

# MASSACHUSETTS MOSQUITO CONTROL

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## ANNUAL OPERATIONS REPORT



Year Report Covers: 2015      Date of Report: 01/13/2016

Project/District Name: **Central Mass. Mosquito Control Project**

Address:      111 Otis St.

City/Town:      Northborough, MA

Zip: 01532

Phone:      (508) 393-3055

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**Report prepared by: *Tim Deschamps***

NPDES permit no. **MAG87A023**

If you have a mission statement, please include it here: the objective of the Project is to attain an efficient, economic mosquito control operation which will provide the best results possible and be consistent with all ecological aspects and the best interests of the member towns.

Our goal is to reduce mosquito exposure to the public, and the potential for disease transmission by mosquitoes, by utilizing proven, sound mosquito control techniques. CMMCP believes the best way to accomplish this task is by practicing an Integrated Pest Management (IPM) approach as it relates to mosquito control in Massachusetts. IPM utilizes a variety of control techniques and evaluation procedures. Control efforts are undertaken only after surveillance data has been collected and analyzed. Training, experience and common sense dictate our response in any given situation.

It is our desire and responsibility for this Project to have the best mosquito control for the communities that we serve.

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### ORGANIZATION SETUP:

#### Commissioner names:

Richard Day

Pablo Noguera

Dean Mazzarella

Paul Mazzuchelli

Sam Telford

**Superintendent/Director name:** Tim Deschamps

**Superintendent/Director contact phone number:** (508) 393-3055

**Asst. Superintendent/Director name:** Tim McGlinchy

**District/Project website:** <http://www.cmmcp.org>

**Twitter handle:** @CMassMosquito

**Facebook page:** <http://www.facebook.com/Central.Mass.Mosquito>

**Staffing levels for the year of this report:**

Full time: 20

Part time:

Seasonal: 3

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 2.5
- Biologist 2
- Educator 5
- Entomologist 3
- Facilities 1
- Information technology 2
- Laboratory 3
- Operations 3
- Public relations 20
- Wetland scientist 1
- Other (please describe)

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

- 2 Modified wetland equipment (list type) Link Belt 1600, John Deere 350
- 4 Larval control equipment (list type) Muryama backpack sprayers
- 16 ULV sprayers (list type) ProMist HD
- 28 Vehicles

Other (please be specific):

**Comments:** \_\_\_\_\_

How many cities and towns are in your service area?\* 41

Alphabetical list: Acton; Ashland; Auburn; Ayer; Berlin; Billerica; Blackstone; Boxborough; Boylston, Chelmsford; Clinton; Dracut; Devens; Fitchburg; Gardner (effective July 1); Holliston; Hopedale; Hopkinton; Hudson; Lancaster; Leominster; Littleton; Lowell; Lunenburg; Marlborough; Milford; Millbury; Millville; Natick; Northborough; Northbridge; Sherborn; Shrewsbury; Southborough; Stow; Sturbridge; Tewksbury; Uxbridge (service ended June 30); Webster; Westborough; Westford; Wilmington

Were there any changes to your service area this year? Yes

Cities/towns added: Gardner

Cities/towns removed: n/a

**\*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: To control mosquitoes in the larval stage to reduce mosquito emergence and reduce adulticide use

What months is this program active? March through October

Describe the types of areas where you use this program: Wetlands, catch basins, stormwater structures, containers (i.e. tires, etc.)

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 G	73049-10	5-10 lbs./acre	hand/backpack	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	2,988 lbs.
Vectobac G	73049-10	5 lbs./acre	helicopter	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	10,040 lbs.
FourStar Microbial briquets	83362-3	one briquet per basin	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	9,664 briquets
Altosid WSP	2724-448	one pouch per basin	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	525,000 grams
Vectolex WSP	73049-20	one pouch per 50 sq. ft.	hand	Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Other (please list): swimming pools	4,150 grams
Altosid XR briquets	2724-421	one briquet per 200sq. ft.	hand	Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	2,088 briquets
BVA2 oil	70589-1	1-5 gal./acre	pump can	Larvae/pupae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	26.53 gal.

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
Natular G	8329-80	5 lbs./acre	hand	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	122 lbs.
Natular G30	8329-83	5 lbs./acre	hand	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	14.75 lbs.
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> 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: >1 larvae per 5 dips avg.
- Other (please describe):

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

Please attach a map of your service area (or a website link to that map). Basin application maps included as standard in town annual reports - check here:

<http://www.cmmcp.org/about.htm>

**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 suppress populations of adult mosquitoes

Describe the types of areas where you use this program: streets, yards, recreational areas, schools (per the Children's Protection Act regulations)

What is the time frame for this program? May through October as weather conditions allow

Describe the types of areas where you use this program: see above

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
Anvil 10+10	1021-1688-8329	0.0012 lbs a.i./acre	truck mounted ULV	256.67 gal.
Zenivex E20	2724-791	0.00175 lbs a.i./acre	truck mounted ULV	41.13 gal.

