annually.	NR		20%	WPRs were monitored by the Regional staff and GIS staff as part of a training to begin a more aggressive monitoring program this fall.
B3	Post WPR boundaries, as time allows.	NR	Posted boundaries	0%	Time did not allow.
B4	Track changes in land ownership and meet with successor landowners as necessary.	NR	List of landowners and meetings	100%	Checked ownership quarterly. 3 new owners in Wachusett.
B5	Write and distribute Watershed Currents, the WPR Landowner newsletter, twice a year.	NR	Newsletter	100%	Two issues of Watershed Currents produced and distributed.
B6	Convene WPR Working Group as needed and confer with legal to respond to enforcement issues and requests to exercise reserved rights.	NR	Issue resolution and reserved rights decisions	100%	WPR Working Group Meeting was not necessary, but responded to many lower-level enforcement issues and requests to exercise reserved rights.
B7	Maintain an accurate GIS layer and Excel database of WPRs and distribute to appropriate staff. Move field inspections into ArcGIS online with the assistance of GIS staff.	NR	Excel spreadsheet and GIS layer	100%	GIS layer and Excel are accurate and up-to-date. Movement to use ArcGIS online has been completed and tested. Roll-out will begin in the fall of FY20.
B8	Reconnect with EOEEA-wide database efforts and upload all existing and new data regularly.	NR	Statewide database	0%	Time has not allowed transitioning to using EOEEA-wide database, but worked with DCR-Parks records seasonal on work that would be preparation for using the EOEEA-wide database.
B9	Continue to implement WPR records procedure with DCR records manager.	NR	Securely stored records		Ongoing.
C. Land Management					
C1	Implement the system-wide comprehensive Land Management Plan (CLMP).	RD	Annual Review	100%	Implementation has continued to be integrated into ongoing management programs.
C2	Conduct periodic reviews and monitoring of land management activities to assure compliance and consistency with Land Management Plan.	NR	Review memo	100%	During FY19 BMP monitoring was conducted at stream crossings in two locations. New iPads were acquired and we developed a Survey123 application to collect this data for future crossings. Integration of the collected data into the reporting database will be ongoing in FY20.
C3	Prepare annual summaries of proposed forestry lots for next fiscal year.	F	Lot Summaries	100%	All activities related to the proposal process took place.
C4	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.	NR	Annual lot reviews, comments	100%	FY20 lot review hikes were completed with foresters and EQ. All comments from all reviewers were compiled and distributed. Public review story map was prepared and posted.
C5	Hold public meeting(s) on proposed forestry lots. Accept public comment.	RD	Meeting minutes	100%	Public meeting held on June 10th. No members of the public attended. Sent letter to local board of selectmen offering to meet if desired; response from one town and meeting scheduled.
C6	Prepare, sell and supervise forest management operations in the Wachusett and Sudbury watersheds consistent with the CLMP. Initiate sale of harvest in one of two long-term study subbasins.	F	Annual statistics on harvest area, inspection reports	100%	10 timber sales on 427 acres were prepared and sold in the Wachusett Watershed. One timber sale was prepared and sold in the Sudbury Watershed. Eight timber sales on 430 acres where active and supervies during this time. Due to delays in getting the needed access road improvement accomplished, no action was taken on initiating a sale in one of the two long-term study subbasins.
C7	Monitor water quality at active logging sites to measure effectiveness of DWSP's Conservation Management Practices (CMPs).	EQ	Water quality data in Forestry Database, final report on completed sites	70%	Turbidity was measured regularly at all active and inactive sites throughout the year. No problems were noted at any location. No summary reports for completed sites were written. Five reports remain overdue.
C8	Conduct a regeneration and terrestrial invasive species survey on DWSP land in the Sudbury watershed	F	Summary report	100%	The report is complete.
C9	Implement restrictions and recommendations by NHESP for forest management operations in habitat of rare plants or animals.	F	Cutting plans and forestry database	100%	Ongoing as needed.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
C10	Continue work with DCR Asian Longhorned Beetle Program and USDA to oversee beetle eradication in watershed areas.	F	Meetings, cutting plans		No new infestations of ALB were found on DWSP land during this period.
C11	Conduct annual invasive species control on identified priority areas as needed.	NR	Contract, contract work	100%	FY19 projects included: continuation of Canada thistle control in the Smith Fields restoration project in West Boylston; multiple hand-pulling events to control mile-a-minute vine in Holden and West Boylston; buckthorn control at Barre Heath. These projects will continue in future years until effective control or eradication has been achieved.
C12	Oversee habitat restoration and field reclamation work at identified sites	NR	Contract	100%	No new projects initiated at Wachusett this quarter. Attended EEA Stewardship Fund coordination meeting with DWSP and other EEA agency staff, developing FY'20 budget and project list. Currently there are no new projects in the Wachusett Watershed scheduled for FY20.
C13	Inspect all DCR fields with agricultural permits.	F	Inspection reports	100%	All fields were inspected throughout the season.
C15	Continue boundary line maintenance.	F	Update GIS layers and encroachment database	100%	A total of 33.2 miles were maintained. In the four years since regular boundary line maintenance began, 96.7 miles have been maintained. This averages to 24.2 miles per year. There are currently 251 miles of maintainable boundary line in the Wachusett watershed with a goal of maintaining all of the boundary lines on a 10-year cycle.
C16	Seek to resolve known encroachments. Incorporate newly found encroachments into the process.	WR	Update encroachment database	80%	Encroachment Database has been improved/revised. Staff can now use AGOL in the field to monitor and enter encroachments. Letters sent out to abutters at Wachusett is on-hold due to staffing in the ranger group.
C17	Assess all new fee acquisitions to document the existing condition of forests, roads, and boundary markings. Integrate new properties into existing land management and public access programs.	F	Update relevant databases and GIS layers	80%	A couple of the most recent acquisitions have yet to be fully integrated into the forest management program.
C18	Participate in process to transfer lands surrounding Framingham Reservoirs 1 and 2 to DCR Parks.	D	Disposed property	90%	Ongoing work with State Parks staff to transfer property. Plan developed using Nyanza Trust funds mostly completed provides information on how DCR can manage the property. Met with Framingham officials to discuss their interest in working with State Parks. Transfer expected in FY20.
C19	Maintain DWSP wildlife fields through regular mowing; keep accurate mowing records.	NR	Maintained fields	100%	A total of 45.2 acres of fields were mowed at four locations.
C20	Continue measures to reduce or mitigate reservoir bluff erosion; evaluate measures taken.	F	Annual progress report		
C21	Identify DWSP areas that would benefit from habitat restoration, invasive species control, or periodic maintenance using mulching machine.	NR	Acres of habitat restored	0%	No new areas identified this quarter. No bids were awarded for the Parker Pit restoration project in September, but due to wet conditions and contractor commitments we did not choose to request another round of bids in this quarter. Project may be moved to FY'20.
C22	If available, use UAS (unmanned aerial systems) to document forest conditions, map openings, identify invasive plant populations or other activities.	NR	Updated forest data	50%	The use of UAS was tested at Wachusett Reservoir to count the gull roost. We hope to expand this program in FY20.
C23	Maintain deer exclosures and sample vegetation periodically to assess impacts of herbivore browsing.	NR	Report	50%	Deer exclosures inspected and repaired prior to hunt. Vegetation sampling will begin in FY20.
C24	Develop scope of work and manage contracted boundary survey work	CE	Recorded plans	100%	Five surveys were conducted with 15 granite bounds, 5 iron pipes, and 6 drill holes were set to delineate DWSP property lines.
C25	Organize, inventory and categorize permit, lease and easement information and enter information into the database	CE	Database	0%	No work was conducted.
D. Wildlife Management					
D1	Conduct program of observation and active harassment of gulls, geese, and other waterfowl.	EQ	Birds are moved out of control zone.	100%	Daytime monitoring began 8/20. Shore harassment 3-5 times per week plus boat harassment from 10/24-11/16 successfully moved all birds from the north end of the reservoir. Bird numbers have been lower than in previous years.
D2	Observe and document the nocturnal roost of gulls on the reservoir weekly during the months of September- March.	NR	Data used to guide harassment program	100%	Roost observations began September 19th and fluctuated from 0 to 860 gulls. Observation will continue through the 3rd Quarter.
D3	Control Canada Geese	NR			
D4	Monitor geese activity on the North and South Dikes. Implement control activities as needed, including coyote decoys, habitat management practices or harassment to limit goose presence.	NR		100%	Geese were discouraged from gathering on grass areas adjacent to the reservoir. Geese monitoring continued with an increase in intermittent geese activity during fall migration. The wildlife mowing schedule was followed to discourage goose activity on the dikes. Monitoring was done to assess the success of the mowing.
D5	Monitor area landfills for feeding gulls. Work cooperatively with landfill operators to ensure DEP landfill regulations are being followed.	NR	Field reports	100%	Landfills in the watershed were surveyed as part of a routine survey of the gull feeding hotspots.
D6	Monitor waste water treatment plants in Massachusetts that have wires installed to prevent feeding to make sure they function and continue to exclude gulls. Identify other wastewater treatment plants in MA with gulls and work to install wires at those plants.	NR	Controlled treatment plants	100%	Wastewater treatment plants were checked to make sure the deterrents were still functioning.
D7	Identify parking lots in MA where food is available and work to prevent feeding through educational signage, interaction and enforcement.	NR	Controlled parking lots	100%	Surveys of parking lots in central Massachusetts began this quarter and signage was inspected and repaired as needed.
D8	Work with cities and municipalities in MA to enact regulations to make feeding gulls illegal. Work cooperatively with these communities to educate feeders and/or enforce feeding regulations.	NR	Reduction in feeding of gulls	100%	No activity this year.
D9	Continue to identify alternative food sources for gulls in MA and work to eliminate their presence.	NR	Food sources eliminated	100%	Observations continued to identify alternate food sources for gulls in central Massachusetts and no new areas were discovered this year.
D10	Beaver and Muskrat Control.	NR			
D11	Analyze all aquatic mammals removed from Pathogen Control Zone for the presence of Giardia and Cryptosporidium by sending stool samples to a private lab for analysis.	NR	Summary report	100%	Samples were collected from the beaver removed in the Pathogen Zone. Samples were sent to the lab to be tested. Results pending.
D12	Use genetic markers to assist in identifying contamination sources in water samples.	NR	Sample identification	100%	No activity this year. DCR continues to use this survey method wherever feasible and appropriate.
D13	Respond to beaver complaints from citizens affected by beaver on DWSP property	NR		100%	Water has been low and there have not been many complaints.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
D14	Respond to beaver caused flooding issues on DWSP property; assess situation and take appropriate actions.	NR	Field reports	100%	Known problem sites at Wachusett were checked. No issues this year.
D15	Respond to problems of burrowing animals on dams and dikes; take appropriate action.	NR	Field report	100%	Surveyed North and South Dike and found 6 active animal burrows. All active burrows were treated.
D16	Continue long-term wildlife resource monitoring program to document wildlife response to forest management.	NR		100%	Successfully conducted Wildlife-Forestry long-term surveys in FY19
D17	Research and manage for common loons on DWSP water bodies.	NR	Annual Report	100%	Loon breeding survey was completed in FY19. Annual report was written (attached).
D18	Work with MA Department of Fisheries and Wildlife (DFW) to survey for and document breeding bald eagles on the reservoir.	NR		100%	Surveys complete. There were no active bald eagle nests at Wachusett in FY19
D19	Monitor the status, and/or assess impacts, of selected wildlife species, including deer, beaver, migratory birds, water birds and vernal pool inhabitants. Coordinate with the Massachusetts Natural Heritage and Endangered Species Program concerning rare species occurrences and protection	NR	Field Notes; reports	100%	Cooperative efforts continued with the Massachusetts Natural Heritage and Endangered Species Program to monitor and protect rare species on the watersheds. Monitoring included: acoustic surveys of bats, grassland bird breeding, Whip-poor-will presence/absence survey, long-term monitoring of beaver, and density estimation of deer/moose on watershed properties.
D20	Conduct pellet surveys on DWSP lands to assess populations of deer and moose.	NR		100%	Pellet surveys to assess populations for deer and moose were completed for Quabbin Park and for areas within the Wachusett Watershed.
D21	Develop and implement a white-tailed deer management plan for DWSP lands at Wachusett that are currently not hunted.	NR	Deer management plan; annual report	100%	Hunt was successfully carried out within the inner reservoir zone from Dec 1st- Dec 31st. Results pending and summary was completed (attached).
	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.	WR	Reports	100%	18,865 Visitor Contacts. 498 Rule Violations 6 written warnings. 38 non criminal citations issued.
E2	Continue to cooperate with state, environmental, and local police for help with enforcement when required.	WR	Enforcement Resolution	100%	Continued communication regarding watershed issues with state police and environmental police.
E3	Continue to use DCR social media accounts for advertisement of interpretive programs, including general or emergency information (such as closings).	WR	Press documents	10%	Ongoing but limited to the lack of our own social media account.
E4	Develop public outreach regarding allowed uses on DCR Wachusett lands.	WR	Plan, signage, outreach	100%	Dog "Rack" Cards were sent out to residents of local Clinton apartment complex. Signs were put up for the Wachusett Deer Hunt educating the public.
E5	Continue updates and improvements to access points with signs, gates and improved parking areas. Conduct regular inspections of gates and access barriers.	WR	Signs, barriers	100%	Gate Numbering system plan at Sudbury Reservoir has been approved. Gate Inventory System has been created on AGOL, all gates in Watershed System have been logged, data includes: photos, description, ADA compliant, locking system and inventory of locks.
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.	WR	Compliance with DWSP regulations	100%	Ongoing
E7	Continue to conduct "special operations" such as night operations, ATV, and snowmobile operations, as needed.	WR	Compliance with DWSP regulations	100%	Multiple operations were conducted throughout the year. Special operations for the Deer Hunt, Opening Day of Fishing and Night Ops in the summer months.
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.	WR	Compliance with DWSP regulations. Update database.	100%	498 Rule Violations. 6 Written Warnings. 38 Non-Criminal Citations issued.
	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.	WR	Ranger logs	100%	Continued active presence in watershed. Proactive patrols conducted
F2	Continue ongoing communication and coordination with local, state, and federal emergency responders; coordinate with MWRA on all security issues.	WR	Ranger logs	100%	Rangers continue to attend In-Service training and other job related trainings.
F3	Continue program of enhancing security infrastructure around Wachusett Reservoir.	WR	Implementation	100%	Security evaluation, upgraded video surveillance of facilities
	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.	CE	Inspection logs and reports, summary reports	100%	Wachusett and Sudbury dam were assessed monthly. An executive summary were issued and maintenance work generated.
G2	Assess DWSP smaller dams semi-annually; review maintenance plans and revise as necessary.	CE	Plans, summary reports	100%	Smaller dams were assessed and work projects generated.
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.	CE	Inspection reports, summary reports	100%	Conducted liming of North and South dikes.
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.	CE	Maps, datalayers	100%	The internal roads were inspected
G5	Develop annual plan for internal road repair/reconstruction projects.	CE	Annual Plan, work orders, summary report	100%	An internal road was developed and work projects generated.
G6	Monitor the stability of River Road in Clinton.	CE	Report	100%	Monitoring of River Street was conducted after rain storms and at least once a month
G7	Conduct projects using in-house staff and resources. Provide oversight to ensure protection of water resources.	CE	Projects	100%	Road repair projects were completed at North Dike/Gate 40, Inner Road water bars were cleaned out, and Inner Road culverts were cleaned out
G8	Conduct regular inspection and maintenance of all DWSP BMPs.	CE	Maintained, properly operating SW BMPS	60%	Inspections have been conducted of the of the BMPs. Maintenance projects were conducted. Unsuccessful in finding a vendor to clean the stormwater structures.
G9	Evaluate conditions of Sudbury watershed internal roads and develop work plan, as necessary.	CE	Work plan, maps, work orders	60%	Evaluated a majority of Sudbury roads
G10	Provide supervision, coordination, oversight, and technical support or assistance for all engineering, construction, and renovation work in Section.	CE	Inspections, construction and maintenance records	100%	Contract for the new Clinton HQ was awarded and the foundation installed.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
G11	Maintain records regarding property plans & data; reservoir and facility construction and maintenance operations.	CE	Miscellaneous records	100%	Documents, if available, were provided when requested.
G12	Implement annual Major Projects including Clinton Crew Headquarters Replacement	RD	Improvements	50%	The contract was awarded and construction started on the new Maintenance HQ. The foundation is in place and the slab has been poured. Progress continues. Expected completion in FY20.
G13	Provide access to water quality monitoring stations and perform occasional maintenance activities at stream gages	EQ	Maintained access; functioning gauges	100%	Gates Brook staff gage damaged on two occasions during sediment removal and eventually replaced.
G14	Evaluate and coordinate the monitoring of facilities for compliance with state and federal regulations. Develop and update required documents, as necessary	CE	Summary reports	80%	Ongoing
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.	EP	WsPA Decisions, updated electronic files	100%	There were 57 new filings processed during the fiscal year, including five applications for a Variance. Most filings were approved, primarily for work that was exempt or outside of jurisdictional areas or was for minor projects. Only three projects were denied.
H2	Convene the Watershed Protection Act Working Group regularly to discuss policy and address specific problems related to the WsPA	P	Coordination, decisions, meeting minutes	100%	Two full WsPAWG meetings held, as well as an additional gathering by the Planners met to review regulations. Conference calls held as needed.
H3	Review permits for watershed towns on a monthly basis with letters sent to property owners of affected parcels.	EP	Letters to Property Owners of Affected Parcels	100%	All new building permits were reviewed and letters sent to property owners.
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.	EP	Letters to Property Owners of Affected Parcels	100%	Letters were sent to all new property owners (based on review of property transfers) throughout the fiscal year.
H5	Review files from previous year on an ongoing basis, including contact with owners and site visits as needed.	EP	Follow-up letters - files with Decisions issued in January through June will get reviewed in July and files with responses issued in July through December files will get reviewed in January.	80%	Files continue to be reviewed and action taken as needed.
H6	Provide Town Halls with WsPA maps, brochures and applications on a regular basis.	EP	Inventory of needs and inventory of information that was distributed.	50%	Delay in production of list of potentially affected parcels (containing low yield aquifer) prevented distribution of maps and associated paperwork.
H7	Review older files in database and resolve outstanding issues through contact with owners and site visits as needed	EP	Document inspections/correspondence in database	80%	Files continue to be reviewed and action taken as needed.
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.	IS	Amended plan with documentation of actions	90%	A new Interpretive services program coordinator was hired, review of the existing IS plan is underway with amendments planned. New programs have been developed and implemented.
I2	Inspect kiosks and brochure boxes quarterly, submit work orders, and update as necessary.	WR	Updates on Kiosks at least quarterly	100%	Monthly calendars and highlight events posted in all kiosks. Additional updates in process. Seasonal Interpretive Programs brochure template updated following current graphic standards. Monthly 4-fold Interpretive Programs brochure added.
I3	Perform inventory of signage and make recommendations for improvements and additions of stewardship signs	WR	Inventory of sign type and location	100%	Ongoing. Rangers continue to place signs as needed.
I4	Analyze and update current brochures. Determine need for new brochure topics and develop as needed.	EQ	Brochures	100%	Brochures updated as needed.
I5	Partner with other organizations on watershed programs	IS	Programs	100%	Coordinated with Nashua River Watershed Association, MA Audubon to compliment each group's watershed school visits. Coordinate with MA Audubon on cross promoting Firefly Watch Citizen Science event. Hosted MEES (MA Environmental Education Society) event. Cross promoted events with Clinton Greenways Trust, Wachusett Greenways. Offered a presentation in partnership with Friends of Boylston Public Library.
I6	Conduct watershed, wildlife, forests, and history educational programs in the local school districts.	IS	School Programs	100%	Conducted lessons for 230 classroom students, 40 students on site at Stillwater Farm.
I7	Provide educational materials, teacher training, and support for Mass Envirothon.	EQ	School Programs	100%	Another successful year of support for Mass Envirothon with workshops for teachers and students, test preparation, and involvement with the competition in May.
I8	Provide education through visitor contacts and formal presentations.	WR	Programs, visitor contacts	100%	Interpretive services staff provided 49 programs, school visits, and events with a total attendance of 782. The Ranger staff conducted 31 education programs with a total attendance of 671 people. Total attendance for two Clinton Dam Days was 4,900 people.
I9	Publish bi-annual Downstream newsletter.	NR	Newsletter	0%	Downstream is on hiatus while it is determined how to best provide outreach using current array of media options. Meeting was held with Wachusett, Quabbin, NR, and Division staff on different ways to share watershed management stories and achievements. We plan to overhaul the NR web page in preparation for the use of social media in FY20.
I10	Maintain and update website.	P	Website	100%	Updated as needed, including FY2020 Work Plan. Attended meeting of mass.gov users group. Posted all required advisory committee meeting notices and announcements concerning opening day for fishing seasons.
I11	Prepare for Lakes Appreciation Month (July 2019)	EQ	Activities	20%	Limited activity on this task due to changes in staff and task responsibility.
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.	EQ	WQ data entered into database	100%	Routine sampling completed. Completed Water Quality and Hydrology Monitoring Report that includes SOP and station descriptions

