MASSACHUSETTS MOSQUITO CONTROL



ANNUAL OPERATIONS REPORT

Year Report Covers: 2023 Date of Report: 01/22/2024

Project/District Name: Plymouth County Mosquito Control Project

Address: 272 South Meadow Rd

City/Town: Plymouth Zip: 02360

Phone: 781-585-5450 Fax: 781-582-1276

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Report prepared by: Ross Rossetti, Ellen Bidlack, and Matthew McPhee

NPDES permit no. MAG870003

If you have a mission statement, please include it here: The goal of mosquito control is to prevent the transmission of mosquito-borne disease, maintain quality of life, and minimize adverse impacts to the economy by using techniques of integrated pest management to reduce mosquito populations in the most environmentally responsible and efficient manner possible.

ORGANIZATION SETUP:

Commissioner names:

<u>John Sharland(Chair)</u> <u>Elaine Fiore</u>

Michael Valenti(resigned 8/18/2023)

Ann Motyka(Vice Chair/Secretary)

<u>Thomas Reynolds</u>

Superintendent/Director name: Ross Rossetti

Superintendent/Director contact phone number: 781-585-5450

Asst. Superintendent/Director name: Matthew McPhee

District/Project website: http://Plymouthmosquito.org

Twitter handle: @

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

Staffing levels for the year of this report:

Full time: 13 Part time: 1 Seasonal: 4

Other: (please describe)

Of the above, how many are:
(Please check off all that apply, and list employee name(s) next to each category)
Administrative Ross Rossetti, Matthew McPhee, Denise Deluca Biologist Educator Erin Morrill Entomologist Ellen Bidlack Facilities Matthew McPhee, Russell Mazzilli Information technology Ellen Bidlack, Ross Rossetti Laboratory Ellen Bidlack Operations Ross Rossetti, Matthew McPhee, Russell Mazzilli Public relations Erin Morrill Wetland scientist Other (please describe) Pilot-Ross Rossetti, General Foreman - Russell Mazzilli, Field Technicians - Jesse Anderson, Brian Callahan, Nic Disano, Christoper Hanna, Christopher Hoppie, Stephanie Dugan, Mason Taft, Kendric Stiles
For the year of this report, the following were maintained (enter number in the column to the left):
1 Modified wetland equipment (list type) John Deere 50G 18 Larval control equipment (list type) A-1 Mist Sprayer, hydraulic sprayer, backpack sprayers, pump can 8 ULV sprayers (list type) Clarke Pro Mist Dura 18 Vehicles Other (please be specific): 1 John Deere 35G mini excavator, 1 John Deere 323E Compact Track
Loader, 1 Mustang Skid-steer, 1 Cessna AG Wagon w/boom nozzle & grandular spreader
Comments:
How many cities and towns are in your service area?* 28 Alphabetical list: Abington, Bridgewater, Brockton, Carver, Cohasset, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Lakeville, Marion, Marshfield, Mattapoisett, Middleboro, Norwell, Pembroke, Plymouth, Plympton, Rochester, Rockland, Scituate, Wareham, West Bridgewater, Whitman
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): Pesticide resistance testing
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: The larval suppression program is one of our most effective methods to reduce the number of biting mosquitoes by preventing larvae from maturing into adults. The Project treats stagnant water with larvae by airplane, truck mounted sprayers, backpack blowers, and by hand. The Project larvicides over 14,000 acres and treats between 50 and 60 thousand catch basins per year.
What months is this program active? Spring and Summer months
Describe the types of areas where you use this program: A variety of fresh water wetland, salt marshes, drainage basins, and stagnant water within the district.
Do you use: Ground application (hand, portable and/or backpack, etc.) Aerial applications Other (please list): A-1 Mist Sprayer, hydraulic sprayer Comments:

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

Product Name	EPA#	Application	Application	Targeted life	Habitat Type	Total finished
		Rate(s)	Method	stage		product applied
Vectobac 12AS	73049-38	1 pint per acre	Aerial	Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	1,606 gals.
Vectobac 12AS	73049-38	5oz per acre	Hydraulic Sprayer	Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	46.9 gals.
Four Star 90 Day Briquet	83362-3	1 Briquet per 100 sq. feet surface area	Hand	Larvae	☐ Catch basins ☐ Containers ☑ Wetland ☐ Other (please list):	22.4 lbs.
Summit Briquets	6218-47	1briquet /10'x10' surface area	Hand	Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	51.1 lbs.
VectoLex WSP	73049-20	1 pouch per basin	Hand	Larvae	Catch basins Containers Wetland Other (please list):	469 lbs.
VectoMax WSP	73049-429	1 pouch per basin	Hand	Larvae	Catch basins Containers Wetland Other (please list):	752 lbs.
Four Star MBG	85685-3	5-10 lbs. per acre	Backpack	Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	422 lbs.

