MASSACHUSETTS MOSQUITO CONTROL

ANNUAL OPERATIONS REPORT

Year Report Covers: 2023 Date of Report: 1/30/24

Project/District Name: **Suffolk County Mosquito Control Project**

Address: 11 Sun St.

City/Town: Waltham Zip: 02453

Phone: 781-899-5730 Fax:

E-mail: emmcp.ma@verizon.net

Report prepared by: ***Brian Farless***

NPDES permit no. **MAG87000Y**

If you have a mission statement, please include it here: The Suffolk County Mosquito Control Commission (the Commission) represents the interests of Boston, Chelsea, and their residents in providing guidance and oversight to the Suffolk County Mosquito Control Project (the Project). The Commission strives to ensure that the member communities receive services that are consistent with applicable law and justified by the tenets of public health, vector control, environmental safety and fiscal responsibility. Integrated mosquito management services provided by the Project and approved by the Commission will be based on the State's Generic Environmental Impact Report on Mosquito Control in Massachusetts, the Massachusetts Arbovirus Surveillance and Response Plan and the policies of the State Reclamation and Mosquito Control Board. The Project's integrated mosquito management plan will consist of mosquito surveillance, larval mosquito control of wetlands and catch basins, adult mosquito control, source reduction, wetlands management/ditch maintenance and public education.

ORGANIZATION SETUP:

Commissioner names:

Christopher Busch (FY23 only) Sam Lipson
Julien Farland _____
Leslie Karnes _____

Superintendent/Director name: Brian Farless
Superintendent/Director contact phone number: 781-899-5730
Asst. Superintendent/Director name:

District/Project website: http://www.mass.gov/info-details/mosquito-control-projects-and-districts
Twitter handle: @

Facebook page: http://www.facebook.com/

Staffing levels for the year of this report:
Full time: 1
Part time:
Seasonal: 2
Other: (please describe) in addition to above, 1.5 full time and 1 part time administrative workers share time between Suffolk County Mosquito Control and East Middlesex Mosquito Control

Of the above, how many are:
(Please check off all that apply, and list employee name(s) next to each category)

☒ Administrative Brian Farless, Dave Henley, Katherine Swan
☐ Biologist
☐ Educator
☐ Entomologist
☒ Facilities Brian Farless, Mike Radley
☐ Information technology
☒ Laboratory Brian Farless, Sean Wilson
☒ Operations Brian Farless, Mark Garside, Mike Radley
☒ Public relations Brian Farless
☐ Wetland scientist
☐ Other (please describe)

For the year of this report, the following were maintained (enter number in the column to the left):

[ ] Modified wetland equipment (list type)
2 Larval control equipment (list type) backpack pump sprayers
1 ULV sprayers (list type) Clarke Smartflow ULV sprayer
4 Vehicles
Other (please be specific): 1 Stihl gas powered backpack mistblower

Comments: _____

How many cities and towns are in your service area?* 2
Alphabetical list: Boston, Chelsea

Were there any changes to your service area this year? No
Cities/towns added:
Cities/towns removed:

***Please attach a map of your service area (or a website link to that map).**

INTEGRATED PEST MANAGEMENT (IPM):

Check off all services that your district/project currently provides to member cities and towns as part of an IPM program (details will be provided in the sections below):

☒ **Adult mosquito control**
☒ **Adult mosquito surveillance**
☒ **Ditch maintenance**
☒ **Education, Outreach & Public education**
☒ **Larval mosquito control**
☒ **Larval mosquito surveillance**
☐ **Open Marsh Water Management**
☐ **Research**

☒ **Source reduction (tire removals)**
☐ **Other (please list):**

Comments: _____

LARVAL MOSQUITO CONTROL:

If you have a larval mosquito control program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: This program is focused on controlling larvae of spring and summer floodwater (freshwater) species, salt marsh and brackish water species and artificial container species. Spring floodwater species are controlled because they are aggressive mammal biting species that are active during the late spring and early summer, when residents are frequently involved in outdoor activities. The mosquito species, Culiseta melanura, amplifies EEE within the bird population. Culiseta melanura mosquito populations are reduced as a result of spring larvicide applications. Summer floodwater species are controlled because they are aggressive mammal biting species, some of which are vectors of EEE. Salt marsh mosquitoes are controlled because they bite during the day and are considered very aggressive mammal biting mosquitoes. Salt marsh species can be disease vectors of EEE. Brackish water species are aggressive mammal biting species. The brackish water species, Culex salinarius, is a human vector of EEE and WNV. Culex pipiens/restuans species are controlled because they are the primary vectors for WNV in Massachusetts. They are found in catch basins and other artificial water holding containers, as well as in freshwater wetland habitat.