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
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.	EQ	WQ data entered into database	100%	Plankton, nutrients, and bacteria were collected regularly throughout the year. Water quality profile measurements were taken except during a period of ice cover in February and March.
J3	Produce annual water quality summary and sampling plan.	EQ	Annual WQ report by March 15	80%	Automation of water quality report (tables, graphs, production of statistics, text) required more time than anticipated and report not completed by 6/30/19
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.	EQ	Instantaneous hydrology information, USGS cooperation	100%	Continued to work with USGS to obtain regular accurate stream flow data.
J5	Augment hydrologic data in Wachusett watershed through establishment and monitoring of stream gages and rain gages, and take snow pack measurements. Develop and maintain accurate rating curves.	EQ	Rating curves, precipitation data, monthly HOBO downloads entered into database	100%	Measured stream discharge regularly and updated stream ratings as needed. Initial ratings were finalized for Muddy and Trout Brooks. Wrote R script to generate new rating tables and to automate daily precipitation data upload. Processed HOBO data for the past two years and added HOBO unit to groundwater well for continuous data generation. Reactivated 7 groundwater wells for monthly monitoring.
J6	Determine needs for stormwater sampling based on analysis of historical data. Sample storm events as determined necessary.	EQ	WQ data entered into database to improve annual nutrient loading calculations	20%	All storm samples and events were renumbered and any records missing storm sample flags were updated in the WQ database. One storm was sampled during September 2018. Additional stormwater sampling will take place once needs are determined.
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.	EQ	Annual loading estimates	50%	Nutrient and sediment load estimates were not calculated for 2018. Alternative models are being explored that will simplify the modeling process and provide a better means to document the model inputs and outputs so that results are transparent and reproducible. It is anticipated that a new modeling framework will be in place in 2020
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.	EQ	Input on DCR projects and issues; data summaries	100%	Continued to work with UMass on a range of topics including further update of CEQUAL model, research on impacts of salt to reservoir water quality, and development of new sampling program for Quabbin/Ware River. Met to develop FY20 tasks.
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.	EQ	Issues	100%	Established working group to address issue of excess salt applications and the impacts to water quality. Gathered usage data from towns, researched literature on best practices and new technologies, investigated training opportunities, and asked UMass to use modeling capability to look at impacts of the problem.
J10	Continue to implement long term monitoring in paired sub-basins in order to assess impact of forestry on water quality. Increase monitoring frequency once harvesting is initiated.	EQ	annual report summarizing data and activities	30%	Ongoing progress at midpoint of proposed ten-year study. Sufficient baseline data have been collected and one of the two lots will be offered for harvest. The % completion (30%) is for the entire ten-year study. A preliminary report, including sub-basin comparison has begun. Quabbin and Wachusett staff will be coordinating to use same methodology. Preliminary report to be finalized in FY2020. NOIs for weir installation at Holden site (to improve flow measurements) have been prepared.
J11	Continue to work with MWRA, Quabbin EQ, NEIWPC and other stakeholders to characterize cyanobacteria and cyanotoxins in the reservoir.	EQ	Info in annual WQ report	100%	Ongoing communication.
J12	Continue to develop database backed tools and applications (R,GIS,MS Access) to facilitate data management, review and analysis, writing reports and modeling efforts.	EQ	Improved analysis and reporting	100%	Highlights for the year include: Development of Shiny app rating tool using HOBO data Rewrote the Flow module (renamed - Tributary Sensor module) to provide much better flow data analysis and visualization capabilities. Phytoplankton module developed to account for changes to taxa table and 500,000 historical phytoplankton records. Well table in WQ database updated and new well metadata table created. Survey123 form created for data input. Python and R scripts developed to automate well data processing and import from AGOL to the WQ Database.
J13	Continue data compilation/interpretation for 30-Year Water Quality Report (1988-2017). Include assessment of impacts of climate change on water quality and hydrology.	EQ	Comprehensive report	10%	Staff shortages and shifting responsibilities have postponed work on this task. Work will restart in FY20.
J14	Investigate interaction between plankton and interflow water quality with Roger Williams University.	EQ	Report summarizing findings	50%	Dr. Lily Jeznach has begun to add phytoplankton into the CEQUAL-W2 model. Meetings were held to discuss the process and finalize a plan which will initially focus on diatoms, particularly Asterionella.
J15	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.	EQ	Collection of additional data	50%	Analysis of samples collected during 2018. Additional sampling will be done during fall 2019 (FY20)
J16	Complete identification and assessment of all macroinvertebrate samples and write summary report.	EQ	Inclusion in 30-year WQ Report	0%	No work done due to changes in personnel.
J17	Continue cooperative study of current population status, life history, and sustainable yield of lake trout. Use GIS to predict spawning areas in the reservoir.	EQ	Collection of data, generation of spawning area map	100%	Participated in annual lake trout sampling and entered all data into fish database. Produced report on Wachusett Reservoir lake trout population dynamics with recommendations for changes to fishing policy.
J18	Develop a study to identify trends in the long-term phytoplankton and water quality data sets and identify variables influencing these dynamics.	EQ	Collection of additional data, analysis	20%	All temperature and phytoplankton data have been added to the database. A poster titled '30 Years of Phytoplankton in a Drinking Water Reservoir, Methods, data assembly, and preliminary analysis' was presented at the Northeast Aquatic Biology conference in February 2019. Publication of analysis of long term trends is anticipated in FY20
J19	Initiate basic fish monitoring by collaborating with MA DFW to conduct fish surveys in the reservoir. Explore if spring electroshocking is a feasible way to collect Lake Trout in the reservoir.	EQ	Collection of fish, compiling and analyzing results	0%	No activity this year.
K. Watershed Monitoring and Assessment					