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
Four Star 45 Day Briqute	83362-3	1 Briquet per 100 sq. feet surface area		Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	72 lbs.
BVA 2 Larvacide Oil	70589-1	1-5 Gallons per acre depending on vegitation	Wand Sprayer	Larvae/pupae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	544 oz.
Vectolex WDG	73049-57	.5-1.5 lbs/acre	Hydraulic Sprayer	Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	75.5 lbs.
Vectobac DT	73049-447	1 Tablet per 13.2 gallons	Hand	Larvae	□ Catch basins □ Containers □ Wetland □ Other (please list):	44 grams
VectoLex FG	73049-20	5-10 lbs. per acre	Backpack	Larvae	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	205.45 lbs.
VectoLex FG	73049-20	15lb per acre	Aerial	Larvae	☐ Catch basins ☐ Containers ☑ Wetland ☐ Other (please list):	3,680 lbs
				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: Refer to GEIR Table 17 Other (please describe): Comments:
Please attach a map of your service area (or a website link to that map). http://www.plymouthmosquito.org/service-area.html
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: The goal of our program is to reduce the number of biting mosquitoes to protect human health and improve the quality of life of our residents. The Project takes residential, business, and town official requests for adulticiding with ULV truck mounted sprayers.
What is the time frame for this program? June to October (end date depends on virus activity and weather conditions).
Describe the types of areas where you use this program: Streets, Fields, Schools (per Children's Protection Act regs), yards, recreation areas.
Do you use: Aerial applications Portable applications Truck applications Other (please list): Hydraulic Sprayer, A-1 Mist Blower 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
DUET	1021-1795- 8329	.62oz.per acre	ULV	224 Gals
Zenivex	2724-807	.75-1oz.per acre	ULV	367 Gals
Suspend SC	432-763	.25oz per 1,000sq ft	Hydraulic sprayer	291.5 oz

Please describe the maximum amounts or frequency used in a particular time frame such as season and areas

	What is your trigger for adulticiding operations? (check all that apply) ☐ Arbovirus data ☐ Best professional judgment ☐ Complaint calls (Describe trigger for application: 2 per geographical area) ☐ Landing rates (Describe trigger for application) ☐ Light trap data (Describe trigger for application 5 per night)) Comments:
	Please attach a map of your service area (or a website link to that map). http://www.plymouthmosquito.org/service-area.html
	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: We often inspect properties and offer advice to landowners regarding actions they can take to reduce the amount of mosquito production on their property. We currently run a tire removal program year round. This year we removed 4,039 tires for recycling. The total for this program is 16,841 tires.
	What time frame during the year is this method employed? Throughout the 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: The project's water management program is conducted pursuant of chapter 252 of the MA General Laws and is compliant with US Army Corps guidance. The goal of the program is to maintain existing drainage in order to reduce the amount of flooding and stagnant water in the district. This kind of work can reduce the amount of pesticide used and the number of mosquitoes in the area. We seek to use the least impactful methods to maintain these waterways. Techniques include site monitoring both before and after work, hand cleaning of ditches or use of mechanized equipment.
J	For inland/freshwater water management, check off all that apply. Estimate of sumulative length of sulverts, disches
1	Maintenance Type Estimate of cumulative length of culverts, ditches,

Each resident household has a maximum of 8 treatments per season.

96,929Ft

Culvert cleaning
Hand cleaning

swales, etc. maintained (ft)

Mechanized cleaning	7,562Ft			
Stream flow improvement				
Other (please list):				
Comments:				
For saltmarsh ditch maintenance, check off a				
Maintenance Type	Estimate of cumulative length of ditches maintained			
Hand cleaning	(ft)			
Mechanized cleaning	75Ft			
Other (please list):	7310			
Comments:				
<u></u>				
What time frame during the year is this meth	od employed? Jan-Dec			
Comments:				
Please attach a map of ditch maintenance ar	eas (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.				
HEXT SECTION.				
Describe the purpose of this program: OMWN	M aims to protect the salt marsh from the adverse			
	system. OMWM utilizes the natural features of the			
salt marsh to enhance predatory fish and nati	•			
stagnant areas that are conducive to mosquit	o larval development.			
What months is this program active? This me				
regulations as well as possible negative impac	regulations as well as possible negative impacts to the salt marsh when combined with sea level			
rise.				
	•			
Please give an estimate of total square feet o	r acreage: U			
Comments: We obtained all our normits for t	his program 2017			
Comments: We obtained all our permits for t	nis program 2017.			
Please attach a map of OMWM areas (or a w	vebsite link to that map).			
ricuse actaon a map or omittin areas (or a s	reside illin to that mapy.			
MONITORING (Measures of Efficacy)				
Describe monitoring efforts for each of the f	ollowing:			
Aerial Larvicide – wetlands: Pre and	Post applications			

