# MASSACHUSETTS MOSQUITO CONTROL



# ANNUAL OPERATIONS REPORT

Year Report Covers: 2019 Date of Report: 1/16/2020

Project/District Name: Plymouth County Mosquito Control Project

Address: 272 South Meadow Rd

City/Town: Plymouth

Zip: 02360

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Report prepared by: Stephen Gillett, Ross Rossetti and Ellen Bidlack

NPDES permit no. MAG 87B214

If you have a mission statement, please include it here: To maintain an efficient, economical mosquito control operation that will provide the best results possible, be consistent with all ecological aspects and consider the best interests of member communities.

# **ORGANIZATION SETUP:**

Commissioner names:

<u>Cathleen Drinan</u> John Kenny John Sharland Michael Valenti

Superintendent/Director name: Stephen Gillett Superintendent/Director contact phone number: 781-585-5450 Asst. Superintendent/Director name: Ross Rossetti

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 Denise Deluca

Biologist

Educator Dan Daly, Ellen Bidlack

Entomologist Ellen Bidlack

Kacilities Stephen Gillett, Ross Rossetti

Information technology Ellen Bidlack, Ross Rossetti

Laboratory Ellen Bidlack

Operations Stephen Gillett, Ross Rossetti, Denise Deluca, Matthew McPhee

Public relations Dan Daly

Wetland scientist

Other (please describe) Pilot-Ross Rossetti, Excavator Operator-Brian Callahan, Brandon Gillett, General Foreman - Matthew McPhee, Field Technicians - Christoper Hanna, George Rego, Michael Wilkins, Russell Mazzilli, Keith Bachi, Stephanie Dugan

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

1 Modified wetland equipment (list type) Link-Belt Excavator

5 Larval control equipment (list type) 2 hydraulic units, 2 backpack sprayers, 1 pump can

9 ULV sprayers (list type) Clarke Pro Mist Dura

19 Vehicles

Other (please be specific): 1 Link-Belt excavator, 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):

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. Through spring aerial laviciding over 15,000 acres of wetlands, site inspections, treating larval habitat by hand or hydraulic spraying, and catch basin treatments the Project hopes to enhance the quality of life of our residents by reducing the number of mosquitoes hatching out.

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 wetlands and 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): Comments: \_\_\_\_\_

Product Name	EPA #	Application Rate(s)	Application Method	Targeted life stage	Habitat Type	Total finished product applied
Vectobac 12AS	73049-38	1 pint per acre	Aerial	Larvae	<ul> <li>☐ Catch basins</li> <li>☐ Containers</li> <li>☑ Wetland</li> <li>☐ Other (please list):</li> </ul>	1500 gals
Vectobac 12AS	73049-38	4oz to 50gals water	Hydraulic Sprayer	Larvae	Catch basins Containers Wetland Other (please list):	1.5 gals
Four Star 90 Day Briquet	83362-3	1 Briquet per basin	Hand	Larvae	Catch basins Containers Wetland Other (please list):	796 lbs
Summit Briquets	6218-47	1briquet /10'x10' surface area	hand	Larvae	<ul> <li>☐ Catch basins</li> <li>☑ Containers</li> <li>☑ Wetland</li> <li>☐ Other (please list):</li> </ul>	134 lbs
VectoLex WSP	73049-20	1 pouch per basin	hand	Larvae	Catch basins Containers Wetland Other (please list):	806 lbs
Four Star MBG	85685-3	5-10 lb/acre	backpack	Larvae	Catch basins Containers Wetland Other (please list):	265 lbs
				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):

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
				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:

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, businesses and town officials requests for adulticiding with ULV truck mounted sprayers .

What is the time frame for this program? Project wide, PCMCP accepts request for adult mosquito control from individual residents, business and town officials within the 28 town district.

Describe the types of areas where you use this program: May to October (end date depends on virus activity and weather conditions).

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
DUET	1021-1795- 8329	.62oz.per acre	ULV	698 gals
Mavrik	2724-478	5oz/50gal water	Hydraulic Sprayer	20 oz

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

Each resident household has a maximum of 8 treatments per season

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 1 per night))

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 have removed 2,763 tires for recycling.