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
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.	EQ	Document actions in EQ database; compliance with regulations	100%	A total of 99 new files were created during FY19 to address a variety of issues in the Wachusett and Sudbury watersheds. A number of existing files were resolved.
K2	Review and analyze EQ database records. Compare with other data (water quality, GIS etc.) to evaluate watershed management programs. Develop reports as required	EQ	Data, analysis, maps, reports	0%	No activity this year.
K3	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	EQ	Corrected files, accurate useful data	80%	Continued to review and correct any files with missing or inaccurate information. Long term goal to review and compare all paper and electronic files has been postponed until a future date.
K4	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.	EQ	Updated hydrology datalayer	80%	Updates to all hydrology in the Stillwater District complete. Significant progress made on other areas within the watershed.
K5	Finalize Stillwater District EQA and use recommendations to develop tasks for FY20 Work Plan.	EQ	Final report, FY20 work plan tasks	50%	Produced guidance document titled 'EQA Assessment Methods and Workflows' for use in all watersheds. Stillwater EQA will be completed during FY20.
K6	Update status of agriculture sites, hazardous material sites, hazardous materials spills, USTs, and ASTs.	EQ	Updated info in database and EQ files	100%	Investigated all agricultural sites in the Stillwater District. Reviewed all spills, USTs, ASTs, and hazardous materials sites.
K7	Develop and implement outreach strategies and programs for topics identified through EQAs.	EQ	Brochures, programs	100%	Sent letters to mosquito/tick control companies and to golf courses detailing potential threats to water quality and ways to prevent problems
L. Aquatic Invasive Species					
L1	Inspect reservoir, lakes, ponds and tributaries for presence of AIS.	EQ	Annual summary in water quality report	100%	Work ongoing
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.	EQ	Annual summary in water quality report	100%	Work ongoing
L3	Conduct aquatic vegetation surveys prior to and after aquatic herbicide treatments planned for the Lily Ponds, South Meadow Pond complex, and Clamshell Pond.	EQ	Field report	90%	Annual reports submitted to the West Boylston and Clinton Conservation Commissions for the Lily and Clamshell Pond projects. RFPs for work in Clamshell and South Meadow Ponds were issued and contractors selected for the 2019 management season. Surveys of Lily Ponds, South Meadow Pond complex (SMP), and Clamshell Pond were conducted in May/June. Curly-leaf Pondweed was present, but anticipated treatment was not carried out due to funding issues. Hydrilla was not observed at time of survey, likely due to timing. Invasive species were not observed in the Lily Ponds or Clamshell Pond.
L4	Continue to use appropriate methods to prevent the spread of pioneering stands of Phragmites along the reservoir shoreline.	EQ	Annual summary in water quality report	100%	Collaboration with watershed maintenance staff continued with cutting of Phragmites in November and June. A total of 18 sites were managed by cutting and some pulling of root systems. Initial observations indicate last year's cutting significantly reduced biomass in most locations and spring growth was low compared to previous years. Work is ongoing and documentation continues.
L5	Assist MWRA with plant removal efforts in the reservoir.	EQ	Annual summary in water quality report	100%	Guided Phase II of MWRA contractor plant removal operations and QA work in Stillwater Basin, upper and main basins of Wachusett Reservoir, Quinapoxet Basin, and Sudbury Reservoir. Real-time data collection and viewing apps built in ArcGIS Online (Survey123 and Operations Dashboard) were updated for continued use during the 2019 season.
L6	Perform aquatic vegetation survey work prior to Thomas, Oakdale, and cove vegetation management. Provide report to MWRA and contractors to guide 2018-2019 plant removal efforts.	EQ	Field report	100%	Massive reduction in invasive plants removed from Stillwater Basin – 1,300 gallons this year compared to more than 300,000 in 2013. Continued reduction in plants removed from lower basins and main basin coves. First harvest of variable milfoil in Hidden Cove/Cemetery Island of 120 gallons of plants. Fragment barrier installed at cove mouth to reduce spread. Recommendations made to focus 2019 efforts on Quinapoxet Basin where invasive plant biomass is currently the highest.
L7	Monitor, advise, and assist contractors with any necessary plant removal operations.	EQ	Annual summary in water quality report	100%	Continued to monitor MWRA contractor efforts. All data were submitted via Survey123 app and viewable by all project partners via the AGOL Dashboard. Final data entered into GIS database and evaluated by zone to identify areas with more dense plant beds.
L8	Enforce the decontamination procedures for all watercraft entering the reservoir by inspecting each vessel and collecting completed decontamination certification forms.	EQ	Annual summary in water quality report	100%	All boats entering the reservoir were inspected prior to launch.
L9	Continue education efforts through formal presentations and visitor contacts.	EQ	Annual summary in water quality report	100%	Provided information to rangers as primary contact
L10	Distribute AIS brochure.	IS	Brochure; program	100%	AIS brochure available at JAH and public watershed events.
L11	Monitor beaver activity; if necessary make recommendations to NR for removal where contributing to spread of invasive plants.	EQ	Field Reports	100%	Documented increased beaver activity in reservoir and notified NR staff
M. Wastewater Management					
M1	Provide plan review and interpretation, if requested, to Boards of Health.	EQ	Plan review, recommendations to boards, applicants	100%	Provided comments and interpretation as requested.
M2	Compile septic system information (installation date, repair date, location, etc) from watershed communities in wastewater database. Include linked electronic plans where available.	EQ	Septic system datalayer	40%	Ongoing multi-year process. Completed initial data entry for Boylston and much of West Boylston. Added additional information from BOH minutes.
M3	Obtain sewer connection information from Holden and West Boylston; add to Wastewater database and GIS datalayer	EQ	Updated database and GIS datalayer	100%	Updated information has been received and added to the appropriate databases.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
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.	CE	Quarterly bills, correspondence with towns	80%	This task is ongoing. Rutland still has not submitted payment for FY19 4th quarter bill. Inspections are being conducted monthly by MWRA, with findings reported to CE. CE is working with MWRA on routine maintenance plans.
M5	Research and provide sewer management information for legal issues regarding the Trunk and Relief sewer lines, as necessary.	CE	Notes, information	40%	Commonwealth will go to trial with Worcester re: Holden's claim that Worcester's sewer use charges are excessive in May 2020. DCR will provide evidence and witness
M6	Evaluate and manage new trunk line connections. Monitor trunk line for encroachments; resolve any problems.	CE	Permits, regular inspections	100%	No requests for connections in FY19. No reports of encroachments.
M7	Develop a report summarizing the results of the flow study and guidance information on managing sewer capacity in DCR lines.	CE	Report	30%	The flow study was not conducted in 2019. DCR will submit an edited/revised version of MWRA's flow study/I&I report to DEP in lieu of a flow study. The scope of work for the
M8	Design a study to determine if areas that experienced conversion from septic to sewer have seen significant reduction in nutrient loading.	EQ	Report	0%	This task has been postponed until FY20
N. Stormwater Management					
N1	Treat remaining 2 direct discharges, Rt 110 Sterling	RD		10%	Conceptual plans received from Tighe & Bond. Contract amended for Tighe & Bond to provide 100% design plans. Ongoing meetings with DOT.
N2	Continue to work with towns and private landowners for regular maintenance of BMPs to ensure proper performance	EQ	BMPs remove pollutants as designed	0%	This task has been postponed until FY20
N3	Inspect DCR owned storm water BMPs regularly. Prepare list of required maintenance and forward to RD.	CE	List of inspection results	100%	BMP inventory and inspections complete.
N4	Provide regular maintenance of BMPs on DCR lands.	CE	Maintenance completed	90%	Inspections identified new maintenance needs which were addressed.
N5	Design and conduct water quality monitoring studies to evaluate effectiveness of and optimize performance of direct discharge project BMPs.	EQ	Report and improved BMP functionality	0%	This task has been postponed until FY20
N6	Work with watershed towns to ensure compliance with MS4 requirements.	EQ	MS4 permit conditions met	50%	Most towns have hired consultants or are participants in the Central MA Stormwater Coalition. Staff continue to supply information and technical assistance as needed, including in the Sudbury watershed.
N7	Maintain and enhance GIS data layer of storm water and drainage conveyance structures data layer. Add flow direction to storm sewer network.	EQ	Updated GIS datalayer.	30%	Work continues on schedule for this multi-year task. Assistance from two unpaid interns was very helpful. All subbasins within the Stillwater District were completed and considerable progress made in the Quinapoxet District subbasins.
N8	Conduct regular inspections of all construction sites greater than one acre.	EQ	ESC maintained and working as designed	100%	Regular inspections of active construction sites were conducted to ensure compliance with stormwater regulations and protect resource areas. During the fiscal year 236 inspections were conducted on 33 sites. Several projects required additional attention and remedial action. Any problems noted were generally corrected by the contractor in a timely manner, but enforcement action was initiated at two problem sites.
N9	Continue work with local DPWs to identify locations of concern, evaluate options for BMP installation, and ways to cooperatively implement recommendations.	EQ	Installed BMPs	50%	Continue to work to improve cooperative relationship with area DPWs especially in the area of snow and ice control and the reduction of salt.
N10	Continue to work with watershed communities on review and update of local storm water regulations to comply with MS4 permit.	P	Annual report summarizing status	10%	Most watershed communities have hired consultants to assist with this task, or are members of the Central Mass Regional Stormwater Coalition which provides guidance and templates for development of necessary local regulations.
O. Emergency Response					
O1	Coordinate Emergency Spill Response training with MWRA and local responders.	CE	Trainings	100%	Boom deployment was conducted with Southborough, Marlborough & Framingham Fire Departments
O2	Update contact list and information in Comprehensive Emergency Management Plan, EAPs, and other emergency response plans.	CE	Plan	90%	Emergency Notification information was updated and is on the W drive.
O3	Organize and maintain emergency response supplies and services.	CE	Inventory	100%	The new boom trailer was outfitted and organized. Spill response supplies were organized.
O4	Review and modify the Training and Exercise Plan as necessary. Work with other agencies to provide trainings and exercises.	CE	Plan, Trainings	100%	Various trainings were provided for DWSP staff
O5	Provide ICS and Emergency Response training to appropriate staff.	CE	Classes, Trainings	100%	ICS and emergency response trainings were conducted
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	CE	Contain and cleanup releases	100%	No spills occurred
O7	Implement and Coordinate Small Boat Operator Program	CE	Training logs	20%	Program was suspended.
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.	RD	Completed plans, budgets and reports	100%	Completed on schedule and provided as required.
P2	Administer the Payment in Lieu of Taxes (PILOT) program.	P	Payments to watershed communities	100%	PILOT distributed as required by MGL c. 59 s.5G. Total FY19 PILOT was \$8,255,642. The total distributed to Wachusett towns was \$3,446,766 (42% of the total); Sudbury towns received \$824,035 (10% of total). Ongoing communication with Department of Revenue on use of Equalized Valuations (EQV) for revaluations starting in FY20.
P3	Write metadata for all shape files on the shared W Drive	GIS-W	Data	100%	GIS, GIS-W and GIS-Q worked together to develop DWSP-wide metadata standard meeting FGDC compliance. This was applied to all data layers managed by each region. This continues to be maintained as new data are added to shared GIS data area (now on G drive).

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
P4	Write ArcGIS online web apps and viewer software to suit individual user needs	GIS-W	Web Applications	100%	GIS built and maintained numerous public and internal web applications, and also built field data collection tools on an as-needed basis for staff/specific projects. Some accomplishments include the completion of the Watershed Protection Plan Achievements Story Map, and the creation of field data collection tools such as the Construction Monitoring map and survey which utilizes both Collector and Survey123 and serves as a great example of how workflows can be brought into the ArcGIS world.
P5	Publish features and map tiles as hosted web layers for ArcGIS Online users	GIS-W	Published data	100%	ArcGIS Online feature layers were updated on an as-needed basis and new feature layers were uploaded and shared with appropriate users as needed.
P6	Maintain and update all GIS databases on the shared W Drive; ensure all digital data is current and available to staff	GIS-W	Databases	100%	Data was migrated to new shared drive on G drive. Standard naming conventions and metadata were applied to all data. Data is now accessible to staff through the Data Viewer toolbar in ArcMap/ArcGIS Pro.
P7	Use GPS equipment to capture and maintain data for all staff. Coordinate use of GPS equipment and download and process all GPS data	GIS-W	Digital data	100%	GPS was primarily used to map parcel configurations for the land acquisition coordinator.
P8	Create parcel maps for Land Acquisition Coordinator meetings with landowners, LAP meeting and MWRA board	GIS-W	Maps, analyses	100%	Both paper maps and an ArcGIS Online web map were utilized in the final LAP meeting. GIS and NR developed an updated Land Acquisition Priority model for each watershed using metrics from the original analysis. This is available in ArcGIS Online.
P9	Support municipalities and other partners by providing GIS products and technical support	GIS-W	Maps, digital data	100%	GIS products and maps were provided to multiple towns throughout the year. Multiple requests were made by the town of West Boylston and responded to by GIS-W and GIS.
P10	Operate administrative offices, including answering phones, greeting visitors, etc.	RD	Weekly payroll, HR forms processing	100%	Provided.
P11	Provide payroll assistance and personnel services for all Section employees.	RD	Account set-up, Invoice processing, regular finance reporting	100%	Provided.
P12	Provide contract administration, financial management, record-keeping, purchasing of goods and services, and other financial support services.	RD	Accounting and financial services	100%	Provided.
P13	Coordinate with EEA IT to provide local MIS support for the Section. Update IT Plan as required addressing technology needs for the coming year.	RD	Support and troubleshooting services; IT Plan	100%	High performance computers for GIS users were delivered and installed. Order placed for computer replacement/upgrade for remaining staff.
P14	Administer Logging Permit program, including mailings, bid openings, financial management, database management, permit and key issuance, etc.	RD	Program administration; annual revenue report; database maintenance	100%	Provided
P15	Plan and implement vehicle and equipment purchases and leases.	RD	Vehicle purchases and leases	100%	Completed
P16	Inspect, provide regular maintenance, and repair vehicles, boats and other motorized equipment.	RD	Work completion	100%	No major purchases. Begin planning of (4) vehicles and boat for Sudbury in FY20.
P17	Provide routine repairs and maintenance to all Wachusett facilities.	RD	Work completion	100%	New boiler system installed and completed. Problems with fuel supplier. System is being fixed in FY20

Quabbin/Ware FY 19 Final Report



Final report on tasks in Quabbin/Ware Work Plan for July 1, 2018 through June 30, 2019