Trapping data and Service Requests

Ground ULV Adulticide:

Larvicide – catch basins: prior to application

Larvicide-hand/small area prior to application

Open Marsh Water Management: Pre and Post application and per permit

Source Reduction: Pre and Post applications

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):

Per established Mass. Best Management Practice Standards and State Reclamation and Mosquito Board G.E.I.R.

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

Research Project	Details		
Bottle assays	We sent mosquito larvae to Cornell's Northeast Regional		
	Cener for Excellence in Vector-Borne Disease. Where the		
	larvae were raised to adult and the bottle assay was		
	performed. As part of this program some mosquitoes		
	were also sent to CT Agricultural Experiment Station		
Efficacy testing	A cage trial was performed using mosquitoes collected		
	from Marshfield.		
Other: JVC testing	Mosquitoes were submitted to UMass for JCV testing		
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: The purpose of this program is three fold: to monitor the mosquitoes for diseases, to determine general population levels and to decide where we can better focus our larvaciding and adulticiding efforts.

What months is this program active? May-September

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

Trap Type	Canopy?	Number of traps
	(check box for yes)	(leave blank if zero)
ABC light trap		
ABC light trap w/CO₂		10
CDC light trap		
CDC light trap w/CO ₂		10
Gravid trap		26
Landing rate test		
NJ light trap		28

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 If yes, how many: 28 - NJ trap sites, 24 - CDC trap sites,	
Please check off the species of concer	n in your service area:
🔀 Ae. albopictus	🔀 Oc. abserratus
🔀 Ae. cinereus	Oc. canadensis
🔀 Ae. vexans	$oxed{igselength}$ Oc. cantator
An. punctipennis	🔀 Oc. j. japonicus
🕍 An. quadrimaculatus	🔀 Oc. sollicitans
🔀 Cq. perturbans	🔀 Oc. taeniorhynchus
🔀 Cx. pipiens	🔀 Oc. triseriatus
∑ Cx. restuans	🔀 Oc. trivittatus
Cx. salinarius	🔀 Ps. ferox
Cs. melanura	Ur. sapphirina
Cs. morsitans	
Others (please list):	

Number of adult mosquitoes collected this season (whether submitted to DPH or not): 99,641 Number of adult mosquito pools collected this season (submitted and unsubmitted): 83,448 Number of ovitrap collections this season, if any: 0

Any other trap collections of note (please describe): Extra traping was done to collect mosquitoes for pesticide resistance testing, cage trial, JVC testing and extra EEEV testing.

Do you participate in the MDPH Arboviral Surveillance program? Yes Total number of adult mosquito pools submitted to DPH this past season: 685 How many pools do you submit weekly on average? 34

Number of traps in your service area **placed by MDPH**: 5 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)	0	0	0
	40	0	0
Other (please list): JCV	1	0	0

Comments:	
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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	all towns at low risk	Moderate risk: Bridgewater and
		West Bridgewater, Low risk: all
		other towns
WNV	all towns at low risk	Low risk: Hull, Marshfield and
		Scituate. Moderate risk: all other
		towns

Comments:	
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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 over-arching purpose of the program is to enhance public health and safety of the residents of Project communities as it applies to mosquitoes and mosquito viruses. The Project employs the methods checked below to reach individuals and groups of people of all ages in our member communities and to communicate the messages of the Massachusetts Department of Public Health, The Centers for Disease Control, the Environmental Protection Agency, and the American Mosquito Control Association.

What time frame during the year is this method employed? Primarily April through October, but requests may take place any time of the year. The time period of November - March is generally a time for planning the focus of the next season's efforts.