Suffolk County Mosquito Control worked collaboratively with the Boston Public Health Commission and Chelsea Health Department to distribute larvicides in catch basins to control Culex mosquitoes. Suffolk County Mosquito Control also distributed catch basin larvicides to large Boston property managers including the Boston Housing Authority, the Franklin Park Zoo and Harvard University.

What months is this program active? late March through early October

Describe the types of areas where you use this program: Intermittently flooded wetlands, salt marshes, stormwater detention basins, catch basins, neglected swimming pools and other water holding containers.

Do you use:
☒ **Ground application (hand, portable and/or backpack, etc.)**
☐ **Aerial applications**
☐ **Other (please list):**
Comments: _____

List all products that you use for larval mosquito control in the table below (leave blank if not applicable)**:**

Product Name	**EPA #**	**Application Rate(s)**	**Application Method**	**Targeted life stage**	**Habitat Type**	**Total finished product applied**
VectoBac WDG	73049-56	2 ounces per acre	backpack pump sprayer	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	21.63 lbs
Vectolex WSP	73049-20	1 pouch (10 grams) per catch basin or similar water holding container	hand applied	Larvae	☒ Catch basins ☒ Containers ☐ Wetland ☐ Other (please list):	212.35 lbs
VectoLex FG	73049-20	5-20 lbs/acre	backpack blower	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	115 lbs
Fourstar Bti 45 day	83362-2-89459	1 briquet/100 sq. ft. or 1 briquet/catch basin	hand applied	Larvae	☒ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	512 briquets
Altosid Pellets WSP	2724-448	1 pouch (7 grams) per catch basin or similar water holding container	hand applied	Larvae	☒ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	120.09 lbs
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers	

					☐ Wetland ☐ Other (please list):	

List all products that you use for larval mosquito control in the table below (leave blank if not applicable)**:**

Product Name	EPA #	Application Rate(s)	Application Method	Targeted life stage	Habitat Type	Total finished product applied
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	

What is your trigger for larviciding operations? (check all that apply)
☒ Best professional judgment
☒ Historical records
☒ Larval dip counts – please list trigger for application: 3 larvae per 10 samples
☐ Other (please describe):
Comments: _____

Please attach a map of your service area (or a website link to that map).
www.mass.gov/info-details/mosquito-control-projects-and-districts

ADULT MOSQUITO CONTROL:

If you have a larval mosquito control program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: To reduce the number of mammal biting and disease carrying mosquitoes.

What is the time frame for this program? May through September

Describe the types of areas where you use this program: Truck mounted ULV sprayers are used in residential neighborhoods with a relatively dense configuration of streets. A backpack mistblower is used in areas with high mosquito populations and/or in areas with an elevated disease risk.

Do you use:
☐ **Aerial applications**
☒ **Portable applications**
☒ **Truck applications**
☐ **Other (please list):**
Comments: _____

For each product used, please list the name, EPA #, and application rate(s):

Product Name	**EPA #**	**Application Rate(s)**	**Application Method**	**Total finished product applied**
Suspend Polyzone	432-1514	0.75 ounces per 1,000 square feet	backpack mistblower	0.199 gal
Zenivex E4	2724-807	0.00175 - 0.0070 pounds per acre	ULV truck sprayer	2.75 gal

Please describe the maximum amounts or frequency used in a particular time frame such as season and areas
All pesticide labels are followed.

As found on the Suspend Polyzone label - Treatments may be applied at 21-day intervals or as necessary to maintain adequate control.

As found on the Zenivex E4 label - Do not spray more than 0.18 lbs etofenprox per acre per site per year. Do not make more than 25 applications per site per year. More frequent treatments may be made to prevent or control a threat to public and/ or animal health determined by a state, tribal, or local health or vector control agency on the basis of documented evidence of disease-causing agents in vector mosquitoes or the occurance of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

What is your trigger for adulticiding operations? (check all that apply)
☒ Arbovirus data
☒ Best professional judgment
☐ Complaint calls (Describe trigger for application:)
☐ Landing rates (Describe trigger for application)
☒ Light trap data (Describe trigger for application at least 200 mosquitoes found in a trap from one night)
Comments: _____

Please attach a map of your service area (or a website link to that map).
www.mass.gov/info-details/mosquito-control-projects-and-districts

SOURCE REDUCTION (Tire Removals)

If you practice source reduction methods, such as tire removal, please fill out the section below, else skip ahead to the next section.