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
A. Land Acquisition					
1	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.	NR	Protected land	100%	Twelve acquisitions were completed in the entire watershed system, totaling 404.8 acres at a cost of \$1,956,000 to the MWRA. Five of these properties, totaling 293.7 acres were in the Quabbin/Ware watersheds. Four of these projects, all in the Ware River watershed, were Quabbin to Ware Forest Legacy projects were recorded totaling 119.4 acres at a cost of \$518,000.
2	Convene LAP meetings to review parcels and prioritize land purchases.	NR	Prioritized lists by region; input; advice	100%	One LAP meeting was convened in June, 2019.
3	Develop individual parcel presentation materials and meet with MWRA Board for approval.	NR	Protected land	100%	Eight projects were approved by the MWRA BOD in 3 separate meetings.
4	Work with the North Quabbin Regional Landscape Partnership to acquire land and WPRs with a Quabbin to Wachusett (Q2W) Forest Legacy Grant.	NR	Protected land	100%	Four Q2W projects went to record totaling 120 acres at a cost of \$518,000
5	Continue to work with landowners on donations of land conservation interests, solicit donations, and provide information on potential tax incentives available for such donations.	NR	Ongoing communications	100%	One gift in fee of 55 acres was recorded this year.
6	Establish regularly scheduled land/legal meetings to address attorney assignments and project logistics.	NR	Meetings	100%	ongoing
B. Watershed Preservation Restrictions					
1	Monitor each WPR every two years; monitor high-priority ones annually.	NR	28 monitoring reports; updated land ownership and hydrology layers	50%	Conducted 31 monitoring visits in the Watersheds. Extensive work on modernizing the monitoring program to incorporate new technology and processes. New monitoring program will begin in FY20.
2	Ensure all new WPRs have completed baseline documentation reports prior to acquisition or within a reasonable time of acquisition following EOEEA specifications. Baselines will be completed in-house or through appropriate contracts.	NR	WPR baseline reports	80%	Most current WPRs have baselines. New WPRs that closed during the 4th Quarter do not yet have a completed baseline. We are currently looking to fill the WPR Coordinator position and begin those projects.
3	Write and distribute Watershed Currents, the WPR Landowner newsletter, twice a year.	NR	Newsletter	100%	Two issues of Watershed Currents produced and distributed.
4	Convene WPR Working Group and confer with legal to respond to enforcement issues and requests to exercise reserved rights.	NR	Issue resolution and reserved rights decisions	100%	No major issues requiring WPR Working Group attention.
5	Post WPR boundaries as time allows.	NR	Posted boundaries	0%	Time did not allow.
6	Track changes in land ownership and meet with successor landowners as necessary.	NR	List of landowners and meetings	100%	Tracked ownership quarterly and met with two new owners in Ware.
7	Maintain an accurate GIS layer and Excel database of WPRs and distribute to appropriate staff.	NR	Excel spreadsheet and GIS layer	100%	GIS and Excel are up to date.
8	Participate in EOEEA-wide stewardship database planning efforts as necessary.	NR	Statewide database	100%	Project complete.
9	Continue to implement WPR records procedure with DCR records manager.	NR	Securely stored records	100%	Ongoing.
C. Land Management					
1	Implement the system-wide comprehensive Land Management Plan.	RD	Current Plans	100%	Plan implemented.
2	Conduct periodic reviews and monitoring of land management activities to assure compliance and consistency with land management plans.	NR	Internal review; Review memos	100%	Ongoing. One stream crossing was monitored at Ware River.
3	Plan and conduct an internal review of proposed timber harvest operations for the coming year, including assessments of silviculture treatments proposed, water quality, wildlife, and other potential impacts/benefits.	NR	Annual lot reviews, comments	100%	All FY2020 QWR forestry proposals were reviewed by NR, EQ, CR, and WM staff as needed. All review comments were compiled and a final report returned to the forestry staff. A publicly viewable ArcGIS online story map was constructed to present all DWSP lot proposals for public comment.
4	Collect data and maintain datasets, GIS datalayers, and related maps of rare and listed plant and animal species or communities. Analyze data on forest structure, composition, and regeneration.	NR	Databases, GIS coverages	100%	Ware River CFI database developed this FY in preparation for FY20 remeasurement. All data from past measurement cycles now consolidated and checked for continuity issues. New DWSP forest cover typing scheme developed, integrating current systems in place by Q, WR, and WA/SU foresters with MA Land Classification System.
5	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.	NR	New Plan; Completed projects	100%	Plan to update the Terrestrial Invasive Plat Strategy in FY20. Siltgrass control in Shutesbury was initiated this FY and will continue in subsequent years until adequate control or eradication is achieved.
6	Conduct contract habitat restoration and field reclamation work at identified sites.	NR	Contract	100%	Barre Heath and Twin Hill habitat restoration were both completed in FY19 using EEA Stewardship funding. More work will be done in FY20.
7	Maintain DWSP existing fields through regular mowing; keep accurate mowing records.	WM	Maintained fields		Maintenance is ongoing. Several new pieces of equipment were purchased that will greatly improve ability to maintain fields and roads. Over 25 acres have been cut at Quabbin and 61 acres in the Ware River.
8	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.	F	Completed assessments	50%	Boundary work and assessment was completed on one new acquisition and some assessment work was completed on another. This kind of work is more efficient when the leaves are off the trees and it is easier to see. Assessments will be completed this winter.
9	Prepare lot 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.	F	Lot proposals	100%	Seven new lot proposals were prepared and presented to the public.
10	Prepare, sell, and supervise forest management operations in the Quabbin/Ware Region consistent with land management plans and approved lot proposals, including posting public information on lots and providing public tours of lots as requested.	F	Permits and timber sales	100%	Forestry staff prepared 19 cutting plans and sold 17 timber sales in FY-19. Information on all timber sales was prepared and posted on the DCR website as well as on a sign at the timber sale site. Public tours were provided for some of these forestry projects.
11	Provide supervision and oversight of all timber harvesting operations on DWSP property to assure compliance with applicable regulations, approved BMPs/CMPs, and other contract conditions.	F	Supervision and oversight of all harvesting operations	100%	Forestry staff provided oversight and supervision on 20 active timber sales in FY-19. Twelve timber sales were completed.
12	Collect regeneration and other forest health data to monitor effects of silvicultural operations on species composition and age structure as well as overall forest health. Create photo point for select lots and take pictures annually to document forest response to harvest.	F	Regeneration database, maps, and photodocumentation	100%	Collected data on 474 regeneration plots. Monitored forest health issues, including gypsy moth activity and impacts which were much less than in FY-18. Documented forest response to harvest with photo points on all active harvest and many previously harvested areas.
13	Continue to implement a GIS-based mapping system of silvicultural operations on the Quabbin and Ware River watersheds. Continue to use LIDAR data. Collect data and maintain GIS datalayers related to forest structure, composition, regeneration, forest roads, boundary information, stone walls, wetlands, and other data to guide the land management program.	F	GIS datalayer of annual silvicultural operations, databases, maps	100%	Started using cloud based direct data collection to collect GIS field data on many forest resources.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
14	Conduct periodic stream sampling at long-term forestry sites. Modify plan as needed. (See water quality monitoring for harvest operations under Task J6.)	EQ	Stream sampling; periodic evaluation	100%	Water quality and flow were monitored during 3 storms this FY. Stream flow data were downloaded periodically. Weir equations and functionality were verified using routine and storm flow monitoring data. A flow chart was developed to streamline the decision making process regarding storm sampling. We added 4 automatic samplers to the project for FY 20 monitoring.
15	Maintain and mark reservation boundaries as needed. Document and pursue resolutions of boundary encroachments.	F	Clearly marked boundaries; encroachment resolutions	100%	More than 10 miles of boundaries were marked. Another mile of boundary was flagged. Also provided oversight on 7 survey contracts.
16	Maintain the non-silvicultural lands described in the land management plan (e.g., viewsheds, gravel pits).	WM	Acres maintained in Quabbin and Ware watersheds, plan implementation	100%	Viewscapes maintained. Working with EQ and other entities on resolving gravel issues (e.g., town of NS)
17	Supervise field mowing permits in Ware River Watershed to ensure compliance with permit conditions.	F	Field mowing in compliance with permit	100%	Supervised 4 mowing permits.
18	Administer and supervise maple sugaring permits on Quabbin Reservoir Watershed to ensure compliance with permit conditions.	F	Compliance with permits	100%	Supervised 5 maple tapping permits
19	If available, use a UAS (unmanned aerial system) to document forest conditions, map openings, identify invasive plant populations, internal road conditions, or other activities.	NR	Updated forest data; updated culvert and road data	0%	No activity this quarter
D. Wildlife Management					
1	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.	EQ	Daily and annual reports; database entries; weekly reports to MWRA	100%	Annual reports for the 2017-2018 and 2018-2019 seasons were completed. Scheduling of Unit 9 staff was completed. Daily operations were coordinated based on fecal and gull counts and weather, reservoir, equipment, and access conditions. Program operated 81 nights (of 111 scheduled nights) from 10/29/18-3/29/19. Accomplishments included safe operations with no crew injuries, compliance with SWTR fecal coliform standard, and program modifications for increased staffing and bird harassment tools. Scheduling of Units 2 & 3 was completed. Training was conducted for program orientation including cold water training, pyrotechnics use, trailer training, and laser use. Program modifications included staffing changes, new system for scheduling of staff, and expanded harassment tools. Season concluded with no coliform result above 11 CFU/100mL, operating safely using new tools (bangers, screamers, new shotguns, and lower-powered lasers). Scheduling was streamlined and posted online. Weekly reports were submitted weekly to DWSP and MWRA staff for 22 weeks of operation. Maintained Access database throughout the 2018-2019 season.
2	Observe and document the nocturnal roost of gulls on Quabbin Reservoir.	NR	Weekly counts	100%	NR participated in the Quabbin Gull Control Program to observe, count, and document location of the gull roost above Gate 8 Island.
3	Control Canada geese populations on Quabbin Reservation by treating eggs during nesting season to prevent hatching.	NR	Annual report	100%	The Goose Control Zone and the 2 associated regulating ponds at Fishing Areas 2 & 3 were surveyed in April for geese nesting activities. There were 5 nests found and all 29 eggs were treated to prevent hatching. Annual Report completed.
4	Monitor geese activity on the Windsor dam and dikes. Implement control activities as needed, including coyote decoys, habitat management practices, or harassment to limit goose presence.	NR	Limited number of geese on dam/dikes	100%	Monitoring and active harassment to deter geese accessing the administration lawns continued. The coyote decoys were placed on the Hanger and Windsor Dam lawns and the goose barrier fencing that runs along the reservoir, near the administration lawns, was repaired and replaced to deter geese for accessing these areas. There were only 4 geese observed, for a brief period, accessing the administrative lawn areas this year.
5	Monitor area landfills and wastewater treatment plants (WWTPs) for feeding gulls. Work with landfill operators to ensure compliance with MassDEP solid waste regulations. Work with WWTPs to ensure exclusion wires are installed and maintained over sedimentation tanks to discourage gull feeding.	NR	Field reports and controlled WWTPs	100%	No gull activity problems at local landfills and waste water treatment plants were noted. In the past few years several landfills in the region have closed (e.g., Chicopee, Granby, South Hadley, and Barre landfill have all closed). Those few that remain open have maintained efforts to keep landfill waste from attracting and feeding birds.
6	Continue to identify and reduce alternative feeding locations, such as parking lots, for gulls in western and central Massachusetts. Work to prevent supplemental feeding of gulls through educational signage, interaction, and enforcement.	NR	Reduction of available human-derived food sources	100%	Survey of parking lots in central Massachusetts continued. One problem lot identified in Springfield (Riverdale Mall) had 100+ gulls gathering in the lot due to people feeding gulls there. NR received permission from the property manager and subsequently placed several DCR "Do Not Feed Gulls" signs on poles within the lot to discourage gull feeding.
7	Work with cities and municipalities to enact regulations to make feeding gulls illegal. Work cooperatively with these communities to educate feeders and/or enforce feeding regulations.	NR	Reduction in feeding of gulls	100%	Met with a Holyoke police officer to discuss gull feeding issues and potential problem feeding areas. Learned that they are issuing warnings and citations to discourage people from feeding wildlife in public areas. Also placed posters and handed out educational brochures at local stores with information bout DCR's "Do Not Feed Gulls" program.
8	Remove beaver and muskrat in the Aquatic Wildlife Pathogen Control Zone at Quabbin.	NR	Field reports, annual summary	100%	All the streams in the Aquatic Wildlife Pathogen Control Zone were surveyed for beaver activity and 3 beaver were removed from there in FY19.
9	Analyze aquatic mammals removed from the Pathogen Control Zone at Quabbin Reservoir for the presence of Giardia and Cryptosporidium by sending fecal samples to a laboratory for analysis.	NR	Lab report	100%	Two fecal samples from beaver removed in the Pathogen Control Zone were collected and sent to a laboratory for analysis. Laboratory results for a fecal sample collected from the Quabbin pathogen zone on 8/9/2018 came back with 0 % positive for Crypto/Giardia.
10	Use genetic markers to assist in identifying contamination sources in water samples.	NR	Sample identification	0%	Discussions continue about if, how and where to use this tool.
11	Respond to beaver complaints caused by beaver on DCR property and provide assistance, as time allows.	NR	Assistance to state, towns, homeowners	100%	Conducted a site visit on a Quabbin WPR in Petersham to identify beaver activity and discuss beaver regulations and management options with the new land owners.
12	Respond to beaver-caused flooding issues on DWSP property, assess situations and take appropriate actions.	NR, WM	Field reports	100%	Actively monitoring and responding to several beaver issues on the watersheds. Mitigation efforts were implemented and most flooding issues were resolved with culvert protection and overflow piping.
13	Respond to problems of burrowing animals on dams and dikes; report problems and take appropriate action.	NR	Field reports	100%	There has been no burrowing animal activity on dams and dikes in FY19.
14	Research and manage for common loons on DWSP waterbodies; provide nesting platforms, capture and sample birds for contaminants.	NR	Annual report	100%	Annual Loon Report was completed for FY19.
15	Work with DFW to survey and document breeding bald eagles around Quabbin Reservoir.	NR	Field report	100%	NR assisted MassWildlife with the annual Quabbin Reservoir eagle survey on April 12th, 2019. There were 6 eagle nests active this season; 2 of these failed due to nest predation, and 4 were successful with a total of 9 chicks.
16	Administer the applications, permits, and orientations for the annual Quabbin Controlled Deer Hunt; analyze results of hunt.	NR	Completed orientations and scouts; annual report	100%	Quabbin Park was proposed and ultimately adopted as part of the Quabbin Controlled Deer Hunt for FY20. 2018 Deer Hunt report completed.
17	Oversee and operate the annual Quabbin Controlled Deer Scout and Hunt.	WM	Prepare scout and hunt operations		Hunt successfully run.
18	Monitor the status, and/or assess impacts, of selected wildlife species, including deer, beaver, migratory birds, water birds and vernal pool inhabitants. Coordinate with the Massachusetts Natural Heritage and Endangered Species Program concerning rare species occurrences and protection.	NR	Field Notes; reports	100%	Completed long term wildlife monitoring surveys for birds on the New Salem Habitat Focus areas: NS-19-24-Barrens and NS-19-24-Young Forest. Bat monitoring and vegetation surveys are planned in these habitat focus areas for next quarter. Continued coordinating monitoring efforts for snake, whip-poor-wills and other rare species with the Massachusetts Natural heritage and Endangered Species Program. The lead tackle recycling program collected 13 lb. 11/36 oz. from the fishing areas to be recycled in FY19.
19	Continue long-term monitoring and assessment of moose populations and impacts.	NR	Project reports	100%	Long-term monitoring at the moose enclosure research areas on the Quabbin and Ware River watersheds is now in the "stem exclusion" phase to assess the effects of moose and deer on forest structure and composition.
20	Conduct pellet surveys on DWSP lands in the Quabbin/Ware Region to assess populations of deer and moose.	NR	Annual report	100%	Pellet surveys to assess populations for deer and moose were completed in April for Quabbin Park. Data analysis and report writing is in progress.
E. Public Access Management					
1	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).	WR	Reports	100%	Watershed Rangers tallied a total of 25,986 visitor contacts and 480 violations for FY19. Quabbin visitor contacts 24,720. Quabbin violations 404. Verbal warnings 394, written warnings 5, and citations 5. Ware River visitor contacts 1,266. Ware River violations 76. Verbal warnings 72, written warnings 2, and citations 2.
2	Continue to cooperate with state, environmental, federal, and local police for help with enforcement when required.	WR	Enforcement resolution	100%	Watershed Rangers work closely with all agencies to assist with enforcement issues. Watershed Ranger Captain and Lieutenant met with several Police Departments in the WRW.
3	Use Agency social media accounts for advertisement of interpretive programs, including general info or emergency info (e.g., closings).	WR	Press documents	25%	Very little ability to use Agency Social media (e.g. no Facebook account exists)
4	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. Supervise SCA crew work at the Ware River watershed.	WR	Signs produced and posted, as needed; fact sheets, brochures; kiosk maintenance, new kiosks	100%	Gate Lock Replacement project: All DCR gate locks in the Quabbin and Ware River watersheds were replaced with new locks. Gate keys were reissued and tracked electronically in SmartSheet. Groups to which keys were reissued include current DWSP staff, scientific researchers, Sister Agencies (e.g., MassWildlife) and MWRA. High security locks were also replaced and keys were reissued.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
5	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.	WR	Tracking databases; compliance with DWSP regulations; MassDEP Compliance reports	100%	All Watershed Rangers implement Quabbin and Ware Public Access Management Plan policies. Enforce rules and regulations of 313 CMR 11.09 through the use of verbal warnings, written warnings, and citations. Issue written warnings and/or non-criminal citations for repeat offenders and serious violations. Incident reporting application created to collect data from incidents, map incidents and filter by type, date, ranger etc., ability to export reports for submittal.
7	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.	WM	BLAs opened/closed six months of operation 7 days/week. Annual Quabbin Fishing Report (December due date)	100%	2018 Annual Fishing report completed. 2019 Fishing season still going.
8	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.	WM	Maintain ramp, parking lot, and dam; pick up trash; support and consultation	100%	Comet pond boat launch area was/is maintained(mowing, cleanup etc.) on a weekly basis
9	Coordinate and/or support special programs and events, including Memorial Day services, public meetings, paraplegic hunts, and Tuesday Tea events.	IS	Public events	100%	Coordinated programs for monthly Tuesday Tea events for former Swift River Valley residents and their descendants. Paraplegic hunt held in early November. Coordinated annual Memorial Day Services at Quabbin Park Cemetery with area Veterans organizations, historical societies and related organizations.
10	Continue to implement universal accessibility projects throughout the Quabbin/Ware Region.	IS	Enhanced accessibility	100%	DCR Universal Access Boat Fishing Program held at the Quabbin Reservoir's Boat Launch Area 3 started in June and has been extended into October due to the summer weather conditions.
11	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.	RD	Research requests evaluated; permits issued; databases maintained; policy changes as needed	100%	Sixteen research permits approved this FY. 2018 annual researcher report prepared.
12	Complete Ware River Public Access Management Plan Update 2019.	ARD	Completed plan	100%	DCR's Public Engagement Plan goals accomplished in FY 19 included: 1) Communication of Decision Criteria and Approach to Public Engagement through the lengthy public process concluding in June and described in "Goals of the 2018-2019 Update to the Ware River Watershed Public Access Management Plan(2019), 2) In-depth issue identification through the 2018 Stakeholder Issue Survey and in-person meetings with 12 key stakeholder groups (MWRA, ACOE, F&W, DCR Parks, NEMBA, SAM, Horseback riding, Sierra Club, WRWAC, AMC, PDs, Comet Pond Association); 3) Solution Analysis was accomplished through collection, organization and analysis of public input including GIS based analysis of trail input, internal management discussions, and ongoing updating of stakeholder groups at WRWAC meetings;
13	Implement Quabbin Park Cemetery Management Plan	WM	Completed plan	0%	Still in progress
14	Complete Quabbin Park Operation and Maintenance Plan	WM	Completed plan	0%	Still in progress
F. Watershed Security					
1	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.	WR	Daily patrols; daily logbooks and incident report	100%	Daily patrols; daily logs and incident report submitted. Weekly, monthly, and quarterly reports submitted.
2	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.	WR, WM	Inspection; repairs; installation	100%	All Watershed Rangers inspect, maintain, and monitor gates/locks, bar ways/locks, and signage while on daily patrols. Gate inventory application created to inventory location, type and condition of gates, ID pin type and lock set up, identify security issues and/or signage needs.
3	Coordinate security monitoring and related activities at high vulnerability locations with MWRA.	RD	Enhanced security	100%	Continued training and coordination.
G. Infrastructure					
1	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.	CE	Dam repair and maintenance; monthly reports filed and sent to MWRA Western Operations	100%	Beginning on November 30th, Civil staff initiated its Spillway Watch Program as flows began discharging from the lower spillway channel. The Spillway Watch Program continued for the remainder of the year and triggered Stage I response levels as downstream releases approached, but never exceeded 500 MGD. The effort and extent of the response level is based on reservoir elevations, downstream flooding potential, and elevated internal pore pressures on reservoir dam structures; as reservoir elevations increase, the Spillway Watch Program's components or level of effort may change accordingly. The Spillway Watch Program was suspended on July 12, 2019 as reservoir levels dipped below the lower spillway elevation 528.0'.
2	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. Coordinate inspections with consultants.	CE	Inspection reports	100%	In December 2017, conditions of Brigham Pond Dam in Hubbardston were downgraded to an UNSAFE Rating by the Office of Dam Safety. CE staff has maintained compliance monitoring and inspections on a 3-month basis since that time. During this period, compliance inspections were performed and reported to ODS during the months of September 2018, December 2018 and March 2019.
3	Provide oversight and technical support or assistance for engineering, construction, and renovation work in the Quabbin/Ware Region.	CE, WM	Ongoing project oversight	100%	FY20 efforts will look towards the securing of DCR House Doctor services to complete facility reconstruction planning and design efforts. Consultant will be charged with preparing a preliminary design for the master facility, submitting a DCAMM Study Report, and developig a final design.
4	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.	CE	Plans, records	100%	In FY19, a total of \$80,075 of Stewardship Grant funds were secured for survey work to help resolve property boundary line disputes, set new bound markers and prepare updated plans and records.
5	Conduct building maintenance activities, including painting, carpentry, cleaning, minor repairs, and other routine maintenance.	WM	Ongoing maintenance	100%	Continuation of maintenance projects ongoing through staff of carpentry shop
6	Conduct periodic inspections of drinking water sources and septic systems at the various Regional office buildings. Assure compliance with applicable state and federal regulations. Complete registration and development of new public water supply well to service the Stockroom Maintenance Complex.	CE	Meet MassDEP requirements; monthly and annual reports	100%	Tighe and Bond engineers were contracted to investigate water quality and elevated lead levels in the Administration Building water supply system. A Corrosion Control Study and Report was prepared and presented to MA DEP recommending a strategy to control lead by eliminating it at its source. Moreover, Tighe and Bond cautioned against conventional pH adjustment and inhibitor treatment citing high calcium levels, low water use and elevated chloride levels as the main deterrents to effective treatment. MA DEP responded on June 27, 2019 by issuing an Administrative Consent Order that would permit the continued use of the existing well supply if within 24 months: DCR is able to demonstrate compliance with its daily well withdrawal limit of 1,124 gallons per day; and submits a substantially complete WS34 permit application detailing chemical addition to maintain safe levels of lead in the water system. Alternatively, the DCR must submit a WS13 permit application proposing the installation of a new public water supply source that fully satisfies siting and construction requirements. The new source must be made fully operational by June 27, 2022.
7	Conduct periodic inspections, maintenance, or oversight of heating systems, fuel pump operations, and fuel deliveries.	CE, WM	Daily maintenance and operation during heating season; inspections	100%	Anderson Timber Harvesting of Westminster was awarded a multi-year contract for the supply of wood chips for the Quabbin wood boiler system. Energy Construction Services (ECS) of Auburn was awarded a multi-year contract for heating system repairs, training and maintenance of the Quabbin wood boiler system. In April, operation of the wood boiler system resumed and several new operators received formal training from the Messerliith company. Training was also attended by the State Boiler Inspector, engineering staff and ECS technicians. Scheduled preventive maintenance was performed thru contracted services for septic tank cleaning, fire extinguisher inspections, fire sprinkler testing, backflow prevention device testing, wood boiler and HVAC service.
8	Develop specifications, bid packages and contracts for facility and infrastructure projects scheduled for FY19.	CE	Specs, bid packages, contracts	100%	Scheduled preventive maintenance was performed thru contracted services for septic tank cleaning, fire extinguisher inspections, fire sprinkler testing, backflow prevention device testing, wood boiler and HVAC service.
9	Conduct maintenance and management activities in Quabbin Park, including roads, roadsides, parking areas, drainage structures, fields, vistas, snowplowing, and other management activities.	WM-B	Maintenance and management of Quabbin Park	100%	Major clean up efforts have been started after hazardous trees were removed. Extensive damage to the turf occurred when equipment was traveling in and around the entire cemetery. A total of 13 burials (most of which were full burials) were completed through July. All but one were surveyed by WM. 2 different lots were sold (measured and marked by WM, then drawn up by CE), assisted Reserves in the placement of a 400 gallon water buffalo, many family contacts to answer questions about plots, burials etc.
11	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.	WM-O, WM-NS	Miles graded, Miles mowed, Miles plowed, Gravel used (yards).	25%	A total of 5.7 +/- miles of roads were graded, including scraping, ditch work/improvements and re grading. Approximately 17.88 miles of roadside were cut.
12	Continue to investigate improved Emergency Spill Response access.	EQ	Realignment of Gate 16 road	0%	This project is on hold.
13	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.	EQ, WM	Gravel management strategy for DWSP lands.	100%	Developed draft gravel management plan outline, and started draft management plan for first location. Completed test pits at two future locations, completed field recon at several other locations, completed wetland delineations (JM), filed with NHESP. Monitored active pits; coordinated with town DPWs on extraction. Monitored crushing. Continued gravel project work with RD and WM.
14	Continue to work with the MWRA by providing support, on-site coordination, and input on planned facility upgrades to Shaft 12, CVA Intake, and other reservoir structures.	RD	Coordination and support.	0%	MWRA work on these projects has been suspended.
15	Investigate sedimentation on and around Hangar ramp.	EQ	Plan for ramp maintenance	0%	This project is on hold and will require coordination among DCR and MWRA.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
16	Complete site and utility work associated with construction of new Maintenance Building on Blue Meadow Road. Complete necessary design, contracting, and permit requirements to provide treatment of stormwater, upgrade of fueling tanks, and delivery of expanded fiber optic service.	CE	Specs, bid packages, contracts	100%	A Working Group has been established with the MWRA to spearhead the development of final design plans for a new Maintenance Building to replace its outdated and aging repair facility. The new facility is proposed to be built at the rear of the existing Stockroom Building on Blue Meadow Road, located about a ¼ mile drive away from the current location. Conceptual facility plans and site design has culminated into a Study document that was submitted to DCAMM for review and approval. Bidding for final design is anticipated to kick-off in November 2019.
H. Watershed Protection Act					
1	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.	EP	Application processing; decision issuance; field work; database management	100%	Received and processed 27 cases in Ware River Watershed. Received and processed 10 cases in the Quabbin Watershed. Completed mapping WsPA files in GIS.
2	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.	EP	Local notice review and interactions with contact persons in the watershed towns.	100%	Reviewed agendas and minutes for all the towns in both watersheds.
3	Convene WsPA Working Group meetings.	P	Regular meetings	100%	Working group met twice during FY 19.
4	Educate and interact with local boards and officials in the watersheds about watershed protection regulations. Ensure that local officials have an adequate supply of the current WsPA forms, brochures, guidance documents, and maps. Educate local officials, realtors, prospective buyers, land development consultants, and homeowners on WsPA-affected lands on the implications of the WsPA regulations and procedures for referring applicants to the DWSP.	P, EP	Education of local boards, homeowners, consultants, etc.	100%	Visited all towns in both watersheds and gave them updated maps and brochures.
5	Provide technical assistance support to local boards through contact, meetings, and/or through regulatory review process.	EP	Review of bylaws and regulations; meetings; local development project review.	0%	No activity
I. Education and Outreach					
1	Implement the Interpretive Services Plan for the Quabbin Watershed.	IS	Plan implementation or development	100%	Ongoing implementation of the existing Interpretive Services Plan. The Plan is being updated.
2	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.	IS	Visitor center operation; count of visitors	100%	The Quabbin Visitor Center was operated for 358 days for the year with 20,41 persons visiting the Center. During the fall foliage season staff operated the satellite Visitor Center at the Quabbin Lookout Tower on weekends. The staff answered 4,130 phone calls, updated the visitor informational messages as needed, responded to email correspondences and provided information to visitors. Orientation sessions were provided to groups on an as requested basis. The audio-visual equipment in Visitor Center was upgraded.
3	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	Curriculum; education materials and services	100%	Interpretive Services staff offered 112 educational programs for 4,129 students.
4	Collaborate with other organizations and watershed communities to reach more diverse audiences. Identify specific groups and their educational needs.	IS	Programs; public contacts	100%	Ongoing. Staff attended monthly Board of Directors meetings for the Friends of Quabbin and the Swift River Valley Historical Society. Participated in the monthly meetings of the DCR Bureau of Interpretive Services to coordinate educational programs within the DCR. Administrative support was provided for the quarterly meetings of the Quabbin and the Ware River Watershed Advisory Committees.
5	Develop watershed exhibits and portable displays for use in talks and presentations, both in the Quabbin Visitor Center and in watershed communities.	IS	Exhibits and displays	100%	Ongoing development and updating of displays in the Quabbin Visitor Center.
6	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.	IS	Walkway improvement; signage; brochures	100%	Continual assessment of the Quabbin Park trail system with work requests to watershed maintenance staff on needed work. Developed Work Plan for 2019 Student Conservation Association work crew trail project. Updates made to brochures for self-guided walks.
7	Improve the educational signage regarding drinking water protection in the Quabbin Visitor Center and in Quabbin Park.	IS	New signs	100%	Ongoing signage program to protect drinking water and natural resources, and to ensure public safety.
8	Contribute information related to all aspects of watershed protection program to DWSP website.	P	Website updates	100%	Ongoing. Interpretive Services staff work with agency personnel to post information on the website in a timely and accurate manner.
9	Continue to support and participate in the Envirothon, America's leading natural resource education program for high school students.	IS	Participation	100%	Ongoing participation with the Envirothon Committee through regular meetings and special workshops and trainings. Staff chaired the event site committee and coordinated logistics for successful MA Envirothon Competition at Sholan Farms on 5/17.
10	Publish bi-annual Downstream newsletter.	NR	Newsletter	0%	Newsletter suspended; investigating other ways to communicate with the public.
J. Water Quality and Hydrologic Monitoring					
1	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.	EQ	Field reports; annual inspection	100%	Reviewed and monitored MassDOT projects for environmental and WsPA compliance (Evergreen Road bridge, Hubbardston; Route 62, Hubbardston; Moulton Pond bridge, Rutland); reviewed and monitored development projects (Britnal Estates and solar project in Hubbardston), attended meetings and site visits, provided technical assistance to conservation commissions, provided oversight and permitting support for New Salem office site.
2	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.	EQ	Weekly bacterial triggers; database updates; annual reports; annual sample collection plans.	90%	EQ staff conducted routine biweekly water quality monitoring of Quabbin Reservoir watershed (Reservoir and tributaries) and Ware River tributaries. Few instances of water quality trigger level exceedences in 2019. EQ staff developed a semi-quantitative approach based on historic and seasonal trends to inform resample efforts following elevated E. Coli in routine monitoring samples. A draft of the 2018 Water Quality Report was submitted 5/31/2019. Miscellaneous minor edits are forthcoming.
3	Perform Shaft 8 Intake Zone Inspections prior to MWRA diversions.	EQ	Inspections	100%	No diversions this year.
4	Monitor plankton in Quabbin Reservoir and selected tributaries.	EQ	Data collection; periodic reports	100%	Plankton monitoring has been completed for fiscal year. Monitoring will be ongoing.
5	Collect, interpret, and manage data on reservoir elevations, water transfers and releases. Share data with DWSP staff and MWRA.	CE	Data collection and yield reports	100%	On July 1, 2018, the reservoir was at elevation 527.02 ft and the available volume of water in storage was at 389,252 million gallons (94.4%). By October 11th the reservoir had rose to elevation 528.0 ft and began spilling over the lower spillway. On November 30th the reservoir reached full capacity (El. 530.0') and began spilling over the entire length of the spillway. This marked the first time that the reservoir had spilled over the 530 mark since 2012. Reservoir levels would reach their peak at elevation 530.79 feet (101.6% Capacity) on April 28, 2019. The reservoir elevation at the end of this period, June 30, 2019 dropped to 528.74 ft and the quantity of water in storage was at 402,398 MG (97.6%). Reservoir levels responded sharply to the heavy rainfall events occurring in late October, early November, January and again in late April. Heavy rains also forced changes to daily reservoir transfers to Wachusett Reservoir as flows ceased after October 28th due to flooding concerns. During the month of November alone reservoir levels rose by nearly two feet (1.90'). Beginning in January and occurring sporadically until the end of May, reservoir transfers to Wachusett Reservoir would resume occurring over the course of 43 days as efforts were made to relieve reservoir high water conditions. Conditions would return to normal with daily transfers to Wachusett Reservoir resuming on June 1st. In total, 15.05 billion gallons of water was transferred to Wachusett Reservoir intermittently over this period of continuous spillway discharge. Precipitation during the months of November and October totaled 7.90 and 4.29 inches respectively. The 2018 annual precipitation total of 60.50 inches ranks 4th wettest in the eighty years of recordkeeping at the Belchertown station. Heavy rains continued into 2019 as 24-hr storm events exceeding 2.0 inches or rainfall occurred on April 26th (2.41") and January 25th (2.21"). Rainfall for the month of April alone totaled 8.10 inches. Reservoir spillway flows peaked at 929 MGD on April 29, 2019. High flows contributed to localized, downstream flooding as levels inside of the Swift River rose sharply topping its banks and impacting homes built on the river. Peak spillway flow ranked 4th highest in the 29 years that Quabbin Reservoir has spilled in its history. Discharge over the lower spillway would eventually cease on July 15, 2019, ending a span of 261 consecutive days of discharge. Between this period a little more than 58 billion gallons of water spilled over the reservoir. This milestone set a new high for consecutive days of spilling (previous mark set at 217 days between October 2005 to May 2006). Peak spillway discharges occurred on April 28th as flow reached 929 MGD. Total reservoir releases downstream to the Swift River reached 1,000 MGD on this day. The annual precipitation measured at the Belchertown weather station over the past 79 years has averaged 46.13 inches. Four of the five wettest years have occurred since 1996.
6	Conduct short-term water sampling of forest harvesting operations on DWSP lands.	EQ	Inspections, sample collections	100%	Reviewed quarterly lots showings, collected baseline samples 3 times at FL 1056, Petersham. Reviewed and commented on FY20 lot proposals; WR-20-40-3, PE-20-2, and PR-20-09 will likely need short-term water quality monitoring.
7	Investigate re-establishing wind monitoring station.	EQ	Wind database	0%	This effort should be coordinated with CE real-time monitoring station for Winsor intake.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
8	Continue improvements to database app for compiling of water quality, quantity, and other relevant data for data and trend analyses.	EQ	Water quality database	100%	Progress has been made in the development of database and data-management practices throughout the year. Workflows for routine data collection are well integrated into the new data management system. In addition to developing new elements of the database, EQ staff across watersheds are working to enhancing and formalizing QA/QC processes for incoming data. At Quabbin, we are developing tools to assess data completeness and identify data outliers before data import. The creation of the 2018 water quality report was greatly enhanced by new data management systems, but additional areas of work were identified to ensure completeness and clarity in records. We continue to build collaborative use of data-management innovations. Alterations to existing R-scripts have allowed for data sharing across EQ and CE teams, which will continue to be an area of collaboration. NR and EQ continue to maintain database related to long-term forestry monitoring. New databases are also being developed to monitor water sampling at Quabbin Facilities, which will help build diagnostic efficiency.
9	Implement streamflow monitoring at selected sites. Coordinate flow monitoring with annual water quality sampling plan.	EQ	Streamflow database	100%	Streamflow monitoring work was primarily focused on streamflow measurements at long-term forestry sites, where progress was made on verifying existing discharge equations. Stream-gauging pilot site is ongoing, where the purchase of a high-accuracy FlowTracker2 flow meter is allowing for a more accurate method for rating-curve development. Scouting for additional gauges has been completed, with 1-2 core Quabbin tributary sampling locations being targeted for gauge development within the year. Quabbin and Wachusett staff are collaborating to develop standardized systems for managing flow data and rating curve development.
10	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.	EQ	Annual report summarizing data and activities	100%	Water quality and flow were monitored during 3 storms this FY. Stream flow data were downloaded periodically. Weir equations and functionality were verified using routine and storm flow monitoring data. A flow chart was developed to streamline the decision making process regarding storm sampling. We added 4 automatic samplers to the project for FY '20 monitoring.
K. Watershed Monitoring and Assessment					
2	Prioritize recommendations in completed EQAs as necessary and complete short- and long-term remedial actions.	RD, EQ	Quarterly reporting	100%	Recommendations from FY18 EQA completed in QRW, pending in WRW. Provided input on new EQA template. New format for FY20 using Wachusett template. Began field work and data gathering for FY20 EQAs.
3	Update and assess land use/land cover statistics for watershed, sanitary districts, and sub-districts when new GIS coverages are available.	QGIS	Updated coverages and analyses	0%	Still waiting for statewide update.
4	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.	EQ	Regulation enforcement	100%	Awaiting decision on Lot 1 Pomogussett Rd. Reviewing access through covered bridge site over West Branch Ware River. Inspected several sites in QRW with reported possible violations.
5	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.	EQ	Routine inspection summaries; database entries	100%	Survey conducted on a biweekly basis. Wildlife issues reported to NR staff. A new iPad survey was developed to streamline reporting and make data management more efficient.
6	Coordinate with other agencies to exchange information and review projects in watershed.	EQ	Project reviews and written comments	100%	Reviewed MEPA Environmental Monitor. Reviewed Moulton Pond dam and bridge replacement plans.
7	Monitor MassDEP databases regularly for new c.21E information.	EQ	Hazardous waste database; EQA inspections and reports.	100%	21e database monitored regularly. Discussed with DEP and reviewed reports of large spill (from logging operations) on F+W property abutting DWSP property; contamination migration onto DWSP property unlikely.
8	Review periodic reports on closed landfills in the watersheds. Coordinate with town and/or MassDEP to review monitoring reports.	EQ	Reports	100%	No landfill reports for review this year.
9	Review and comment on Yearly Operational Plans related to herbicide use. Monitor and inspect no-spray and limited spray zones along rights-of-way.	EQ	Letter to DFA; brief field reports	100%	Coordinated ROW work with National Grid and contractors. Reviewed National Grid 2019 YOP - all areas are off watershed. Reviewed 2019 Providence and Worcester Railroad YOP. Comment Letter to DAR was completed and sent on 5/23/19.
10	Work with loggers and utility rights-of-way contractors to reduce the risk of introducing invasive species into the watersheds.	EQ, F	Meetings with contractors; DCR permit language to prevent invasives	100%	All logging equipment was cleaned and inspected to reduce risk of introducing invasive species before each logging project started.
11	Monitor utility maintenance, repair, or replacement projects on DCR lands for water quality problems.	EQ	Meetings with contractors; permits; SOPs	100%	Issued access permits to National Grid and contractors, coordinated access and inspection/repair work.
12	Continue to identify, map, and monitor locations of agricultural operations that could impact water quality through the EQA process.	EQ	Maps, reports	100%	Windshield surveys were conducted. No change in agricultural operations. Survey of agricultural operations included as part of EQA.
L. Aquatic Invasive Species					
1	Continue program to monitor AIS in tributaries and other water bodies. Review and update the AIS monitoring and AIS emergency action plan.	EQ	Reports;	100%	Monitoring for AIS is completed for fiscal year and will be ongoing throughout the rest of the growing season.
2	Conduct public education about AIS.	EQ	Education	100%	Public education was conducted on several occasions during the last fiscal year.
3	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.	EQ	Boat Seal tracking, inspections, decontamination, public education.	100%	Workflow has been established to manage boater records, with tag in/tag out data being processed and organized in the database using R-scripts. Boat card 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 BLA's had 8,410 seals placed on private boats for the year. Each landing used the following number of seals: BLA 1 - 2070; BLS 2 - 2764; and BLA 3 - 3576. Boat inspections are ongoing. CWQ will begin in October of 2019.
4	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.	EQ	Monitoring program; training	100%	We have assisted with detection of AIS and planning of control measures in several water bodies in watershed and have worked closely with DCR Lakes & Ponds Program on some projects. Detection and monitoring will be ongoing.
5	Update Quabbin/Ware Region's AIS Management Plan.	EQ	Updated Plan	100%	Plan has been updated and first draft submitted. Plan will be finalized in upcoming months.
M. Wastewater Management					
1	Identify potential problem sites or areas through review of local records, water quality data, and other pertinent information.	EQ	EQ file reports	100%	Conservation Commission Agendas in Ware River Watershed are reviewed regularly. No new problem sites identified.
N. Stormwater Management					
1	Advise local boards on stormwater management issues related to construction activities.	EQ	Advice as needed.	100%	Reviewed and monitored stormwater issues for 2 solar projects, house upgrade, Brice-Lemon, Britnal Estates. No issues identified in QRW.
2	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.	CE, WM	Updated database records and photos		Civil staff worked collaboratively with staff from GIS, Watershed Management and the Assistant Regional Director to convert the 2008 Stream Crossing and Culvert Inventory into Arc GIS format. The culvert inventory format was streamlined and adapted to utilize an ArcGIS Collector "App" for data collection, mapping and reporting purposes. Meetings held with other groups have been held to encourage the use of the app for tracking maintenance activities, beaver monitoring and bridge/culvert inspections. Civil staff began efforts to update the database of records by mapping and inventorying structures on the Rail Trail in the Ware River.
O. Emergency Response					
1	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.	EQ, WR	Emergency Response Materials; Contact Lists	100%	2018 Standard Operating Procedures (SOP) for Severe Weather Events was reviewed by Supervisors, but not modified. Emergency Contact Forms were updated by staff for Managers in August 2018. Supervisors worked to have all staff update SSTA Emergency Contact information as well.
2	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.	EQ, WR	Updated SOPs; equipment procurement, including storage unit to replace Gate 16 shack.	100%	Updated SOP for Spill Response at BLAs. WR inventoried, inspected, and requested ER trailer materials and maintenance quarterly. BLA staff inspected spill response supplies monthly. Draft SOP for EQ spill assessment and reporting is being reviewed.
3	In conjunction with MWRA, coordinate spill response and/or Incident Command System (ICS) training to staff.	EQ, WR	Training of staff	100%	FY19 Spill Response Training conducted included: Terrestrial Spill Response; River/Small Water Body Spill Response Operations; Night Emergency Response Operations; and Fishing are-specific Spill/Boom/Boat Operations at Quabbin and Winter emergency Response Operations Planning with both Quabbin and Wachusett.
4	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.	RD, EQ, WR	Incident notification; emergency response; incident reports	100%	Assessment (including monitoring well install) completed. LRA excavation and offsite hauling completed. Site cleanup done by LRA deadline, and monitoring well data was non-detect; thus no RTN. Only thing remaining is to remove erosion controls after site ok'd by concom. Currently waiting for response from concom.
5	Develop and implement spill response plans for all timber harvesting operations on DWSP lands.	F	Spill Response Plans, updated spill response notification cards		17 spill response plans were developed.
6	Develop comprehensive Emergency Response Program to include natural disasters, accidents, and intentional events.	TBD	EAPs	100%	DCR Managers participated in DCR Climate Change Actions Working Group training in January 2019 as part of DCR response to Executive Order 569 in order to begin Climate Change Preparedness Plan development.
P. Support					
1	Operate administrative offices, including answering phones, greeting visitors, etc.	AS	Main office operation	100%	Operations ran smoothly.
2	Manage payroll through SSTA and HR/CMS.	AS	Payroll reports; Support	100%	Effectively managed.