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

Less than one application at high rate in 24 hours

What is your trigger for adulticiding operations? (check all that apply)

- Arbovirus data
- Best professional judgment
- Complaint calls (Describe trigger for application: >2 per square mile\*)
- Landing rates (Describe trigger for application >1 per minute\*)
- Light trap data (Describe trigger for application >5 human-biting per night\*)

**Comments:** \* recommendations from the mosquito control GEIR

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

### **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: The program consists of four components:

1. Clean-up of large waste tire dumping sites that we have databased and that require repeated larval control measures;
2. Residential waste tire removal (curb-side); and
3. Removal of waste tires discarded on the side of the road.
4. Coordination with community events

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

**Comments:** 2,821 tires (28.21 tons) recycled in 30 member communities in 2015. Total to date, 17,203.

### **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: Maintenance of existing ditch systems by removal of accumulated organic debris and other obstructions.

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

Maintenance Type	Estimate of cumulative length of culverts, ditches, swales, etc. maintained (ft)
<input checked="" type="checkbox"/> Culvert cleaning	1,110
<input checked="" type="checkbox"/> Hand cleaning	98,103 ft.
<input checked="" type="checkbox"/> Mechanized cleaning	7,055 ft.
<input type="checkbox"/> Stream flow improvement	
<input type="checkbox"/> Other (please list):	



**Comments:** \_\_\_\_\_

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

Maintenance Type	Estimate of cumulative length of ditches maintained (ft)
<input type="checkbox"/> Hand cleaning	
<input type="checkbox"/> Mechanized cleaning	
<input type="checkbox"/> 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).**

### **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: one dip station per 250 acres
- Ground ULV Adulticide: evaluation of vector control spraying in 2015
- Larvicide – catch basins:
- Larvicide-hand/small area as many as time & manpower allow - 287 checks in 2015
- Open Marsh Water Management:
- Source Reduction: as directed in the BMP
- Other (please list): adverse effects for NPDES monitoring were done when technicians revisited a treated area - notations were made on their work reports (no adverse effects noted in 2015)

Provide or list standard steps, criterion, or protocols regarding the documentation of efficacy (pre and post data), and resistance testing (if any):

**2007: To test the efficacy of the CMMCP standard adulticide procedure, two sites were chosen per week for seven weeks with mosquito collections made for both sites every weekday evening. One of these sites was selected to be sprayed in the standard manner while the other is not sprayed and is used as the control site. Collections were made for each site Monday through Friday with the experimental site being adulticided on Wednesday evenings. Test sites were chosen from service requests received, while the control sites were selected from nearby areas that the residents were informed that their property would be treated as an exclusion area for that week. Of the seven weeks of trials, four were at residential sites, two at recreational locations, and one was at a transfer station. 2008: A local collection of recreational fields was selected as the site for this project based primarily on layout and dense barrier foliage, ideal for this type of application. The treatment and control sites were on separate fields towards the opposite ends of the complex. Once established, pre-application surveillance began at the two sites using model 512 CDC miniature light traps baited with CO<sub>2</sub> (500ml/min), along with model 1512 collection bottle rotators . These traps were place in the recreational field away from the foliage so that in order for the host-seeking mosquitoes to reach the traps, they would have to travel through the treated foliage. Bottle assays (2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 & 2015): The bottle assay procedure used by CMMCP was modeled after the CDC method where a baseline for resistance was established using specimens collected from an area without any historical adulticide exposure. This data could then be plotted against data from mosquito populations in areas where our records show past insecticide usage has occurred. This will determine if any degree of resistance has developed to our current adulticide product.**

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

Research Project	Details
Bottle assays	X
Efficacy testing	X
Other: field trials	Natular G & Natular G30
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: Monitor for species density, population trends and virus isolations

What months is this program active? May through October

Check off all trap types currently in use by your program:

ABC light traps

Canopy

- |   |  |
|---|--|
| <input type="checkbox"/> ABC light traps w/CO <sub>2</sub>            | <input type="checkbox"/> Canopy            |
| <input type="checkbox"/> CDC light traps                              | <input type="checkbox"/> Canopy            |
| <input checked="" type="checkbox"/> CDC light traps w/CO <sub>2</sub> | <input checked="" type="checkbox"/> Canopy |
| <input checked="" type="checkbox"/> Gravid traps                      |  |
| <input checked="" type="checkbox"/> Landing rate tests                |  |
| <input type="checkbox"/> NJ light traps                               | <input type="checkbox"/> Canopy            |
| <input type="checkbox"/> NJ light traps w/CO <sub>2</sub>             | <input type="checkbox"/> Canopy            |
| <input checked="" type="checkbox"/> Ovitrap                           |  |
| <input checked="" type="checkbox"/> Resting boxes                     |  |
| <input type="checkbox"/> Other (please describe):                     |  |

Do you maintain long-term trap sites in any of your areas? Yes

If yes, please describe how you chose these long-term sites:  
Prior virus isolations, geography and collection data

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

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> <i>Ae. albopictus</i>      | <input checked="" type="checkbox"/> <i>Oc. abserratus</i>   |
| <input checked="" type="checkbox"/> <i>Ae. cinereus</i>        | <input checked="" type="checkbox"/> <i>Oc. canadensis</i>   |
| <input checked="" type="checkbox"/> <i>Ae. vexans</i>          | <input type="checkbox"/> <i>Oc. cantator</i>                |
| <input checked="" type="checkbox"/> <i>An. punctipennis</i>    | <input checked="" type="checkbox"/> <i>Oc. j. japonicus</i> |
| <input checked="" type="checkbox"/> <i>An. quadrimaculatus</i> | <input type="checkbox"/> <i>Oc. sollicitans</i>             |
| <input checked="" type="checkbox"/> <i>Cq. perturbans</i>      | <input type="checkbox"/> <i>Oc. taeniorhynchus</i>          |
| <input checked="" type="checkbox"/> <i>Cx. pipiens</i>         | <input checked="" type="checkbox"/> <i>Oc. triseriatus</i>  |
| <input checked="" type="checkbox"/> <i>Cx. restuans</i>        | <input checked="" type="checkbox"/> <i>Oc. trivittatus</i>  |
| <input type="checkbox"/> <i>Cx. salinarius</i>                 | <input checked="" type="checkbox"/> <i>Ps. ferox</i>        |
| <input checked="" type="checkbox"/> <i>Cs. melanura</i>        | <input checked="" type="checkbox"/> <i>Ur. sapphirina</i>   |
| <input type="checkbox"/> <i>Cs. morsitans</i>                  |   |
| <input type="checkbox"/> Other (please list):                  |   |

Do you participate in the MDPH Arboviral Surveillance program? Yes  
How many pools do you submit weekly on average? 100

Number of traps in your service area **placed by MDPH**: 0-5 depending on season & budget/personnel restrictions

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
<input checked="" type="checkbox"/> Eastern Equine Encephalitis (EEE)	1	0	0
<input checked="" type="checkbox"/> West Nile Virus (WNV)	9	0	0
<input type="checkbox"/> 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/low/moderate	remote/low/moderate
WNV	low	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: Educating the public about mosquitoes and their biology is an important aspect of the Project's program. We offer a comprehensive program geared towards school-aged children from Kindergarten to High School in member communities. This program is tailored to meet the needs of intended audience. The Project produces public relations handouts, and all member Town Halls are stocked with information on CMMCP, our programs, and how the homeowner can reduce mosquito populations in their own area. Project staff is available to meet with civic organizations, town/city boards, and to participate in Health Fairs.

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): program aimed at senior citizens

Estimate the audience reached this year using the education/outreach methods above: 2,820

Comments: 67 presentations in 2015

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

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

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.) DPH - monitoring for Aedes albopictus
- Environmental groups
- Industry

List any training/education your staff received this year: Clarke Mosquito seminar, UMASS invasive plant certification, NMCA annual meeting

Please list the certifications and degrees held by your staff: Curtis Best, B.A. in Entomology: Frank Cornine, B.A. in Biology & Masters in Public Health: Todd Duval, B.A. in Biology & Master in Aquatic Biology: Tim McGlinchy, MS non-profit mgmt. Katrina Proctor certifications in wetland science; Tim Deschamps, numerous licenses and certifications

**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 provide the amounts for your approved budgets for the current, previous, and future fiscal years. Please note if the budget for the next fiscal year is an estimate, or put "n/a" if it is not yet available.

Fiscal Year	Approved Budget
FY/17	\$2,171,306
FY/16	\$2,029,800

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):

<http://www.mass.gov/dor/local-officials/municipal-databank-and-local-aid-unit/cherry-sheets/2016-cherry-shets/>

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

## SERVICE REQUESTS

How many service requests did you receive this season? 16,487

How many were for larviciding? 559

How many were for adulticiding? 15,928

Was this an increase or decrease over last season? Increase

Comments: **13.5% increase from 2014**

## EXCLUSIONS

How many exclusion requests did you receive this season? increases/decreases not tracked

Was this an increase or decrease over last season? Choose one

Do you have large areas of pesticide exclusion, such as estimated or priority habitats? No

If yes, please explain, and attach maps or a web link if possible.

## 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:
- 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: Incomplete compliance by schools regarding our products, including larval control products

If you have data on compliance rates with the CFPA within your program area, please list here: approx. 85-90% compliance

Describe any difficulties you have had with the implementation of your program due to the CFPA, please elaborate here: We have sent letters and hand delivered information packets to the School Superintendents' offices for 9+ years now, compliance is slowly rising.

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: \_\_\_\_\_