Please describe your program: Containers are tipped over or removed as necessary. Tires are collected and taken to a recycling facility. In 2023, 124 tires were collected and recycled.

What time frame during the year is this method employed? all year

Comments: _____

WATER MANAGEMENT/DITCH MAINTENANCE

If you have a water management or ditch maintenance program, please fill out the section below, else skip ahead to the next section.

Please check all that apply:
☐ Inland/freshwater

☐ Saltmarsh
Please describe your program:

For **inland/freshwater water management**, check off all that apply.

Maintenance Type	**Estimate of cumulative length of culverts, ditches, swales, etc. maintained (ft)**
☐ Culvert cleaning	
☒ Hand cleaning	350 ft.
☐ Mechanized cleaning	
☐ Stream flow improvement	
☐ Other (please list):	

Comments: _____

For **saltmarsh ditch maintenance**, check off all that apply:

Maintenance Type	**Estimate of cumulative length of ditches maintained (ft)**
☐ Hand cleaning	
☐ Mechanized cleaning	
☐ Other (please list):	

Comments: _____

What time frame during the year is this method employed?

Comments: _____

Please attach a map of ditch maintenance areas (or a website link to that map).

OPEN MARSH WATER MANAGEMENT

If you have an Open Marsh Water Management program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program:

What months is this program active?

Please give an estimate of total square feet or acreage:

Comments: _____

Please attach a map of OMWM areas (or a website link to that map).

MONITORING (Measures of Efficacy)

Describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands: Pre-application and post-application larval surveys are conducted. Helicopters apply larvicide to wetlands containing mosquito larvae. GIS maps of targeted wetlands are prepared prior to the application and then converted for use for the helicopter's navigation system.

Ground ULV Adulticide: Pre-application adult mosquito surveys using CDC light traps are done to determine whether control is needed. Post-application surveys using CDC light traps are conducted to determine if additional ground ULV adulticiding is needed.

Larvicide – catch basins: Pre-application larval surveys are done in June to determine the appropriate time to begin using Bacillus sphaericus. Random pre-application and post-application surveys are undertaken during July, August and September to monitor Culex larval populations and to determine the efficacy of Bacillus sphaericus applications. Random monitoring of paint marks on catch basins left by catch basin applicators are conducted to evaluate the coverage in neighborhoods where larvicide applications have been completed.

Larvicide-hand/small area Pre-application larval surveys are conducted prior to each application. Random post-application surveys are conducted to monitor efficacy.

Open Marsh Water Management:

Source Reduction: Water holding containers are tipped over or removed as necessary. Ditches are cleaned to help reduce standing water.

Other (please list):

Provide or list standard steps, criterion, or protocols regarding the documentation of efficacy (pre and post data), and resistance testing (if any):
Catch basin water is sampled during early summer to determine when the presence of Culex larvae becomes common. Two water samples are taken at each sampled catch basin. Catch basin larvicide applicators are required to mark each catch basin with water soluble marking paint when larvicide is applied. Monitoring of paint marks left on catch basin grates is conducted to evaluate coverage. Random post application sampling is conducted to determine the efficacy of Bacillus sphaericus applications. For small area wetland larval control, applicators are required to find 3 larvae per 10 dips before a larvicide can be applied. Post-application surveys are carried out at random. Before adult mosquito control is scheduled in any area, CO2 baited CDC light traps are used to monitor mosquito populations in that area. A minimum of 200 mammal biting mosquitoes must be collected at a trap site before spraying will be scheduled.

Check the boxes below, indicating if your program has performed any of the following:

Research Project	**Details**
Bottle assays	
Efficacy testing	
Other:	
Other:	

ADULT MOSQUITO SURVEILLANCE

If you have an adult mosquito surveillance program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: Measure populations of mammal biting species and populations of species considered enzootic or bridge vectors for WNV and EEE. The data is used to evaluate the need for further control. As funding is available, Culex species, Culiseta melanura, Coquillettidia perturbans and other potential human bridge vector species are submitted to DPH for virus testing. Municipalities are notified as EEE/WNV positive mosquitoes are found. As resources are available, Suffolk County also uses ovitraps to monitor for the presence of Aedes albopictus.

