MASSACHUSETTS MOSQUITO CONTROL

ANNUAL OPERATIONS REPORT

Year Report Covers: 2021 Date of Report: 1/31/2022

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

Address: 11 Sun St.

City/Town: Waltham Zip: 02453

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

NPDES permit no. **MAG87A041**

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 Sam Lipson
Julien Farland _____
Leslie Karnes _____

Superintendent/Director name: Brian Farless
Superintendent/Director contact phone number: 7781-899-5730
Asst. Superintendent/Director name:

District/Project website: http://scmcp.webs.com
Twitter handle: @
Facebook page: http://www.facebook.com/

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

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

☒ Administrative Brian Farless, Katherine Swan, Dave Henley
☐ Biologist
☐ Educator
☐ Entomologist
☐ Facilities Brian Farless, Sean Wilson
☐ Information technology
☐ Laboratory Brian Farless, Sean Wilson
☐ Operations Brian Farless, Michael Radley, Sean Wilson, Neil Ford, Mark Garside
☐ Public relations Brian Farless, Sean Wilson
☐ 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) Solo backpack pump sprayers
1 ULV sprayers (list type) Clark Smartflow 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 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 the spring larvicide application. 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 West Nile virus in Massachusetts. They are found in catch basins and other artificial water holding containers, as well as in freshwater wetland habitat.

The Project worked collaboratively with the Boston Public Health Commission and Chelsea Health Department to distribute larvicides in catch basins to control Culex mosquitoes. The Project 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? Spring floodwater mosquito larvae are targeted from late March through May. Summer floodwater mosquito larvae are targeted from late May through September. Salt marsh and brackish water mosquito larvae are targeted from June through October. Culex mosquito larvae are targeted from May through September.

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 12 AS	73049-38	8 ounces per acre	backpack pump sprayer	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	2.0625 gallons
Vectolex WSP	73049-20	10 grams per catch basin or similar water holding container	hand applied	Larvae	☒ Catch basins ☒ Containers ☐ Wetland ☐ Other (please list):	256.73 pounds
VectoBac G	73049-10	10 pounds per acre	backpack blower/hand applied	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	112 pounds
VectoBac GS	73049-10	10 pounds per acre	backpack blower/hand applied	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	269 pounds
VectoBac WDG	73049-56	2 ounces per acre	backpack pump sprayer	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	15.94 pounds
VectoLex FG	73049-20	10 pounds per acre	backpack blower	Larvae	☐ Catch basins ☐ Containers ☒ Wetland ☐ Other (please list):	268 pounds
MetaLarv XRP	73049-475	18 grams per catch basin	hand applied	Larvae	☒ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	372.59 pounds

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).
http://www.scmcp.webs.com/

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 suburban 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**
Zenivex E4	2724-807	1 ounce per acre	truck mounted ULV sprayer	4 gallons
Suspend Polyzone	432-1514	0.75 ounces per 1,000 square feet	backpack mistblower	73.5 ounces

Please describe the maximum amounts or frequency used in a particular time frame such as season and areas
Labels were followed for both products.

For Zenivex E4, the label states the following: 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 ocurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

For Suspend Polyzone, the label states the following: Treatments may be applied at 21-day intervals or as necessary to maintain adequate control.

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).
http://www.scmcp.webs.com/

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: Check vacant lots and open spaces for discarded tires. Tires are taken to a recycling facility. 67 tires were recycled during 2021.

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

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: Ditch maintenance is done using either a LinkBelt 75 Spin Ace track mounted excavator or hand tools. When planning ditch maintenance activities, protocols are followed that are contained in the Massachusetts Best Management Practices and Guidance for Freshwater Mosquito Control.

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	3,500
☐ 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? Year round.

Comments: _____

Please attach a map of ditch maintenance areas (or a website link to that map).
http://www.scmcp.webs.com/

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. ArcView GIS maps of targeted wetlands are prepared prior to the application and then converted for use for the helicopter's Ag-Nav system.

Ground ULV Adulticide: Pre-application adult mosquito surveys using CDC light traps are done. Subsequent adult mosquito surveys 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 products. Random pre-application and post-application larval surveys are undertaken during July, August and September. Random monitoring of paint marks on catch basins left by applicators is conducted to evaluate coverage of treated areas.

Larvicide-hand/small area Pre-application surveys are conducted prior to all applications. Random post-application surveys are conducted.

Open Marsh Water Management:

Source Reduction: Inspections of open space areas and vacant lots are done to monitor for the presence of discarded tires and other water holding containers. 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):
For aerial larval control, pre and post-application larval dip counts are undertaken with a minimum of 30 dips per site. In addition, the applicator is supplied with ArcView GIS maps of targeted wetlands that are used in the applicator's AgNav systems. The AgNav maps recorded during the application are reviewed following the application to evaluate the coverage of treated areas. Catch basin water is sampled during early summer to determine when the presence of Culex larvae becomes common. Two water samples using a Landers Ladle 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. The Project 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		71
☐ Landing rate test		
☐ NJ light trap	☐	
☐ NJ light trap w/CO_2	☐	
☒ Ovitrap		24
☐ 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*
☒ Others (please list): **Oc. thibaulti**

☒ *Oc. trivittatus*
☒ *Ps. ferox*
☐ *Ur. sapphirina*

Number of adult mosquitoes collected this season (whether submitted to DPH or not): 57,768
Number of adult mosquito pools collected this season (submitted and unsubmitted):
Number of ovitrap collections this season, if any: 24
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: 112
How many pools do you submit weekly on average? 8.62

Number of traps in your service area **placed by MDPH**: 8
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)	17	0	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	high

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: The 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? It is an ongoing program that is active throughout the year.

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 helicopter applications of Bti to wetland areas to control mosquito larvae and prior to neighborhood truck mounted aerosol applications to control adult mosquitoes.

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. Coordinate with the Boston Public Health Commission to notify residents, interested groups, City departments and the media of planned helicopter Bti larval control applications and neighborhood truck mounted aerosol applications of Anvil to control adult mosquitoes.
3. Phone calls and emails from residents.

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. The Project collaborated with DPH to monitor for Aedes albopictus by submitting mosquito eggs collected in ovitraps. The Project supplied DCR with a larval control product to be used in catch basins.

☐ Environmental groups
☐ Industry

List any training/education your staff received this year:

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

Comments: _____

INFORMATION TECHNOLOGY (IT)

Does your program use (check all that apply):
☒ Aerial Photography
☒ Databases
☒ Dataloggers (monitoring for temperature, etc.)
☒ GIS mapping (Describe: Create maps using ESRI ArcGIS software for media purposes, in-house use and for the helicopter company that handles our aerial applications)
☒ 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	2021	289,860.16	
Current	2022	289,860.16	
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 - $278,626.29; Chelsea - $11,233.876

Comments: _____

SERVICE REQUESTS

How many service requests did you receive this season? 24
How many were for larviciding? 5
How many were for adulticiding? 19

Was this an increase or decrease over last season? Decrease

Comments: The Suffolk County Mosquito Control Project will respond to residents who request that an adjacent or nearby wetland be checked for mosquito larvae, or to investigate obstructions in waterways. Decisions on adult mosquito spraying are based on mosquito and arbovirus surveillance data.

EXCLUSIONS

How many exclusion requests did you receive this season? 22

Was this an increase or decrease over last season? Increase

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 Sanctuary

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:

- ☒ 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: The Project 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: _____