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): BOH, COA, Libraries)
$oxed{\boxtimes}$ 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 Website
Other (please describe): Youth Camp, Public Libraries, Town Recreation

Estimate the audience reached this year using the education/outreach methods above: Inperson and zoom events- 1,000-2,000. Radio/TV/website/Facebook/Newspaper- 100,000+ Comments:

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

1. Pesentaion at events

Tablets/Toughbooks

- 2. In-person meetings with BOH's/COA's
- 3. Meeting with school/daycares and summer camps to update IPM plans

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 Cornell University, University of Massachusetts and CT Agricultural Experiment Station Another mosquito control district/project BCMCP Another state agency (DCR, DPH, etc.) Environmental groups Industry List any training/education your staff received this year: Pesticide Applicators License Training, NMCA Annual Meeting, Hoisting License Continuing Ed., Mosquito Identification Training, NAAA Convention, NMCA Field Day, Flight Training Please list the certifications and degrees held by your staff: Ellen Bidlack B.S. Wildlife Management, M.S. Entomology, Commercial Certification 47, Hoisting License 1c2a - Ross Rossetti B.S. Aviation Science, CORE Management Program, Commercial Pilots/Drone Certificate, Commercial Applicator Certification 47 and 34, Hoisting license 1c2a, Class A CDL -Brain Callahan Commercial Applicator Certification 47, - Christopher Hanna Commercial Applicator Certification 47, 2a Hoisting License - Matthew McPhee B.A. Earth, Environment and Oceanic Sciences, CORE Management Program, Commercial Applicator Certification 47, 1c2a Hoisting License, Class A CDL - Russell Mazzilli B.S. Criminal Justice, Commercial Applicator Certification 47, Class A CDL, Hoisting License 1c2a - Stephanie Dugan, B.S. Environmental Biology, Commercial Applicator Certification 47, Hoisting License 1c2a - Christopher Hoppie Commercial Applicator Certification 47, Hoisting Liscense 1c2a- Brett Sousa, B.S. Criminal Justice, Commerical License Category 47, Hoisting License 1c2a - Mason Taft, Applicator License - Kendric Stiles, Applicator License Hoisting License 1c2a - Jesse Anderson, B.S. Psychology, Class A CDL, Hoisting Liscense 1c2a - Nic Disano, B.A. Real Estate, Applicator Liscense, Hoisting Liscense 1c2a - Erin Morrill, Master of Public Administration Management Comments: _____ **INFORMATION TECHNOLOGY (IT)** Does your program use (check all that apply): Aerial Photography X Databases Dataloggers (monitoring for temperature, etc.) SIS mapping (Describe: Site planning, exclusion mapping, larvicide/adulticide tracking) X GPS equipment ✓ Smartphones

Other (please describe):
Describe any changes/enhancements in IT from the previous year: PCMCP has migrated to cloud based Field Seeker for managing surveillance data, pesticide applications, and water management activities. Windows ULV is now used to track adulticide applications.
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	FY23	\$2,041,392.00	
Current	FY24	\$2,082,220.00	
Future	FY25	\$2,123,864.40	Not approved at this time

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): https://dlsgateway.dor.state.ma.us/reports/rdPage.aspx?rdReport=CherrySheets.CSbyProgMunis.MuniBudgFinal

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L.O	m	ner	us:	

SERVICE REQUESTS

How many service requests did you receive this season? 13,655 How many were for larviciding? 483 How many were for adulticiding? 13,980

Was this an increase or decrease over last season? Decrease

Comments: The decrease in sercvice requests was minimal compared to last season.

EXCLUSIONS

How many exclusion requests did you receive this season? 298

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. There was 20,951 acres excluded from adulticiding activities in 2023. This included 17,987 acres that Natural Heritage

and Endangered Species Program placed. NHESP also placed restrictions on other activities totalling to an additional 115,671 acres.

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: We continually work with local DPW and MassDOT on water management projects.
Work with groups as described above on long term solutions?
Describe: We work with DPW's and MassDOT to identify areas with need for ongoing maintenance.
• Conduct or participate in any cooperative research or restoration projects?
Describe:
This year we continued our relationship with Cornell University. We sent them mosquitoes for pesticide resistance testing. Met with Mass Audubon and the Division of Ecological Restoration to discuss future cranberry bog restoration projects. Ongoing work with Mattapoisett Land Trust for salt marsh restoration.
 Participate in any state/regional/national workgroups or panels, or attend any meeting pertaining to the above?
Describe: Attended stakeholder meetings with Buzzards Bay Coalition to discuss and learn about new methods for salt marsh restoration.
 Work on any biological control projects, such as enhancement of habitat for native predators, release of predatory fish or invertebrates, etc.?

CHILDREN AND FAMILIES PROTECTION ACT (CFPA)

Is your program impacted by the CFPA? Yes

Describe:

If yes, please explain: Incomplete listing of our products delays or prohibits treating for mosquitos on school property.

If you have data on compliance rates with the CFPA within your program area, please list here: PCMCP checks IPM plans for every school before it schedules an application.

Describe any difficulties you have had with the implementation of your program due to the CFPA, please elaborate here: No problems, schools were anxious to make sure that they were in compliance with the CFPA.

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: _____