Task #	Task Description	Lead Group	Product	Percent of Task Completed	Final Report Comments
3	Provide contract administration, financial management, record-keeping, purchasing of goods and services, and other financial support services.	FN	Accounting and financial services	100%	Contract administration, financial management, record-keeping, purchasing of goods and services, and other financial support services are all continuous activities. In fiscal year 2019 processed 417 encumbrances for the purchase of goods and services and 1015 invoices for payment. 5 Year completed and submitted to MWRA. Quarterly budget review meetings were conducted by BM and Managers in preparation for Divisional discussions.
4	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.	QGIS	Support and troubleshooting services; IT Plan	100%	New computers purchased and installed this FY; continued purchasing iPads for field staff; purchased software licenses including Smartsheet and Dropbox.
5	Provide personnel services and assistance for all Quabbin/Ware Region employees.	AS	Support	100%	Assistance provided.
6	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.	RD	Completed plans, budgets and reports	100%	Quarterly budget reports, including: Budget versus Actual, Encumbrance Status, and Project Summary reports were prepared for each quarter of FY2019. The budget was regularly monitored by the Accountant III and quarterly meetings were held with the Regional Director and Assistant Regional Director to evaluate spending patterns and purchase needs, and the line item budget adjusted accordingly.
7	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.	QGIS	Maps; datalayer updates; other services	100%	AGOL application completed for BLA boat seal program. Other GIS support provided including maps and data analysis.
8	Update digital information, including all new DWSP land purchases, WsPA maps and parcels, and provide analyses for use in DWSP reports and publications.	GIS	Updated maps for all Quabbin communities	100%	Information updated.
9	Plan and implement vehicle and heavy equipment purchases.	ARD	Vehicle purchases; up-to-date records		FY19 vehicle acquisition completed by January 2019. FY 20 vehicle assessment and purchased plan completed by April 2019; FY20 orders were submitted to OVM for final specification for RFR.
10	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).	WM-M	Maintenance and repair of vehicles and equipment, updated records	100%	Fleet maintained.
11	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.	IS	Record management	100%	Ongoing. Staff assisted visitors conducting genealogical research by providing access to Vital Records and Burial Information at the Quabbin Park Cemetery. Coordinated with Cemetery Foreman and Engineering staff to access and make copies of documents. Managed audio-visual collection and fulfilled requests for images by division and agency staff, MassWildlife staff and the general public.
12	Administer the Payment in Lieu of Taxes (PILOT) program	P	Payments to watershed communities	100%	Completed distribution of PILOT to watershed communities. Received FY2020 valuations from MA Department of Revenue. Valuations are now based on DOR's EOY process due to new requirements in the MA Municipal Modernization Act. Confirmed valuation figures, including addition of land acquisitions made in fee over the past two years. Estimated PILOT for FY2020 remains at \$8.5 million, as stated in the FY2020 Work Plan. Met with DOR officials to discuss how Watershed PILOT information is posted on both DOR and DCR websites.
13	Assemble a working group to develop a scope that defines a vulnerability assessment for the watershed system and develop timeline for completion.	D	Scope of work and timeline	0%	No activity.

**Watershed Ranger Activity, Wachusett/Sudbury Region
FY2019**

Visitor Contacts: 18,797

Violations: 493

313 CMR 11.09	CMR	# of Violations	Written Warning	Citation
Wachusett				
2a1	Entrance/Exit only through gates or designated areas.	2	0	0
2a2	Allowed on Watershed land 1 hour before sunrise to 1 hour after sunset	4	0	1
2a3	No powered boats except in designated areas.	1	0	0
2a4	No acts which may pollute the water system. No litter thrown or left. Must use sanitary facility.	9	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.	0	0	0
2a6	No cooking or fires.	4	0	2
2a7	No wading or swimming in reservoir except wading while using boots to launch boats in designated areas.	99	0	14
2a8	No wading or swimming in Tributary or Surface Waters, except in designated areas.	4	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	5	0	1
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.	21	1	7
2a13	No animals, except for horses and dogs at Ware River designated areas.	108	1	1
2a14	Bicycles, skis and other non motorized transportation permitted in designated areas only.	32	0	0
2a15	No landing aircraft or causing to descend except in an emergency.	0	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.	1	0	0
2a20	No commercial signs or advertising.	0	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.	55	0	2
2a24	Any part of the watershed lands may be closed for the public access at any time by the commissioner.	90	2	10
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.	31	2	0
2d2	Boating is prohibited in Wachusett Reservoir.	0	0	0
2d3	Fishing from the shoreline of the Reservoir shall be allowed only during a season designated by the Commission or its designee.	23	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.	4	0	0
2e2	Boating is prohibited on Sudbury Reservoir.	0	0	0
Total Violations		493	6	38

**Watershed Ranger Activity, Quabbin/Ware Region
FY2019**

Visitor Contacts: 25,986

Violations: **480**

313 CMR 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	0	0	0	0	0	0
2a1	Entrance/Exit only through gates or designated areas.	2	0	2	0	0	0
2a2	Allowed on Watershed land 1 hour before sunrise to 1 hour after sunset	0	0	0	0	0	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	1	0	0	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.	1	2	0	0	0	0
2a6	No cooking or fires.	7	2	0	0	0	0
2a7	No wading or swimming in reservoir except wading while using boots to launch boats in designated boat launch areas.	34	0	2	0	0	0
2a8	No wading or swimming in Tributary or Surface Waters, except in designated areas.	0	46	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	5	8	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.	18	3	1	2	4	2
2a13	No animals, except for horses and dogs at Ware River designated areas.	95	0	2	0	0	0
2a14	Bicycles, skis and other non-motorized transportation permitted in designated areas only.	7	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.	1	1	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	0
2a19	No engaging in business, sale or display of goods or wares without written permit.	0	0	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	1	0	0	0	0
2a22	No hunting, shooting, or trapping animals except at designated times and areas.	0	0	0	0	0	0

313 CMR 11.09	CMR	# of Violations		Written Warning		Citation	
		Q	WR	Q	WR	Q	WR
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.	173	0	0	0	1	0
2a24	Any part of the watershed lands may be closed for the public access at any time to protect the lands and waters.	1	0	0	0	0	0
2a25	The possession of all types of metal detectors or similar devices is prohibited on all of the Watershed System property.	0	1	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.	19	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 its 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 personal 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.	4	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.	2	0	0	0	0	0
2b6	Boats shall not leave the mooring areas before dawn and must at the time	17	0	0	0	0	0

313 CMR 11.09	CMR	# of Violations		Written Warning		Citation	
		Q	WR	Q	WR	Q	WR
	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.						
350 CMR 8.08(3)	No hunting within direct view of the Quabbin shoreline.	2	0	0	0	0	0
310 CMR 12.04(28)e	Special Use Permit	5	0	0	0	0	0
Total Violations		397	67	7	2	5	2

FY2019 Final Expenditures

**DCR Division of Water Supply Protection
Office of Watershed Management
FY2019 Expenditures**

Object Class	Object	Object Name	FY2019 Total Expenditures	FY2019 Budget	Expended vs Budget Variance
AA	A01	Salaries: Inclusive	\$9,362,438.99	\$10,133,000.00	(\$770,561.01)
	A06		\$0.00		\$0.00
	A07	Shift Differential Pay	\$21,914.47	\$23,000.00	(\$1,085.53)
	A08	Overtime Pay	\$235,181.80	\$260,000.00	(\$24,818.20)
	A10	Holiday Pay	\$35,292.76	\$30,000.00	\$5,292.76
	A11	Salaries-Supplemental	\$500.00		\$500.00
	A12	Sick-Leave Buy Back	\$25,217.73	\$35,000.00	(\$9,782.27)
	A13	Vacation-In-Lieu	\$48,462.12	\$50,000.00	(\$1,537.88)
	A14	Stipends, Bonus Pay and Awards	\$538.69		\$538.69
	AA1	Salaries: Supplemental	\$18,087.15	\$20,000.00	(\$1,912.85)
AA Total			\$9,747,633.71	\$10,551,000.00	(\$803,366.29)
BB	B01	Other Out Of State Travel - INCLUSIVE: AIRFARE, HOTEL, LODGI	\$10,402.27	\$3,000.00	\$7,402.27
	B02	In-State Travel	\$2,185.14	\$2,500.00	(\$314.86)
	B03	Overtime Meals	\$0.00	\$0.00	\$0.00
	B05	Conference, Training, Registration and Membership Dues and L	\$3,768.63	\$5,000.00	(\$1,231.37)
	B10	Exigent Job Related Expenses	\$0.00	\$100.00	(\$100.00)
	B11	Employer Refund of Non-Tax Benefits	\$7.98	\$50.00	(\$42.02)
	B91	Employee Reimbursement Accounts Payable	\$2.02	\$500.00	(\$497.98)
	BB Total			\$16,366.04	\$11,150.00
CC	C04	Contracted Seasonal Employees	\$43,505.75	\$60,000.00	(\$16,494.25)
CC Total			\$43,505.75	\$60,000.00	(\$16,494.25)
DD	D09	Non-Fringe Benefit Cost Recoupment (payroll tax)		\$186,741.00	(\$186,741.00)
	D09	Fringe Benefits Costs Recoupment	\$3,449,898.28	\$3,668,228.00	(\$218,329.72)
	D15	Workers' Compensation Chargebacks	\$100,000.00	\$100,000.00	\$0.00
	D21	Health Ins Costs of Employ/Leave in Excess of 1 Yr Chgback	\$0.00	\$10,000.00	(\$10,000.00)
DD Total			\$3,549,898.28	\$3,964,969.00	(\$415,070.72)
EE	E01	Office & Administrative Supplies	\$7,697.83	\$8,600.00	(\$902.17)
	E02	Printing Expenses & Supplies	\$7,515.28	\$12,000.00	(\$4,484.72)
	E04	Central Reprographics Chargeback	\$0.00	\$1,000.00	(\$1,000.00)
	E06	Postage	\$5,669.21	\$7,000.00	(\$1,330.79)
	E12	Subscriptions, Memberships & Licensing Fees	\$277.00	\$1,500.00	(\$1,223.00)
	E13	Advertising Expenses	\$3,049.28	\$0.00	\$3,049.28
	E14	Exhibits/Displays	\$1,546.26	\$2,000.00	(\$453.74)
	E15	Water Treatment - Office Water	\$1,284.60	\$1,000.00	\$284.60
	E19	Fees, Fines, Licenses, Permits & Chargebacks	\$27,929.08	\$32,200.00	(\$4,270.92)
	E20	Motor Vehicle Chargeback	\$31,190.18	\$34,000.00	(\$2,809.82)
	E22	Temp Use Space/Confer-Incidental Includes Reservation Fees	\$0.00	\$0.00	\$0.00
	E30	Credit card Purchases	\$372.00	\$0.00	\$372.00
	E53	S&J: Non-reportable to claimant, sole payee	\$10,000.00	\$10,000.00	\$0.00
	EE2	Conference, Training and Registration Fees	\$1,315.00	\$2,000.00	(\$685.00)
	EE Total			\$97,845.72	\$111,300.00
FF	F01	Food, Beverages & Preservation	\$0.00	\$0.00	\$0.00
	F03	Laundry and Cleaning Supplies	\$95.92	\$0.00	\$95.92
	F05	Laboratory Supplies	\$3,946.27	\$2,056.00	\$1,890.27
	F06	Medical & Surgical Supplies	\$5,264.24	\$2,179.00	\$3,085.24
	F09	Clothing & Footwear	\$27,746.55	\$26,440.00	\$1,306.55
	F10	Facility Furnshings	\$428.76	\$0.00	\$428.76
	F11	Laundry & Cleaning Supplies	\$13,518.25	\$9,038.00	\$4,480.25
	F13	Live Animals & Related Supplies	\$2,907.19	\$1,000.00	\$1,907.19
	F16	Library and Teaching Supplies and Materials	\$1,770.83	\$200.00	\$1,570.83
	F18	Recreation, Religious & Social Supplies & Materials	\$16,221.96	\$14,394.00	\$1,827.96
	F19	Manufacturing Supply & Materials & Raw Materials	\$3,900.99	\$0.00	\$3,900.99
	F21	Navigational & Nautical Supplies	\$17,635.61	\$12,800.00	\$4,835.61
	F24	Motor Vehicle Maintenance and Repair Parts	\$83,441.89	\$139,893.00	(\$56,451.11)
	F27	Law Enforcement & Security Supplies	\$1,807.13	\$3,000.00	(\$1,192.87)
FF Total			\$178,685.59	\$211,000.00	(\$32,314.41)
GG	G03	Electricity	\$29,281.51	\$30,000.00	(\$718.49)
	G05	Fuel For Vehicles	\$152,273.81	\$140,000.00	\$12,273.81
	G06	Fuel For Buildings	\$124,584.64	\$115,000.00	\$9,584.64
	G08	Sewage Disposal & Water	\$3,549.48	\$6,000.00	(\$2,450.52)
	G11	Natural Gas	\$514.23	\$500.00	\$14.23
	GG1	Natural Gas Supply	\$0.00	\$0.00	\$0.00
GG Total			\$310,203.67	\$291,500.00	\$18,703.67
HH	H09	Attorneys/Legal Services	\$5,500.00	\$6,000.00	(\$500.00)
	HH1	Financial Services	\$37,923.75	\$45,000.00	(\$7,076.25)
	HH2	Engineering, Research and Scientific Services	\$150,231.46	\$175,000.00	(\$24,768.54)
	HH4	Health and Safety Services	\$14,058.10	\$5,000.00	\$9,058.10
HH Total			\$207,713.31	\$231,000.00	(\$23,286.69)
JJ	JJ2	Auxiliary Services	\$1,889.60	\$1,000.00	\$889.60
	J27	Laundry Services	\$13,761.48	\$19,000.00	(\$5,238.52)
	J33	Photographic & Micrographic Services	\$0.00	\$0.00	\$0.00
	J44	Surveyors	\$0.00	\$4,000.00	(\$4,000.00)
	J50	Instructors/Lecturers/Trainers	\$0.00	\$4,000.00	(\$4,000.00)
	JJ1	Legal Support Services	\$8,965.00	\$22,000.00	(\$13,035.00)
JJ Total			\$24,616.08	\$50,000.00	(\$25,383.92)

**DCR Division of Water Supply Protection
Office of Watershed Management
FY2019 Expenditures**

Object Class	Object	Object Name	FY2019 Total Expenditures	FY2019 Budget	Expended vs Budget Variance	
KK	K02	Educational Equipment	\$0.00	\$3,000.00	(\$3,000.00)	
	K03	Programmatic Facility Equipment	\$115,171.93	\$60,000.00	\$55,171.93	
	K04	Motorized Vehicle Equipment	\$85,754.70	\$438,000.00	(\$352,245.30)	
	K05	Office Equipment	\$68.05	\$5,000.00	(\$4,931.95)	
	K06	Printing, Photocopying, and Micrographics Equipment	\$0.00	\$0.00	\$0.00	
	K07	Office Furnishings	\$21,123.30	\$3,000.00	\$18,123.30	
	K10	Law Enforcement & Security Equipment	\$18,949.67	\$4,000.00	\$14,949.67	
	K11	Heavy Equipment	\$185,086.00	\$30,000.00	\$155,086.00	
	K12	Television Broadcasting Equipment	\$2,832.20	\$0.00	\$2,832.20	
	KK Total			\$428,985.85	\$543,000.00	(\$114,014.15)
	LL	L11	Heavy Equipment Lease-Purchase	\$29,292.48	\$30,000.00	(\$707.52)
		L23	Programmatic Facility Equipment Rental or Lease	\$61,165.14	\$66,000.00	(\$4,834.86)
L24		Motorized Vehicle Equip. Rental or Lease	\$139.13	\$0.00	\$139.13	
L25		Office Equipment Rental or Lease	\$2,343.18	\$2,500.00	(\$156.82)	
L26		Printing/Photocopy & Micrographics Equip Rent/Lease	\$18,412.96	\$15,000.00	\$3,412.96	
L31		Heavy Equipment Rental or Lease	\$0.00	\$2,000.00	(\$2,000.00)	
L42		Educational Equipment Maintenance & Repair	\$0.00	\$2,000.00	(\$2,000.00)	
L44		Motorized Vehicle Equipment Maintenance & Repair	\$40,567.60	\$15,000.00	\$25,567.60	
L45		Office Equipment Maintenance & Repair	\$455.00	\$1,000.00	(\$545.00)	
L46		Print, Photocopying & Micrograph Equipment Maint/Repair	\$4,899.55	\$3,000.00	\$1,899.55	
L50		Law Enforcement/Security Equipment Maintenance/Repair	\$0.00	\$0.00	\$0.00	
L51		Heavy Equipment Maintenance/Repair	\$24,956.45	\$22,000.00	\$2,956.45	
L63		Programmatic Equipment Maintenance & Repair	\$2,901.73	\$8,000.00	(\$5,098.27)	
LL Total			\$185,133.22	\$166,500.00	\$18,633.22	
NN	N15	Building/Vertical Structure Construction	\$122,961.92	\$0.00	\$122,961.92	
	N16	Major Const/Renovation Bldg & Land Improvements	\$94,582.34	\$130,000.00	(\$35,417.66)	
	N17	Major Building Maintenance and Land Improvements	\$20,767.57	\$80,000.00	(\$59,232.43)	
	N19	Land Acquisition and Eminent Domain	\$4,305.90	\$0.00	\$4,305.90	
	N21	Highway Horizontal/Lateral Constssruction	\$32,727.52	\$0.00	\$32,727.52	
	N22	Highway Horizontal/Lateral Maintenance & Improvements	\$81,069.17	\$70,000.00	\$11,069.17	
	N23	Highway Maintenance Materials	\$25,460.12	\$30,000.00	(\$4,539.88)	
	N41	State Park & Recreation Facilities Construction	\$1,150.00	\$74,000.00	(\$72,850.00)	
	N50	Non-Major Facility Infrastructure Maintenance and Repair	\$58,798.32	\$65,000.00	(\$6,201.68)	
	N52	Facility Infrastructure Maintenance & Repair Tools & Supplie	\$136,468.76	\$110,000.00	\$26,468.76	
	N60	Lawn & Grounds Equipment Maint & Repair	\$15,768.03	\$6,000.00	\$9,768.03	
	N61	Lawn and Grounds Equipment	\$196,133.91	\$79,001.00	\$117,132.91	
	N63	Rental or Lease of Facility	\$1,796.85	\$0.00	\$1,796.85	
	N64	Garden Expenses, Tools and Supplies	\$53,438.91	\$25,000.00	\$28,438.91	
	N71	Exterminators/Integrated Pest Management	\$2,183.18	\$4,000.00	(\$1,816.82)	
	N72	Hazardous Waste Removal Services	\$71,509.25	\$68,000.00	\$3,509.25	
	N73	Non-Hazardous Waste Removal Services	\$34,818.36	\$25,000.00	\$9,818.36	
	N74	Snow Removal and Groundskeeping Services	\$17,393.04	\$0.00	\$17,393.04	
	N98	Reimbursement for Travel/Other Expense Infrs Projects	\$0.00	\$0.00	\$0.00	
	NN1	Engineering, Research and Scientific Services	\$91,819.21	\$10,000.00	\$81,819.21	
NN Total			\$1,063,152.36	\$776,001.00	\$287,151.36	
TT	T04	Payments and Refunds	\$129,260.00	\$130,000.00	(\$740.00)	
TT Total			\$129,260.00	\$130,000.00	(\$740.00)	
UU	U01	Telecommunications Services Data	\$0.00	\$8,000.00	(\$8,000.00)	
	U02	Telecommunications Services - Voice	\$58,002.92	\$68,000.00	(\$9,997.08)	
	U03	Software & Information Technology Licenses (IT)	\$372.00	\$10,000.00	(\$9,628.00)	
	U04	Information Technology (IT) Chargeback	\$158,518.70	\$8,000.00	\$150,518.70	
	U05	Information Technology (IT) Professionals	\$0.00	\$4,000.00	(\$4,000.00)	
	U06	Information Technology (IT) Cabling	\$0.00	\$0.00	\$0.00	
	U07	Information Technology (IT) Equipment	\$22,675.09	\$123,000.00	(\$100,324.91)	
	U09	Information Technology (IT) Equip Rental Or Lease	\$0.00	\$0.00	\$0.00	
	U10	Information Tech (IT) Equipment Maintenance & Repair	\$21,940.31	\$3,000.00	\$18,940.31	
	UU Total			\$261,509.02	\$224,000.00	\$37,509.02
Grand Total			\$16,244,508.60	\$17,321,420.00	(\$1,076,911.40)	