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 water ways. Techniques include site monitoring both before and after work, hand cleaning of the water way or use of mechanized equipment.

For inland/freshwater water management, check	off all that apply.
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Maintenance Type	Estimate of cumulative length of culverts, ditches, swales, etc. maintained (ft)		
Culvert cleaning			
Hand cleaning	51,310 ft		

Mechanized cleaning	7,430 ft
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	150 ft
Mechanized cleaning	1,190 ft
Other (please list):	

Comments:

What time frame during the year is this method employed? Jan-Dec

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: OMWM aims to protect the salt marsh from the adverse impacts of grid ditching and improve the ecosystem. OMWM utilizes the natural features of the salt marsh to enhance predatory fish and native bird habitat while reducing or eliminating stagnant areas that are conducive to mosquito larval development

What months is this program active? The program is active year round. In the summer months the salt marsh is monitored and in the winter the OMWM site is constructed.

Please give an estimate of total square feet or acreage: 0

# **Comments:** <u>We obtained all our permits for this program 2017.</u>

### 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 and Post applications
Ground ULV Adulticide:	Periodic landing rate checks and trapping data
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	
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: 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-October

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

Тгар Туре	Canopy?	Number of traps
	(check box for yes)	(leave blank if zero)
ABC light trap		
ABC light trap w/CO <sub>2</sub>		
CDC light trap		
CDC light trap w/CO <sub>2</sub>		27
🔀 Gravid trap		25
Landing rate test		
🔀 NJ light trap		28
NJ light trap w/CO <sub>2</sub>		
🔀 Ovitrap		8
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:

Please check off the species of concern in your service area: 🛛 Ae. albopictus  $\times$  Oc. abserratus  $\times$  Ae. cinereus Oc. canadensis imes Ae. vexans Oc. cantator  $\triangleleft$  An. punctipennis Oc. j. japonicus imes Oc. sollicitans  $\times$  An. quadrimaculatus imes Cq. perturbans  $\times$  Oc. taeniorhynchus  $\times$  Cx. pipiens imes Oc. triseriatus  $\boxtimes$  Cx. restuans imes Oc. trivittatus  $\times$  Cx. salinarius  $\triangleleft$  Ps. ferox  $\times$  Cs. melanura Ur. sapphirina Cs. morsitans Others (please list):

Number of adult mosquitoes collected this season (whether submitted to DPH or not): 171,225 Number of adult mosquito pools collected this season (submitted and unsubmitted): 3,053 Number of ovitrap collections this season, if any: 25

Any other trap collections of note (please describe): We ran many extra CDC light traps to collect data on the efficacy of the aerial adulticiding conducted by the state.

Do you participate in the MDPH Arboviral Surveillance program? Yes Total number of adult mosquito pools submitted to DPH this past season: 23,293 How many pools do you submit weekly on average? 39

Number of traps in your service area **placed by MDPH**: 19 Were these long-term trap sites or supplemental trapping sites? both

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)	72	0	1
West Nile Virus (WNV)	4	0	2
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	all towns at low risk	Moderate risk: Cohasset, Hingham,

		Hull, Abington, Rockland, Brockton, Hanson, Hanover, Norwell, Marshfield, Pembroke, Duxbury, Scituate, Kingston and Plymouth. High risk: Bridgewater, East Bridgewater, Halifax, Mattipoisett, Plympton and West Bridgewater and Whitman. Critical Risk: Carver, Lakeville, Middleboro, Marion, Rochester and Wareham.
WNV	all towns at low risk	Moderate Risk: Bridgewater, Middleboro, Carver, Halifax, Plympton and Kingston. Low risk: all other towns

# 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 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 all the methods checked on the form 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): )

ig ig Media outreach (interviews for print or online media sources, press releases, etc.)

Presentations at meetings

School-based programs, science fairs, etc.

 $\boxtimes$  Tabling at events (local events, annual meetings, etc.)