What months is this program active? May through October

Check off all trap types used this past season by your program:

Trap Type	**Canopy?** (check box for yes)	**Number of traps** (leave blank if zero)
☐ ABC light trap	☐	
☐ ABC light trap w/CO_2	☐	
☐ CDC light trap	☐	
☒ CDC light trap w/CO_2	☐	101
☒ Gravid trap		87
☐ Landing rate test		
☐ NJ light trap	☐	
☐ NJ light trap w/CO_2	☐	
☐ Ovitrap		
☐ Resting box		
☐ Other (please describe):		
☐ Other (please describe):		
☐ Other (please describe):		

Do you maintain long-term trap sites in any of your areas? Yes
If yes, how many:
36

Please check off the species of concern in your service area:

☒ *Ae. albopictus*
☒ *Ae. cinereus*
☒ *Ae. vexans*
☒ *An. punctipennis*
☒ *An. quadrimaculatus*
☒ *Cq. perturbans*
☒ *Cx. pipiens*
☒ *Cx. restuans*
☒ *Cx. salinarius*
☒ *Cs. melanura*
☒ *Cs. morsitans*
☒ *Oc. abserratus*
☒ *Oc. canadensis*
☒ *Oc. cantator*
☒ *Oc. j. japonicus*
☒ *Oc. sollicitans*
☒ *Oc. taeniorhynchus*
☒ *Oc. triseriatus*

☒ *Oc. trivittatus* ☐ *Ur. sapphirina*
☒ *Ps. ferox*
☒ Others (please list): **Oc. thibaulti**

Number of adult mosquitoes collected this season (whether submitted to DPH or not): 27,650
Number of adult mosquito pools collected this season (submitted and unsubmitted):
Number of ovitrap collections this season, if any:
Any other trap collections of note (please describe):

Do you participate in the MDPH Arboviral Surveillance program? Yes
Total number of adult mosquito pools submitted to DPH this past season: 157
How many pools do you submit weekly on average? 11.2

Number of traps in your service area **placed by MDPH**: 20
Were these long-term trap sites or supplemental trapping sites? long-term

Which arboviruses were found in your area during the previous mosquito season? Enter the number of pools/cases below:

Arbovirus	**Positive Mosquito Pools**	**Equine Cases**	**Human Cases**
☐ Eastern Equine Encephalitis (EEE)			
☒ West Nile Virus (WNV)	19		0
☐ Other (please list):			

Comments: _____

For each arbovirus listed below, please list the risk levels in your project area at both the start and end of the season (if more than one, please list all):

Arbovirus	**Start of Season**	**End of Season**
EEE	remote	remote
WNV	low	moderate

Comments: _____

EDUCATION, OUTREACH & PUBLIC RELATIONS

If you have an education/outreach program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: Suffolk County Mosquito Control Project's public education program is designed to develop awareness within the public and private sectors as to their roles in mosquito control. The Project serves as a resource to residents, municipal officials and the local media on controlling mosquitoes, larval mosquito habitats and mosquito borne diseases.

What time frame during the year is this method employed? Year round

Check off all education/outreach methods that were performed by your program this year:
☐ Development/distribution of brochures, handouts, etc.
☐ Door-to-door canvassing (door hangers, speaking to property owners, etc.)
☐ Facebook page, Twitter, or other social media
☐ Mailings (Describe target audience(s):)
☒ Media outreach (interviews for print or online media sources, press releases, etc.)
☒ Presentations at meetings
☐ School-based programs, science fairs, etc.
☐ Tabling at events (local events, annual meetings, etc.)
☒ Website
☒ Other (please describe): Suffolk County Mosquito Control communicates with the Boston Public Health Commission, Chelsea Health Department and other municipal departments throughout the year in regards to mosquito and disease related issues. Each city provides educational materials to their residents. Public notification is coordinated through the Boston Public Health Commission prior to neighborhood truck mounted aerosol applications to control adult mosquitoes. Employees frequently communicate with residents through phone calls and emails, and also when they are doing work throughout the district.

Estimate the audience reached this year using the education/outreach methods above:
Comments:

List your program's top 3 education/outreach activities for this year:

1. Suffolk County Mosquito Control communicates with the Boston Public Health Commission, Chelsea Health Department and other municipal departments throughout the year in regards to mosquito and disease related issues. They prepare educational materials for their residents.
2. Phone calls and emails from residents.
3. Website

Were you involved in any collaborations with the following partners this year? Provide details below, including a list of technical reports, white/grey papers, journal publications, trade magazine articles, etc:
☐ Academia
☒ Another mosquito control district/project The Project shared administration with the East Middlesex Mosquito Control Project
☒ Another state agency (DCR, DPH, etc.) Suffolk County Mosquito Control submitted mosquitoes to DPH to be tested for WNV/EEE. Suffolk County works with DCR regarding mosquito control on DCR properties.
☐ Environmental groups
☐ Industry

List any training/education your staff received this year: Brian Farless, Dave Henley, Mark Garside, Mike Radley and Sean Wilson took Cybersecurity Awareness, Domestic Violence Awareness, Ensuring a Safe Workplace, Our Diverse Workplace, Preventing Workplace Harassment and Understanding Conflicts of Interest. Brian Farless also took Diversity and Your

Team, Our Diverse Workplace, Paid Family Medical Leave, Successful Hybrid Teams and Your Role in Preventing Harassment. Brian Farless and Michael Radley atteneded the Northeastern Mosquito Control Association Conference.

Please list the certifications and degrees held by your staff: Brian Farless, Michael Radley and Sean Wilson are Licensed Pesticide Applicators. Mark Garside is a Permitted Catch Basin Applicator. Brian Farless has a B.S. in Communications. David Henley has a B.B.A. in Management. Michael Radley has a B.S. in Resource Economics. Sean Wilson has a B.S. in Environmental Science and Policy. Sean also has a certificate in Geographic Information Systems.

Comments: _____

INFORMATION TECHNOLOGY (IT)

Does your program use (check all that apply):

☒ Aerial Photography
☒ Databases
☒ Dataloggers (monitoring for temperature, etc.)
☒ GIS mapping (Describe:)
☒ GPS equipment
☒ Smartphones
☐ Tablets/Toughbooks
☐ Other (please describe):

Describe any changes/enhancements in IT from the previous year:

Describe any difficulties your program had with IT software/equipment this year:

Comments: _____

REVENUES & EXPENDITURES

Please enter your approved budgets for the current, previous, and future fiscal years.

	Date of Fiscal Year	**Approved Budget**	**Notes**
Previous		289,860.16	
Current		298,555.96	
Future			

List each member municipality, along with the corresponding (cherry sheet) funding assessment dollar amount, for the current fiscal year (or provide a web link to this information):
Boston - $286,985.08; Chelsea - $11,570.88

Comments: _____

SERVICE REQUESTS

How many service requests did you receive this season? 4
How many were for larviciding? 4
How many were for adulticiding? 4

Was this an increase or decrease over last season? Increase

Comments:

EXCLUSIONS

How many exclusion requests did you receive this season? 8

Was this an increase or decrease over last season? Decrease

Do you have large areas of pesticide exclusion, such as estimated or priority habitats? Yes

If yes, please explain, and attach maps or a web link if possible. Massachusetts Audubon, Boston Nature Center and Wildlife Santuary; Trustees of Reservations properties

SPECIAL PROJECTS

Did your program perform any of the following special projects? Check all that apply.

- ☒ Inspectional services (inspections at sewage treatment facilities, review of subdivision plans, etc.)

  Describe: Suffolk County Mosquito Control works with Inspectional Services to identify and remove mosquito habitat. Source reduction prevents mosquitoes from developing

- ☒ Work with DPW departments or other local or state officials to address stormwater systems, clogged culverts, or other areas identified as man-made mosquito problem areas

  Describe: Suffolk County Mosquito Control coordinated catch basin applications with the Boston and Chelsea Public Works Department catch basin cleaning programs.

- ☐ Work with groups as described above on long term solutions?

  Describe:

- ☐ Conduct or participate in any cooperative research or restoration projects?

  Describe:

- ☐ Participate in any state/regional/national workgroups or panels, or attend any meeting pertaining to the above?

Describe:

- ☐ Work on any biological control projects, such as enhancement of habitat for native predators, release of predatory fish or invertebrates, etc.?

  Describe:

CHILDREN AND FAMILIES PROTECTION ACT (CFPA)

Is your program impacted by the CFPA? Yes

If yes, please explain: Per the provisions of the Act, the Project excludes schools, group day care centers and school age child care programs from adult mosquito control pesticide applications unless the pre-requisites for spraying are fulfilled.

If you have data on compliance rates with the CFPA within your program area, please list here:

Describe any difficulties you have had with the implementation of your program due to the CFPA, please elaborate here:

Comments:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PROGRAM

Did your program report any adverse incidents during this reporting period? No

If yes, please list any corrective actions here: _____

GENERAL COMMENTS

Please add any comments here for topics not covered elsewhere in this report: _____