

**STATE RECLAMATION AND MOSQUITO CONTROL BOARD
MASSACHUSETTS MOSQUITO CONTROL DISTRICT**
ANNUAL OPERATIONS REPORT



2013 Year of Report

Date of Report: 1/22/2014

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

Address: 11 Sun St.

City/Town: Waltham

Zip: 02453-4101

Phone: 781-899-5730

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Report prepared by: *David Henley*

NPDES permit no. **MAG87A041**

If you have a mission statement, please include it here: Provide a scientifically based cost effective program to control mosquitoes and the diseases they transmit.

ORGANIZATION SETUP:

Please list your Commissioner's names:

Christopher Busch, Jennifer Evans, DVM, Kaitlyn Hennigan and Anna Todesca.

Please list the Supt./Director's name: David Henley

Please list the Supt./Director's contact phone number: 781-899-5730

Please list your Asst. Supt./Asst. Director's name: Brain Farless, Field Supervisor

Do you have a website? Yes If yes, please list the web address here:
<http://scmcp.webs.com>

Please list your staffing levels for the year of this report:

Full time: 3

Part time:

Seasonal: 2

Other: (please describe)

Please break these down into the following areas:

Administrative staff: Superintendent and Clerk

Field staff: Field Supervisor and two full-time seasonal Field Technicians.

Please check off all that apply, and list employee name(s) next to each category:

- Public relations David Henley
- Information technology
- Entomologist
- Wetland Scientist
- Biologist
- Education
- Laboratory
- Operations Full-time: Brian Farless. Seasonal: Michael Radley and Nathaniel Grondin.
- Facilities David Henley and Brian Farless
- Other (please list)

For the year of this report, we maintained:

2 vehicles

modified wetland equipment (list type)

1 ULV sprayers (list type) 1 Clarke Cougar Smartflow with radar.

Larval control equipment (list type) backpack pump sprayers

Other (please be specific): 1 motorized backpack mistblower

Comments: _____

How many cities & towns in your service area? 2

Please list: Boston and Chelsea.

Any changes to your service area this year? Yes

Please list cities/towns added or removed A Memorandum of Agreement was signed to share administrative services with the East Middlesex Mosquito Control Project..

***Please attach a link to a map of your service area if possible.**

INTEGRATED PEST MANAGEMENT (IPM):

DEFINITION: a comprehensive strategy of pest control whose major objective is to achieve desired levels of pest control in an environmentally responsible manner by combining multiple pest control measures to reduce the need for reliance on chemical pesticides; more specifically, a combination of pest controls which addresses conditions that support pests and may include, but is not limited to, the use of monitoring techniques to determine immediate and ongoing need for pest control, increased sanitation, physical barrier methods, the use of natural pest enemies and a judicious use of lowest risk pesticides when necessary.

Please check off all of the services that you currently provide to your member cities and towns as part of your IPM program; details of these services are in the next sections.

- Larval mosquito control
- Adult mosquito control
- Source reduction
- Ditch maintenance
- Open Marsh Water Management
- Adult mosquito surveillance
- Education, Outreach & Public education
- Research
- Other (please list):

Comments: _____

LARVAL MOSQUITO CONTROL:

Do you have a larval mosquito suppression program? Yes

If yes, please describe the purpose of this program: This program focused on controlling larvae of spring and summer floodwater species and Culex 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 youth sports, recreation activities and outdoor maintenance projects. Summer floodwater species are controlled because they are aggressive mammal biting species and possible human vectors of EEE. Culex mosquitoes are controlled because they are considered enzootic and human vectors for West Nile Virus.

The Project worked collaboratively with the Boston Public Health Commission to distribute larvicides for use in catchbasins to municipal departments and large property managers in Boston including Boston Inspectional Services Department, the Boston Housing Authority, the Franklin Park Zoo, Boston University, Harvard University, the Mass. College of Art and Tufts University.

Please give the time frame for this program: Spring floodwater mosquito larvae are controlled from late March through May. Summer floodwater mosquito larvae are controlled from late May through early October. Culex mosquito larvae are controlled from late May through September.

Describe the areas that this program is used: Intermittently flooded wetlands, stormwater detentions basins, catchbasins, neglected swimming pools and other water holding containers.

Do you use:

- Ground applied (includes hand, portable and/or backpack)**
- Helicopter applications**
- Other (please list):**

Comments: 2013 represents the first year that the Suffolk County MCP funded helicopter applications of Bti to control spring floodwater mosquitoes.

What products do you use in – (please use product name and EPA#)

Wetlands: Teknar HPD - #73049-404, VectoBac G - EPA #73049-10 and VectoBac 12AS - EPA #275-102.

Catch basins: Vectolex WSP - EPA #73049-20, Spheratax SPH WSP - EPA #84268-2, Altosid Pellets WSP - EPA #2724-448, Altosid XR Ingot Briquets - EPA #2724-421.

Containers: Spheratax SPH WSP - EPA #84268-2, Vectolex WSP - EPA #73049-20,

Other (please list):

Please list the rates of application for the areas listed above:

Wetlands: Vectobac G was applied by helicopter at a rate of 5 lbs. per acre. Vectobac 12 AS was applied by portable sprayers at rates of 16 oz. per acre. Teknar HPD was applied at a rate of 16 oz. per acre.

Catch basins: Vectolex WSP, Spheratax SPH WSP and Altosid WSP were applied at a rate of one pouch per catchbasin. Altosid XR Ingot Briquets were applied at a rate of 1 briquet per catchbasin.

Containers: Vectolex WSP and Spheratax WSP were applied to neglected swimming pools at the rate of 1 pouch per 50 square feet.

Other:

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

- Larval dip counts – please list trigger for application: 3 larvae per 10 samples
- Historical records
- Best professional judgment

Comments: Larval control at neglected swimming pools is done in cooperation with municipal health departments. Altosid Pellets WSP and Altosid XR Ingot Briquets are

applied to catchbasins during the month of June as a pre-emergence treatment to control Culex larvae. Altosid Pellets WSP, Altosid XR Ingot Briquets, Spheratax SPH WSP and Vectolex WSP were used to control Culex larvae in catchbasins in July, August and September.

***Please attach a link to maps of treatment areas if possible.**

ADULT MOSQUITO CONTROL:

Do you have an adult mosquito suppression program? Yes

If yes, please describe the purpose of this program: To reduce the number of mammal biting mosquitoes, EEE human bridge vector mosquitoes and secondary WNV human bridge vector species.

Please give the time frame for this program: June through September

Describe the areas that this program is used: Suburban residential neighborhoods with a relatively dense configuration of streets.

Do you use:

- Truck applications**
- Portable applications**
- Aerial applications**
- Other (please list):**

Comments: _____

Please list the names of the products used with EPA #:

- 1). Anvil 10 + 10, EPA #1021-1688-8329
- 2). Suspend SC, EPA #432-763
- 3).
- 4).
- 5).
- 6).

Please list your application rates for each product:

- 1). Anvil 10 + 10 ULV is applied at .0012 lbs. per acre and .0024 lbs. per acre.
- 2). Suspend SC is mixed at .8 fl. oz per gal. of water and applied at rate of 1 gal. finished spray per 1,000 sq. ft.
- 3).
- 4).
- 5).
- 6).

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

In 2013 the maximum number of times that wide area adult mosquito control occurred in any neighborhood was two times. The shortest interval between applications was 21 days.

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

- Landing rates - please list trigger for application 10 mosquitoes in 10 minutes.
- Light trap data - please list trigger for application 100-200 mammal biting mosquitoes.
- Complaint calls - please list trigger for application
- Arbovirus data
- Best professional judgment

Comments: Scheduling adult mosquito control applications is based on mosquito population data. Spraying in the vicinity of an EEE or West Nile Virus isolation or human case may be done. Citizen requests for control are regarded as supplemental data that may influence the shape of the area, where control is scheduled.

***Please attach a link to maps of treatment areas if possible.**

SOURCE REDUCTION

Do you perform source reduction methods such as tire/container removal? Yes

If yes, please describe your program: During ditch maintenance activities, tires may be removed from work areas..

What time frame during the year is this method employed? October through March.

Comments: _____

DITCH MAINTENANCE

Do you have a ditch maintenance program? Yes

Please check all that apply:

- Inland/freshwater
- Saltmarsh

If yes, please describe: Ditch maintenance is done using hand tools to remove obstructions and restore water flow. In 2013, the Suffolk County Mosquito Control Project started the planning process to implement the use of an excavator for ditch

maintenance activities. The planning process for using an excavator involve protocols contained in the Massachusetts Best Management Practice and Guidance for Freshwater Mosquito Control are followed.

Please check off all that apply INLAND DITCH MAINTENANCE:

- Hand tools**
- Mechanized equipment**
- Other (please list):**

Comments: _____

Please check off all that apply SALTMARSH DITCH MAINTENANCE:

- Hand cleaning**
- Mechanized cleaning**
- Other (please list):**

Comments: _____

Please give an estimate of cumulative length of ditches maintained from the list above **INLAND:**

Hand cleaning 750'
Mechanized cleaning
Other (please list):

Comments: _____

Please give an estimate of cumulative length of ditches maintained from the list above **SALTMARSH:**

Hand cleaning
Mechanized cleaning
Other (please list):

What time frame during the year is this method employed? Most inland ditch maintenance work is done from October through March.

Comments: _____

***Please attach a link to maps of ditch maintenance areas if possible.**

MONITORING (Measures of Efficacy)

Please describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands: Pre-application surveys were conducted at 2 sites. Post-application surveys were conducted at 1 site. Arcview GIS maps of targeted wetlands are prepared prior to the application. Ag-Nav maps recorded during the application are reviewed to determine coverage.

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 catchbasins 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.

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.

Source Reduction:

Open Marsh Water Management:

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-application larval dip counts are undertaken with a minimum of 30 dips per site. Random post application dip counts with a minimum of 30 dips at sites where monitoring occurs. 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.**

At catchbasins, sampling using a Landers Ladle is conducted during the early summer to determine when the presence of *Culex* larvae becomes common. Two samples using a Landers ladle are taken at each sampled catchbasin. Beginning in 2013 applicators were required to mark each catchbasin with water soluble marking paint, when a larvicide was applied. Monitoring of paint marks left on catchbasin grates by applicators 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 do a minimum of 10 dips and find a minimum of 3 larvae before a larvicide can be applied. Random post-application surveys are carried out.

Before adult mosquito control is scheduled, co2 baited light traps are used to monitor mosquito populations in the neighborhood. A minimum of 100 to 200 mammal biting mosquitoes must be collected at a trap site before spraying will be scheduled in that neighborhood. The variation in the minimum trap collection size to justify spraying is related to the normal mosquito collections found at a site. Trap collections below the minimum number result in a determination that

spraying does not need to be scheduled in that neighborhood or re-scheduled if the neighborhood has recently been sprayed.

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? No

If yes, please describe:

Please give an estimate of total square feet or acreage:

What time frame during the year is this method employed?

Comments: _____

***Please attach a link to maps of OMWM areas if possible.**

ADULT MOSQUITO SURVEILLANCE

Do you have an adult mosquito surveillance program? Yes

Please list the number (not location) of MDPH traps in your service area: MDPH monitored mosquitoes at 2 sites in Suffolk County .

Please check off all the types of surveillance that apply to your program:

- | | |
|---|---------------------------------|
| <input checked="" type="checkbox"/> Gravid traps | |
| <input type="checkbox"/> Resting boxes | |
| <input type="checkbox"/> CDC light traps | <input type="checkbox"/> Canopy |
| <input checked="" type="checkbox"/> CDC light traps w/CO ₂ | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> ABC light traps | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> ABC light traps w/CO ₂ | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> NJ light traps | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> NJ light traps w/CO ₂ | <input type="checkbox"/> Canopy |

Other (please describe):

Please describe the purpose of this program: The primary purpose is to measure populations of mammal biting mosquito species and populations of species considered enzootic or bridge vector species for West Nile Virus and EEE. The data is used to evaluate the need for control. Collections of Culex species, Cq. perturbans and other potential human bridge vector species are submitted to DPH to be tested for West Nile Virus and EEE.

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

If yes, please describe how you chose these long-term sites. Light trap sites are located in close proximity to major mosquito habitats for spring and summer floodwater mosquitoes and *Cq. perturbans*. Gravid trap sites are placed with the goal of providing geographic spacing within Boston and Chelsea.

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

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

Other (please list):

Do you participate in the MDPH Arboviral Surveillance program? Yes

How many pools did you submit this year? 147 pools

Please check off the arboviruses found in your area **this** year:

- West Nile Virus
 Eastern Equine Encephalitis
 Other Please list:

Did the above listed diseases cause human or horse illnesses? No

Please explain:

At what arbovirus risk level did the year begin in your area? (If more than one please list)

WNV: Boston and Chelsea started the year at low risk.

EEE: Boston and Chelsea started the year at remote risk.

At what arbovirus risk level did the year end in your area? (If more than one please list)

WNV: Boston and Chelsea finished the year at moderate risk.
EEE: Boston and Chelsea finished the year at remote risk.

Comments: _____

***Please attach a link to maps of surveillance areas if possible.**

EDUCATION, OUTREACH & PUBLIC RELATIONS

Do you have an education/public outreach program? Yes

If yes, please describe: 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. In 2013 a protocol was developed for the Suffolk County Mosquito Control Project to coordinate notices to the public regarding adult mosquito control spraying through the Boston Public Health Commission. The Project also provided assistance to the Boston Public Health Commission employees, who conducted outreach efforts at community events on personal protection from mosquitoes and West Nile Virus.

Please check off all that apply:

- School based program
- Website
- PR brochures/handouts
- Community events
- Science fairs
- Meeting presentations
- Other (please describe):

Please give an estimate of attendance/participants in this program:

Please list some events you participated in for the year of this report: The Superintendent gave a presentation on the mosquitoes, mosquito borne diseases and mosquito control at a Boston Public Health Commission community event entitled "Minimizing the Risk of Mosquito-borne Illness held in April 2013 at the West Roxbury/Roslindale Police Station.

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

Have you performed any research projects, efficacy, bottle assays, etc.? Not at this time

If yes, please elaborate on your research projects:

Are you involved in any collaboration with academia, industry, environmental groups, etc.? Not at this time

If yes, please elaborate on your collaborations this past year:

Please provide a list of technical reports, white/grey papers, publication in journal or trade magazines, etc.

Does your staff participate in educational opportunities? Yes

If yes, please list the training and education your staff received this year: One employee attended the American Mosquito Control Association meeting, three employees attended the Northeastern Mosquito Control Association meeting. Two employees attended the NMCA workshop for Field Workers.

Please list the certifications and degrees held by your staff: David Henley is a Certified Pesticide Applicator. Brian Farless, Nathaniel Grondin and Michael Radley are Licensed Pesticide Applicators. David Henley has a B.B.A. in Management. Brian Farless has a B.S. in Communication. Michael Radley has a B.S. in Resource Economics.

Comments: _____

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? Yes

If yes, please describe: Bacillus sphaericus used to control Culex mosquitoes in catchbasins and neglected swimming pools is a live bacteria that recycles in water that supports Culex larvae.

Is this program the introduction of mosquito predators or the enhancement of habitat for native predators? no

Please check off all that apply:

- Predatory fish
- Predatory invertebrates
- Other (please describe): Bacillus sphaericus

What time frame during the year is this method employed? July, August and September.

Comments: _____

INFORMATION TECHNOLOGY

Does your program use (check all that applies):

- Computers
- GIS mapping
- GPS equipment
- Computer databases
- Aerial Photography
- Other (please describe):

Please describe your capabilities in these areas: Databases are maintained on adult mosquito populations and pesticide usage. The Project is equipped with 1 desktop computer. The Project collaborates with the East Middlesex MCP to use aerial photography of the district with delineated wetlands as a layer in our ArcView GIS software. GIS aerial photos are used to confirm the location of endangered species habitats and pesticide exclusions. Shape files are provided to the helicopter contractor, which uses the files in an AgNav system to guide aerial larval control applications over targeted wetlands.

Please describe your current GIS abilities: Intermediate

Give details if possible on your GIS abilities: ArcView GIS is used in the helicopter larval control program.

Please describe any changes/enhancements in this area from the previous year: The Field Supervisor has been working collaboratively with East Middlesex MCP staff to expand the GIS capabilities using ArcView software.

Comments: _____

REVENUES & EXPENDITURES

Please give a concise statement of revenues & expenditures for the prior fiscal year ending June 30.

FY 2013 assessments \$260,283.00

FY 2013 expenditures: \$246,306.89

List each **member municipality along with the corresponding (cherry sheet) funding assessment** dollar amount for the prior fiscal year.

The following are the assessments for the Suffolk County MCP: Boston: \$250,430 and Chelsea: \$9853.

Comments: _____

PESTICIDE USAGE

Please total your pesticide usage with information from your Mass. Pesticide Use Report, WNV Larvicide Use records and contracted pesticide applications. Applications methods include; hand/backpack, aerial, ULV, mistblower, other (please explain)

Product Name: Altosid Pellets WSP
EPA Reg. #: 2724-448
Application method: hand applied
Targeted life stage: Larvae/pupae
Total amount of concentrate applied: 40 lbs.
Comments: _____

Product Name: Altosid Ingot XR Briquets
EPA Reg. #: 2724-421
Application method: hand applied
Targeted life stage: Larvae/pupae
Total amount of concentrate applied: 47.3 lbs.
Comments: _____

Product Name: Spheratax SPH WSP
EPA Reg. #: 84268-2
Application method: hand applied
Targeted life stage: Larvae
Total amount of concentrate applied: 60.7 lbs.
Comments: _____

Product Name: Teknar HP-D
EPA Reg. #: 73049-404
Application method: portable sprayer
Targeted life stage: Larvae
Total amount of concentrate applied: 6.5 gals..
Comments: _____

Product Name: Vectobac 12AS
EPA Reg. #: 275-102
Application method: portable sprayer
Targeted life stage: Larvae
Total amount of concentrate applied: 3.5 gals.
Comments: _____

Product Name: Vectobac G
EPA Reg. #: 73049-10

Application method: helicopter
Targeted life stage: Larvae
Total amount of concentrate applied: 150 lbs.
Comments: _____

Product Name: Vectolex WSP
EPA Reg. #: 73049-2
Application method: hand applied
Targeted life stage: Larvae
Total amount of concentrate applied: 66.1 lbs.
Comments: _____

Product Name: Anvil 10 + 10
EPA Reg. #: 1021-1688-8329
Application method: truck mounted aerosol sprayer
Targeted life stage: Adult
Total amount of concentrate applied: 4.85 gals.
Comments: _____

Product Name: Suspend SC
EPA Reg. #: 432-763
Application method: motorized backpack sprayer
Targeted life stage: Adult
Total amount of concentrate applied: 48 oz.
Comments: _____

LARGE AREA EXCLUSIONS

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. The Project does not spray dirt roads in priority habitats in the Stony Brook Reservation in Hyde Park and in the area adjacent to Gethsemane Cemetery in West Roxbury.

SPECIAL PROJECTS

Do you perform any inspectional services such as inspections at sewage treatment facilities or review sub division plans? No

If yes, please elaborate

Do you work with DPW departments or other local or state officials to address stormwater systems, clogged culverts or other areas that you have identified as man-made mosquito problem areas? Yes

If yes, please elaborate: The Project has planned to open up blocked culverts in the Stony Brook Reservation in Hyde Park with the assistance of DCR.

Have you worked with these departments on long term solutions? No

If yes, please elaborate:

Did you conduct or participate in any cooperative research or restoration projects? No

If yes, please elaborate:

Did you or participate in any **State/Regional/National workgroups or panels or attend any meeting pertaining to the above?** No

If yes, please elaborate:

CHILDREN AND FAMILIES PROTECTION ACT

Is your program impacted by the Children and Families Protection Act? Yes

If yes, please explain: Per the provisions of the Act, the Project excludes schools, 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 with this Act and your program, please list here:

If you had difficulties with implementation of your program due to this law, please elaborate here:

Comments:

NPDES SECTION

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

If yes please list any corrective actions here: _____

GENERAL COMMENTS

Please list any comments not covered in this report: _____