FY2019 Final Revenue

DCR Division of Water Supply Protection
Office of Watershed Management
FY2019 Revenue Summary

Revenue Budget	Description	AP 1	AP 2	AP 3	AP 4	AP 5	AP 6	Total Collected Revenue Period 1-6
2010/0300/WMP1/DCR/0500	INTERMENT FEES	\$1,432	\$1,848	\$430	\$0	\$650	\$0	\$4,360
2010/0300/WMP1/DCR/3148	FISH & BOATING/DEER HUNT	\$36,525	\$24,306	\$19,799	\$10,538	\$0	\$0	\$91,168
2010/0300/WMP1/DCR/4000	RENTS	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2010/0300/WMP1/DCR/4500	FORESTRY SALES	\$300	\$114,187	\$23,960	\$16,551	\$36,560	\$65,704	\$257,262
2010/0300/WMP1/DCR/6900	MISCELLANEOUS	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2010/0300/WMP1/DCR/6901	PRIOR YEAR REFUNDS/ REIMBURSEMENTS	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2010/0300/WMP1/DCR/6995	HYDROPOWER/TR LINES	\$71,223	\$72,780	\$92,409	\$107,987	\$39,648	\$3,086	\$387,133
TOTALS		\$109,480	\$213,121	\$136,598	\$135,076	\$76,858	\$68,790	\$739,922

Revenue Budget	Description	AP 7	AP 8	AP 9	AP 10	AP 11	AP 12	Total Collected All Revenue Periods
2010/0300/WMP1/DCR/0500	INTERMENT FEES	\$0	\$430	\$400	\$575	\$2,005	\$1,972	\$9,742
2010/0300/WMP1/DCR/3148	FISH & BOATING/DEER HUNT	\$0	\$0	\$4,850	\$18,582	\$36,282	\$59,929	\$210,811
2010/0300/WMP1/DCR/4000	RENTS	\$0	\$0	\$0	\$251	\$51,182	\$5,778	\$57,211
2010/0300/WMP1/DCR/4500	FORESTRY SALES	\$46,645	\$25,987	\$12,000	\$32,588	\$28,950	\$122,249	\$525,680
2010/0300/WMP1/DCR/6900	MISCELLANEOUS	\$0	\$0	\$0	\$0	\$0	\$400	\$400
2010/0300/WMP1/DCR/6901	PRIOR YEAR REFUNDS/ REIMBURSEMENTS	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2010/0300/WMP1/DCR/6995	HYDROPOWER/TR LINES	\$2,564	\$35,185	\$2,144	\$46,156	\$192	\$0	\$473,374
TOTALS		\$49,209	\$61,602	\$19,394	\$98,152	\$118,611	\$190,328	\$1,277,218

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

<u>Category</u>	<u>FY19 Projected</u>	<u>FY19 Actual</u>
Hydroelectric Power/Transmission Lines	\$400,000	\$473,374
Fishing and Recreation	\$230,000	\$210,811
Forestry	\$354,993	\$525,680
Miscellaneous (Internment Fees/rents)	\$30,000	\$67,353
Total	\$1,014,993	\$1,277,218

FY2019 Final Land Acquisition

**DCR Division of Water Supply Protection
FY2019 Office of Watershed Management Land Acquisitions**

Approximately \$1.96 million of MWRA funds was spent on land acquisition in FY19 to purchase 230 acres.

The final three parcels acquired under the federal Forest Legacy “Quabbin to Wachusett” (Q2W) program, totalling 119.4 acres, were purchased for \$518,000. Over the course of this program, 2,569.3 acres were acquired in the watershed system at a cost of \$4,374,000 (\$3,665,900 federal, \$708,100 from EOEEA Landscape Partnership funds). [An ArcGIS Story Map](#) was created to chronicle the diligent work of the partners in this project. A link to the Story Map is available on the DWSP website at www.mass.gov/dcr-watershed-natural-resources-programs-forestry-wildlife-and-land-acquisition.

An additional 55 acres were also obtained as gifts in FY19.

Owner	Town	File #	Acres	Fee/ WPR	Date Recorded	MWRA/ Q2W/ Gift	Price
Quabbin Reservoir and Ware River Watersheds							
Clark	Petersham	W-001199	174.3	WPR	4/23/2019	MWRA	\$250,000
Curtis	Hubbardston	W-000878	27.3	Fee	11/6/2018	Q2W	\$30,000
Engel	Barre	W-001151	33.7	WPR	2/26/2019	Q2W	\$113,000
Madsen	Barre	W-001202	25.8	WPR	8/24/2018	Q2W	\$100,000
Shelter Island	Hubbardston	W-001211	32.7	Fee	12/14/2018	Q2W	\$275,000
Sub-Total Quabbin and Ware Watersheds			293.7				\$768,000
Wachusett Reservoir Watershed							
Cranson	Sterling	W-001205	4.3	WPR	3/19/2019	MWRA	\$125,000
Holt	Holden	W-001207	6.0	Fee	11/20/2018	MWRA	\$541,000
Hulik	Sterling	W-001209	22.8	Fee	5/23/2019	MWRA	\$591,000
Nudelman	Princeton	W-001216	55.0	Fee	11/2/2018	Gift	\$0
Peterson	West Boylston	W-001196	4.6	Fee	8/24/2018	MWRA	\$95,000
Prince	Boylston	W-001195	13.1	WPR	12/11/2018	MWRA	\$339,000
Rotti	West Boylston	W-001179	5.3	Fee	5/10/2019	MWRA	\$15,000
Sub-Total Wachusett Watershed			111.1				\$1,706,000
TOTAL FY18 LAND ACQUISITIONS			404.8				\$2,474,000
Sub-Total MWRA			230.4				\$1,956,000
Sub-Total Q2W			119.4				\$518,000
Sub-Total Gifts			55.0				
Sub-Total Fee Acquisitions			153.7				
Sub-Total WPR Acquisitions			251.1				

FY2019 Final

Payments in Lieu of Taxes

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

FY2019 Payments in Lieu of Taxes (PILOT)

The total PILOT paid under MGL c. 59, s. 5G for Fiscal Year 2019 was \$8,255,641.51.

This figure represents a 0.08% increase over the FY18 PILOT of \$8.245 million. This increase is less than the 1.0% estimated increase provided to MWRA in the FY2019 Work Plan. Most towns tax rates were below those utilized to derive the estimated figure of \$8.34 million stated in the FY18 Work Plan.

FY19 PILOT continued to utilize the valuations set by the Department of Revenue in 2017, which incorporated all fee acquisitions made between 2013 and 2016. Lands acquired in FY17 through FY19 will be rolled into the PILOT program in FY20.

Only four towns had their PILOT increase, all due to increases in their tax rate. The hold harmless clause maintained payment levels in FY19 for the rest of the watershed communities, totaling \$2,273,637.

Department of Conservation and Recreation Office of Watershed Management
FY19 Payments in Lieu of Taxes
February 2019 - Final

Community	2017 DOR Property Valuation	FY18 Tax Rate	FY18 PILOT	FY19 Tax Rate	FY19 Minimum PILOT Due	FY19 PILOT	Hold Harmless	Increase	% Increase
Barre	\$6,196,400	\$18.80	\$186,168.60	\$18.12	\$112,278.77	\$186,168.60	\$73,890	\$0	
Belchertown	\$11,835,800	\$18.19	\$257,074.40	\$18.32	\$216,831.86	\$257,074.40	\$40,243	\$0	
Belchertown - Annexed Lands	\$1,576,600	\$18.19	\$50,625.10	\$18.32	\$28,883.31	\$50,625.10	\$21,742	\$0	
Berlin	\$1,900,900	\$23.36	\$47,008.43	\$25.83	\$49,100.25	\$49,100.25	\$0	\$2,092	4.4%
Boylston	\$29,059,700	\$16.73	\$595,938.71	\$16.04	\$466,117.59	\$595,938.71	\$129,821	\$0	
Clinton	\$5,701,400	\$30.73	\$205,948.72	\$28.20	\$160,779.48	\$205,948.72	\$45,169	\$0	
Framingham	\$5,502,600	\$35.39	\$261,930.91	\$33.61	\$184,942.39	\$261,930.91	\$76,989	\$0	
Hardwick	\$7,274,600	\$16.74	\$121,776.80	\$16.04	\$116,684.58	\$121,776.80	\$5,092	\$0	
Hardwick - Annexed Lands	\$36,900	\$16.74	\$941.41	\$16.04	\$591.88	\$941.41	\$350	\$0	
Holden	\$32,372,600	\$17.61	\$919,615.57	\$17.45	\$564,901.87	\$919,615.57	\$354,714	\$0	
Hubbardston	\$21,254,800	\$15.13	\$321,585.12	\$15.22	\$323,498.06	\$323,498.06	\$0	\$1,913	0.6%
Leominster	\$162,800	\$19.33	\$8,688.49	\$18.54	\$3,018.31	\$8,688.49	\$5,670	\$0	
Ludlow	\$221,800	\$19.01	\$10,524.06	\$19.82	\$4,396.08	\$10,524.06	\$6,128	\$0	
Marlborough	\$1,984,300	\$25.73	\$112,802.46	\$24.95	\$49,508.29	\$112,802.46	\$63,294	\$0	
New Salem	\$16,884,600	\$18.13	\$520,470.61	\$17.57	\$296,662.42	\$520,470.61	\$223,808	\$0	
New Salem - Annexed Lands	\$5,812,600	\$18.13	\$201,603.91	\$17.57	\$102,127.38	\$201,603.91	\$99,477	\$0	
Northborough	\$4,934,100	\$17.39	\$103,466.89	\$17.15	\$84,619.82	\$103,466.89	\$18,847	\$0	
Oakham	\$9,675,500	\$15.20	\$147,067.60	\$14.51	\$140,391.51	\$147,067.60	\$6,676	\$0	
Orange	\$479,400	\$21.94	\$10,518.04	\$22.52	\$10,796.09	\$10,796.09	\$0	\$278	2.6%
Pelham	\$11,306,000	\$20.87	\$338,086.39	\$21.59	\$244,096.54	\$338,086.39	\$93,990	\$0	
Pelham - Annexed Lands	\$813,200	\$20.87	\$38,096.61	\$21.59	\$17,556.99	\$38,096.61	\$20,540	\$0	
Petersham	\$10,525,200	\$16.37	\$296,721.61	\$16.93	\$178,191.64	\$296,721.61	\$118,530	\$0	
Petersham - Annexed Lands	\$5,255,300	\$16.37	\$203,305.78	\$16.93	\$88,972.23	\$203,305.78	\$114,334	\$0	
Phillipston	\$140,500	\$16.48	\$11,912.74	\$16.65	\$2,339.33	\$11,912.74	\$9,573	\$0	
Princeton	\$14,859,200	\$17.28	\$256,766.98	\$16.02	\$238,044.38	\$256,766.98	\$18,723	\$0	
Rutland	\$20,933,800	\$18.13	\$525,860.45	\$17.89	\$374,505.68	\$525,860.45	\$151,355	\$0	
Shutesbury	\$7,398,700	\$23.06	\$299,391.54	\$23.26	\$172,093.76	\$299,391.54	\$127,298	\$0	
Southborough	\$17,383,800	\$16.14	\$294,207.30	\$16.74	\$291,004.81	\$294,207.30	\$3,202	\$0	
Sterling	\$44,254,600	\$17.54	\$776,225.68	\$17.27	\$764,276.94	\$776,225.68	\$11,949	\$0	
Templeton	\$50,800	\$16.72	\$1,082.18	\$17.24	\$875.79	\$1,082.18	\$206	\$0	
Ware	\$6,669,600	\$20.71	\$193,261.40	\$20.21	\$134,792.62	\$193,261.40	\$58,469	\$0	
Ware - Annexed Lands	\$4,491,700	\$20.71	\$167,580.62	\$20.21	\$90,777.26	\$167,580.62	\$76,803	\$0	
Wendell	\$1,322,200	\$20.96	\$27,713.31	\$22.61	\$29,894.94	\$29,894.94	\$0	\$2,182	7.9%
West Boylston	\$20,540,500	\$18.72	\$683,581.59	\$18.85	\$387,188.43	\$683,581.59	\$296,393	\$0	
Westborough	\$2,796,700	\$18.46	\$51,627.08	\$18.33	\$51,263.51	\$51,627.08	\$364	\$0	
TOTAL	\$331,609,200		\$8,249,177.08			\$8,255,641.51	\$2,273,637	\$6,464	0.08%

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.