 $\leq$  Website

Other (please describe):

Estimate the audience reached this year using the education/outreach methods above: It is very safe to estimate that our outreach audience can be measered in the thousands. Our use of radio alone (WATD) reached at least a thousand residents on the south shore, and beyond per interview. Press releases to local newpapers include the not only the paper readership but the online readers as well. Boards of health tend to place our message and information on the town websites and many also take advantage of Facebook to reach a much larger audience. Presentations, such as the ones conducted in Whitman, Kingston, and Abington designed for a local cable access audience are often also placed on Youtube. Comments:

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

- 1. <u>To increase public awareness of who we are, what we do, how we do it, and to be able to access our services.</u>
- 2. <u>To increase public awareness of what actions they can take to avoid mosquito bites,</u> <u>including how to select the best repellents (EPA registered options).</u>
- 3. <u>To ensure that school districts stay current of the CFPA, have updated IPM plans and understand the required steps to be able to have the Project spray their grounds.</u>

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

Another state agency (DCR, DPH, etc.)

Environmental groups

\_\_\_\_ Industry

List any training/education your staff received this year: Applicators License training, NMCA Annual Meeting, NMCA Field Day, DigSafe and M.U.S.T. Training, NEAAA Annual Conference.

Please list the certifications and degrees held by your staff: Stephen Gillett Commonwealth Supervisor Certificate, Class A CDL , 1c2a Hoisting Engineer License, Commercial Certification 47 - Ellen Bidlack B.S., M.A. Entomology, Commercial Certification 47 - Dan Daly BS, M Ed., CAGS, CAS. - Ross Rossetti B.S. Aviation Science, CORE Management Program, Commercial Pilots Certificate, Commercial Certification 47 and 34, Hoisting license 1c2a, Class A CDL - Brain Callahan Commercial Certification 47, Class A CDL, 1c2a Hoisting License - Brandon Gillett Commercial Certification 47, 1c2a Hoisting License, Class A CDL - Keith Bachi Core Applicator License, Class B CDL - Christopher Hanna Commercial Certification 47, 2a Hoisting License -George Rego Applicators License, Class A CDL, 1c2a Hoisting License - Matthew McPhee B.A. Earth, Environment and Oceanic Sciences, Commercial Certification 47, 1c2a Hoisting License, Class A CDL - Russell Mazzilli B.S. Criminal Justice, Commercial Certification 47, Hoisting License 1c2a - Michael Wilkins, Commercial Certification 47, Hoisting License 1c2a - Stephanie Dugan, B.S. Environmental Biology, Commercial Certification 47.

# 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: Email notification was added to our adulticide routing program.

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	Approved Budget	Notes		
	Year				
Previous	2019	1,832,622.00			
Current	2020	1,896,764.00			
Future	2021		No approved budget at the time of report		

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.CSbyProgMu nis.MuniBudgFinal

### Comments: \_\_\_\_\_

### SERVICE REQUESTS

How many service requests did you receive this season? 17584 How many were for larviciding? 382 How many were for adulticiding? 17202

Was this an increase or decrease over last season? Increase

#### Comments:

### EXCLUSIONS

How many exclusion requests did you receive this season? 310

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. There were several large exclusions due to priotity habitat and conservations groups such as Mass Audubon and Trustees of the Reservation.

### 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 continue to work with local DPW on water management projects.

- Work with groups as described above on long term solutions?
   Describe:
- Conduct or participate in any cooperative research or restoration projects?

Describe: 1. PCMCP completed a large salt marsh restoration project in Scituate with approval from Army Corps of Engineers and MassDEP and consultation from EPA and CZM

2. Published a joint article with other MCPs on the expansion of Ae. thibaulti's range into Massachusetts.

3. Examined the influence of weather on EEEV with BCMCP.

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

Describe: Gave two presentations on the influence of weather on EEEV in southeastern MA.

• 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: For some school districts it had either been several years since their last spray request or there was a change in staff. In either case the Project needed to spend time reviewing the CFPA requirements with these schools to ensure that the required proceess was fully understood and followed. Over 50 spray events took place at schools or daycares with proper prior notifications.

If you have data on compliance rates with the CFPA within your program area, please list here: With the exception of one public school district, all public schools have updated IPM plans and those who requested to be sprayed fully followed the regualtions. Both the Project and the schools have the required paperwork on file.

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: