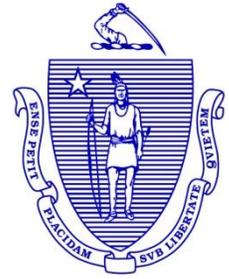


**STATE RECLAMATION AND MOSQUITO CONTROL BOARD
MASSACHUSETTS MOSQUITO CONTROL DISTRICT**
ANNUAL OPERATIONS REPORT



2013 Year of Report

Date of Report: 1/7/2014

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

Address: 61 Endicott St, Bldg #34

City/Town: Norwood

Zip: 02771

Phone: 781 762-3681

Fax: 781 769-6436

E-mail: dav.lawson@norfolkcountymosquito.org

Report prepared by: *David Lawson*

NPDES permit no. **MAG87A021**

If you have a mission statement, please include it here: "The Norfolk County Mosquito Control District Commission represents the interests of the member communities and their residents by providing oversight of Project activities. The Commissioners each live or work within a community serviced by the Project, were nominated by municipal authorities, and were evaluated and appointed to their posts by the State Reclamation and Mosquito Control Board. The Commission strives to ensure that the member communities receive services consistent with applicable laws and justified by tenets of public health, vector control, environmental safety and fiscal responsibility. The Commission invites input and questions from community officials and residents. The Project's website announces the Commission's monthly meetings and planned agendas, and hosts minutes from past meetings."

ORGANIZATION SETUP:

Please list your Commissioner's names:

Linda R. Shea, Chairman
Maureen P. MacEachern
Robin L. Chapell
Richard J. Pollack
Norman P. Jacques

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

Please list the Supt./Director's contact phone number: 781 762-3681

Please list your Asst. Supt./Asst. Director's name: Caroline Haviland - Field Operations Manager

Do you have a website? Yes If yes, please list the web address here:
<http://www.norfolkcountymosquito.org>

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

Full time: 11

Part time:

Seasonal: 2

Other: (please describe)

Please break these down into the following areas:

Administrative staff: 5

Field staff: 6

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

Public relations David Lawson, Caroline Haviland, Channsotha Suom, Elizabeth Donnell

Information technology Channsotha Suom, Nate Boonisar

Entomologist Channsotha Suom

Wetland Scientist Caroline Haviland

Biologist Caroline Haviland

Education Channsotha Suom

Laboratory Channsotha Suom

Operations David Lawson, Elizabeth Donnell, Caroline Haviland, Nate Boonisar, Channsotha Suom, Brian Moore, Robert O'Halloran, William Haviland, John Tuana, Anthony Caso, Eric Tarala

Facilities David Lawson, Caroline Haviland

Other (please list) GIS Coordinator - Nate Boonisar

For the year of this report, we maintained:

19 vehicles

4 modified wetland equipment (list type) Linkbelt 1600 quantum series excavator, modified (extended tracks) Kobelco SK60 excavator, non wetland - John deere 880 bulldozer, Bombadier Muskeg

7 ULV sprayers (list type) 6 Clarke Dura Promist, 1 Cougar

Larval control equipment (list type)

Other (please be specific): 1 - A1 mist sprayer

Comments: _____

How many cities & towns in your service area? 25

Please list: Avon, Bellingham, Braintree, Canton, Dedham, Dover, Foxborough, Franklin, Holbrook, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood,

Plainville, Quincy, Randolph, Sharon, Stoughton, Walpole, Westwood, Weymouth, Wrentham

Any changes to your service area this year? No
Please list cities/towns added or removed

***Please attach a link to a map of your service area if possible.**
http://www.norfolkcountymosquito.org/Contact_Us.html

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): Tire removal program

Comments: _____

LARVAL MOSQUITO CONTROL:

Do you have a larval mosquito suppression program? Yes

If yes, please describe the purpose of this program: Targeted preemptive control measures are the most cost effective, efficient and environmentally friendly way to reduce mosquito populations. NCMCD applies insecticides to shallow water to control mosquitoes in their most vulnerable aquatic stages in an attempt to prevent the

emergence of adult mosquitoes. A database of mosquito larval development sites are checked and treated as necessary by means of hand and/or aerial application.

Aerial Larval Control Program:

Spring and summer flooding following snow melt and/or heavy rainfall creates a potential each year for significant mosquito larval development in various wetlands across Norfolk County. The predominate species which develop in the spring are *Ochlerotatus abserratus*, *Ochlerotatus excrucians* and *Ochlerotatus canadensis*. In the summer the predominate species following river flooding are *Ochlerotatus trivittatus*, *Aedes cinereus*, *Aedes vexans*, *Psorophora ferox* and *Ochlerotatus canadensis*. All of these mosquito species are strong human biters and can create significant nuisance level populations during the late spring and summer months. During certain years some of the summer mosquito species, such as *Aedes vexans*, may be involved in the transmission of Eastern Equine Encephalitis (EEE) from birds to humans. In an effort to proactively control these aggressive human biting species, and in an environmentally responsible manner, the Norfolk County Mosquito Control District conducts aerial larval control operations using a product called *Bacillus thuringiensis israelensis* (Bti). In small wetlands and in larval development sites proximate to homes, where aircraft applications are not suitable, hand applications using the same product at the same rates are utilized.

Rain Basin/Detention Basin Treatments:

NCMCD makes applications of an insecticide to catch basins, storm water structures, etc. to control primarily *Culex* mosquitoes in their aquatic stages. *Culex* species have been identified as likely vectors of WNV.

Please give the time frame for this program: mid-April through early September (Rain Basins early June through mid-August).

Describe the areas that this program is used: Ground larvicide treatments are typically made to smaller natural and manmade wetlands and depressions. The typical wetlands treated during the spring aerial larvicide are described as large (greater than five acres) Wooded Swamp Deciduous/Coniferous/Mixed, Shrub Swamp, Shallow Marsh/Meadow/Fen wetlands. Summer aerial applications are more typically conducted over river floodplain areas especially within wetlands adjacent to the Neponset and Charles Rivers. Maps of arially targetted wetlands are available on the District's website.

Rain Basin treatments typically occur in high density population areas around centers of towns and heavy residential/commercial areas.

Do you use:

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

Other (please list):

Comments: _____

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

Wetlands: Bti (*Bacillus thuringiensis israelensis*) granular (Vectobac G) EPA Reg. # 730 49-10

Catch basins: Methoprene (Altosid XR briquet) - EPA Reg # 2724-421, Fourstar 90 day briquets - EPA Reg. # 83362-3, and VectoLex WSP - EPA Reg #730 49-20

Containers: Methoprene (Altosid XR Day briquet) - EPA Reg. # 2724-421

Other (please list): Pupacide - CocoBear - EPA Reg. # 8329-93

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

Wetlands: Vectobac G 5-20Lbs/acre depending on situation

Catch basins: One Methoprene (altosid) - briquet/basin, stormwater detention basins - one briquet/ 100 sq. ft, one WSP pouch/basin or 1/50 sq. ft.

Containers: One Methoprene (altosid) briquet/ 100 sq. ft.

Other: CocoBear - treat small wetland pools at 10 ounces per 1,000 square feet

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

Larval dip counts – please list trigger for application: 1/dip

Historical records

Best professional judgment

Comments: Historical records and best judgement are reserved for some wetlands in aerial applications and catch basins. Ground applications always require the presence of larvae for treatment.

***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: When larviciding is not a viable option (example: *Coquillettidia perturbans*) and/or when adult mosquito populations reach levels which are either bothersome to residents and/or a public health concern is realized, targeted adulticiding applications are used. NCMCD makes decisions to use adulticides based on evaluations of the risks of EEE or WNV transmission to humans in collaboration with MDPH or based on evaluations of the nuisance level that residents report to NCMCD. NCMCD also bases decisions to adulticide on mosquito surveillance (trap counts), field crew observations and after careful analysis of predicted local weather conditions.

Please give the time frame for this program: Late May through mid-Septemeber depending on weather conditions.

Describe the areas that this program is used: ULV applications typically take place in residential areas. Maps of the areas to be treated are loaded on the Districts website by 3:30 P.M. the day before the scheduled application. Barrier applications are conducted on school property and other municipal parks and property.

Do you use:

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

Comments: _____

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

- 1). Duet Duel action insecticide EPA Reg #1021-1795-8329
- 2). Mavrik Perimeter (Tau-fluvlinate) EPA Reg # 2724-478
- 3).
- 4).
- 5).
- 6).

Please list your application rates for each product:

- 1). Duet - 0.65 fluid ounces/acre ULV
- 2). Mavrik - Perimeter Treatments: 0.5 oz/gallon: Use sufficient product to cover the foliage.
- 3).
- 4).
- 5).
- 6).

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

ULV maximum - once per week, except in emergency situations. On average for most residential areas @ 1 to 4 applications per month. Barrier applications - once every 2-3 weeks as needed. Barrier Applications are conducted on municipal properties primarily in conjunction with planned use of the property.

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

- Landing rates - please list trigger for application EIR
- Light trap data - please list trigger for application EIR
- Complaint calls - please list trigger for application more than 1 call per radial mile.

- Arbovirus data
- Best professional judgment

Comments: _____

***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: NCMCD advises residents/Boards of Health in person or via phone or internet to empty any containers that may hold water on their property. When performing site visits, personnel will overturn containers or tires that hold water and may contain mosquito larvae. In 2012 NCMCD initiated a tire removal program.

What time frame during the year is this method employed? June through September

Comments: The NCMCD also considers our Ditch Maintenance, FWWM and OMWM programs valuable methods of source reduction.

DITCH MAINTENANCE

Do you have a ditch maintenance program? Yes

Please check all that apply:

- Inland/freshwater
- Saltmarsh

If yes, please describe: The NCMCD Water Management Program consists of clearing previously existing and maintained drainage ditches and streams of silt, vegetation and debris in order to restore proper water flow, eliminate standing water, thus reducing mosquito larval development. Crews clear these systems through the use of several different types of hand tools, as well as through the use of our two specialized wide-tracked, low ground pressure excavators. This work is performed pursuant to chapter 252 of the MA General Laws in compliance with established federal (USACE) guidelines and oversight. The NCMCD is interested in working with the regulatory community, within the legal thresholds, in order to implement source reduction practices that specifically improve our wetland resources or habitats for fish and wildlife. Water Management work can reduce the amount of insecticide the District has to use in order to reduce the nuisance/vector population of mosquitoes in the surrounding area. We refer to this type of work as source reduction work and consider such work to be an important part of an Integrated Pest Management (IPM) strategy. Data collection and surveillance measures are important elements of any mosquito IPM strategy. Data

collected during insecticide applications is used to aid in the determination of future Water Management Project sites.

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 77,780

Mechanized cleaning 4,265

Other (please list): Vegetative management - 1.06 acres

Comments: _____

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

Hand cleaning 1,680

Mechanized cleaning 0

Other (please list):

What time frame during the year is this method employed? Potentially anytime in year, but primarily September 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/post monitoring of larval populations including determination of developmental stage.

Larvicide – catch basins: Beginning of season monitoring to determine the presence of larvae in basins.

Larvicide-hand/small area Pre/post monitoring of larval populations including determination of developmental stage.

Ground ULV Adulticide: Pre/post CDC Light trap sampling, complaint call data, field observations

Source Reduction: Pre/post monitoring of larval populations including determination of developmental stage.

Open Marsh Water Management: Pre/post monitoring of larval populations including determination of developmental stage.

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): **Website showing aerial larval control efficacy protocol and data.**

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? Yes

If yes, please describe: Open Marsh Water Management is a technique which provides a greater access to the salt marsh for small fish which eat mosquito larvae developing on the marsh. This greatly reduces the need for mosquito adulticiding in the immediate neighborhood. The work also reverses some of the changes that were done to the marsh when it was originally ditched. OMWM also prevents the encroachment of invasive plants and provides better habitat for waterfowl and other birds.

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

What time frame during the year is this method employed? September - March

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: 25+ gravid, @25 CDC Light traps, more deployed in virus positive locations. 15 Resting boxes

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

- | | |
|---|---------------------------------|
| <input checked="" type="checkbox"/> Gravid traps | |
| <input checked="" 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: CDC Light Traps: CDC Light Traps with CO₂ are used to determine the presence of adult mosquitoes and their density. CDC Light Traps with CO₂ are also used to monitor for EEE and West Nile Virus. Collections of mosquitoes (pools) are submitted weekly to the Massachusetts Arbovirus Surveillance Laboratory (MDPH) for the purpose of monitoring the presence of West Nile Virus and EEE in local mosquito populations.

Gravid Traps: These traps are used by NCMCD to collect primarily *Culex pipiens* and *restuans* mosquitoes for submission to the Massachusetts Arbovirus Surveillance Laboratory (MDPH) for West Nile Virus analysis. Gravid mosquitoes which are attracted to these traps are important to sample because they may have recently fed on a bird. The bird biting species are usually the first to pick up the virus since they feed primarily on birds where West Nile virus originates.

Resting boxes are used to try and accentuate capture of *C. melanura* for the detection of 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. CDC Light Traps: CDC Light traps with CO₂ are placed for maximum collection of species of interest both for monitoring of human biting populations as well as for collection of species important in the transmission of EEE and WNV.

Gravid Traps: Gravid Traps are placed at locations for maximum collection of *Culex pipiens* and *restuans*. Traps are located in all 25 communities usually in the highest urbanized areas for maximum collections.

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 checked="" type="checkbox"/> <i>Oc. fitchii</i> |
| <input 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 type="checkbox"/> <i>Oc. triseriatus</i> |
| <input checked="" 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? 575

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? Yes

Please explain: A woman from Weymouth was diagnosed with EEE. Her travel history may have placed her contraction of EEE in Plymouth County. A man from Needham was diagnosed with WNV. He contracted the Virus in his neighborhood.

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

WNV: low

EEE: remote, low, moderate

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

WNV: low, moderate

EEE: remote, low, moderate, high

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: NCMCD maintains a very informative website which is updated frequently during the season. It contains fact sheets concerning West Nile virus and EEE virus. It also contains notices and news regarding treatment beginning and end dates and ways to protect yourself from mosquito bites around the home. The various tabs on the navigation bar lead to our operations, maps of treatment and problem areas, control strategies, products used, and frequently asked questions (FAQs) pages. Information to regulatory agencies such as the Federal Environmental Protection Agency and the State Pesticide Bureau are also available. The website also contains links to the Massachusetts Department of Public Health and the Centers for Disease Control and Prevention (CDC) where residents can find up to date information on arbovirus activity in the county, the state as well as country wide. There is information available on how a resident may go about excluding their property from the Program as well as links which help guide daycare managers and school administrators through the compliance requirements of the Childrens and Family Protection Act. The website also provides rapid access to the districts administrative personnel through the email links. Our Entomologist participates in educational activities such as classroom activites in the schools and field education activities with summer camp programs as appropriate, as well as health fairs.

Please check off all that apply:

- School based program
- Website
- PR brochures/handouts
- Community events
- Science fairs
- Meeting presentations
- Other (please describe): Site visits with residents and/or public officials to review detials of water management activites/complaint investigations.

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

Please list some events you participated in for the year of this report: board of health meeting, Health Fairs, Northeast Mosquito Control Association (NMCA) Conference

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

Have you performed any research projects, efficacy, bottle assays, etc.? Yes

If yes, please elaborate on your research projects: 1) Oviposition Activity of Mosquitoes in Massachusetts, presentation at the Northeast Mosquito Control Association

Conference. Chan Suom (NCMCD), Frank Cornine III (Central Mass. Mosquito Control Project)

2) Aerial Trial to Determine Effective Swath Width during Aerial Applications of Vectobac G, David Lawson, Chan Suom, presentation at the Northeast Mosquito Control Association Conference.

3) Host-Seeking Activity of Mosquitoes in Massachusetts
Frank Cornine III, Central Mass. Mosquito Control Project - presented at NMCA meeting Dec. 2009 - Chan Suom (NCMCD) collaborated with this research.

4) Utilization of Resting Boxes in Southeastern MA – Part 2
Priscilla Matton, Bristol County Mosquito Control, and Nate Boonisar, Norfolk County Mosquito Control Project - presented at NMCA meeting Dec. 2009

5) Bottle Assays: Sumithrin exposure at 1-, 2.5-, 5-, and 10-ml on *Culex pipiens/restuans* mosquitoes (Summers 2008-2011)

6) 2010 Aerial Larvicide Efficacy

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: NMCA Field Day in October, NMCA Annual Conference,

Please list the certifications and degrees held by your staff: Director - Master of Science (Geology), Field Operations Manager - Bachelor of Science (Biology), GIS Coordinator - Master of Science (Geological Oceanography), Entomologist - Master of Science (Entomology)

All field staff hold pesticide licenses and 3 hold certifications in the Mosquito and Biting Fly Category

Comments: Caroline Haviland participated as an executive board member of the Northeast Mosquito Control Association.

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? Yes

If yes, please describe: OMWM - see description above

Is this program the introduction of mosquito predators or the enhancement of habitat for native predators? yes

Please check off all that apply:

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

What time frame during the year is this method employed? September - March

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: NCMCD uses GIS in various aspects of our work.

Spring aerial larvicide: GIS is a valuable tool in this aspect of our program. Using the Mass. DEP wetland layers, NCMCD identifies potential larval development areas that personnel dip on a yearly basis. The dip data is added to each wetland and NCMCD now has stored up to 12 years of mosquito larval development data on these wetlands. The wetland files can be directly converted and loaded into aircraft, and treatment information (flight paths) from the aircraft can be converted back into GIS shapefile format and stored. Coupled with this, NCMCD uses the wetland layers to determine ground larvicide sites and store larval dip data for these as well.

ULV Applications: NCMCD regularly geocode (plots) request calls based on address and NCMCD plans ULV treatments around these calls. Paper maps are given to the field crew to aid in their work. As of 2007, NCMCD acquired GPS tracking devices for the ULV spray trucks. The GPS data can be converted into GIS format and stored on our system to monitor areas that were treated, as well as time of treatment, and treatment rate. This year the district used a more advanced searchable map tool for

daily notifications of our ULV applications to the public on our website. Water Management: Using the layers provided by MassGIS, NCMCD can locate wetlands, streams, environmentally sensitive habitats, water supply areas, etc. and plan field work around these sites. Additionally, remote sensing using the aerial photographs (both real color and infrared) provides useful information on the areas. Some NCMCD towns also have their own GIS layers including pipes, culverts, ditches, and 2-foot contour lines which provide an extremely detailed depiction of an area. NCMCD also has site specific GIS shapefiles that document all water management/hand cleans which includes all relevant information regarding work performed at each site

Please describe your current GIS abilities: Advanced

Give details if possible on your GIS abilities: We use ArcMap 10.2. NCMCD's GIS Coordinator continues to learn new capabilities of this software. His abilities include general map-making, geocoding, buffering, calculating acreages and lengths, analization using different colors/sizes of features based on associated data, and the ability to create professional looking maps. The GIS Coordinator continues to learn more of the capabilities of ArcMap. He has also helped other MCD's with various aspects of their GIS program, such as training and support in their use of ArcView. The Director and Field Operations Manager utilize GIS as well and are able to perform moderate level tasks utilizing our current software.

Please describe any changes/enhancements in this area from the previous year: We have integrated our request software with ArcView so that online requests from the public are displayed directly on maps, without having to be manually entered into a database.

Comments: _____

REVENUES & EXPENDITURES

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

Expense Category	Spent
A01 Payroll	\$647,237
B01 Out-of-State travel	\$2,526
BO2 - In-State travel	\$384
BO5 Conference, Training, Regist.	\$332
B08 Clothing	\$789
B10 Exigent Job Related Expenses	\$1,984
D09 Fringe Benefit Reimbursement	\$121,704
D12,D14,D19 Unemploy, Medicare, Univ Health	\$8,425
D15 Workers Comp	\$140
D20 Retirement	\$109,114
E01 Office & Admin. Supplies	\$4,920
E02 Printing expenses	\$723

E06 Postage	\$300	
E12 Subscription Membership	\$100	
E13 Advertisement	\$449	
E14 Exhibits	\$498	
E15 Bottled Water	\$302	
E19 Fees, Licenses, Permits	\$12,227	
EE2 Conference Incidentals Registration		\$3,305
E41 Out of State Travel - vendors	\$0	
E43 Job Related Tuition for Employees	\$0	
F05 Laboratory Supplies	\$14,900	
F06 Medical and Surgical Supplies	\$195	
F09 Clothing & Footware	\$3,801	
F11 Laundry & Cleaning Supplies	\$412	
F24 Maintenance & Repair Tools & Suppl.		\$2,974
G01 Space Rental	\$69,300	
G03 Electricity	\$9,819	
G05 Fuel for Vehicles	\$20,971	
J62 Commission Expense	\$3,822	
JJ2 Auxiliary Services	\$212	
K04 Motoized Vehicle Equipment	\$2,130	
K07 Office Furnishings	\$1,050	
K11 Application Equipment/Heavy Equipment	\$190,564	
L24 Motorized Vehicle Equipment Rental		\$580
L26 Printing, Photocopier Equip	\$1,237	
L44 Motorized Vehicle Expense	\$13,485	
L46 Copier Maint & Repair	\$0	
L51 Heavy Equip Maint & Repair	\$29,373	
L63 Program Equip Main & Repair	\$0	
N14 Hazardous Waste Removal Svsc	\$0	
N50 Non Major Facility Maint. & Repairs	\$1,017	
N52 Facility Infrast Main Repair Tools	\$8,177	
N60 Garden Exp Main & Repair	\$0	
N64 Garden Exp Tools & Supplies	\$200,370	
N71 Exterminator	\$100,328	
N73 Non-Hazardous Waste Removal Svsc	\$1,702	
U01 - Telecommunications Services Data		\$402
U02 Telecommunication Services	\$4,951	
U03 Software & IT Licenses	\$22,645	
U07 IT Equipment Purchase	\$14,508	
 Total Estimated Expense	 \$1,634,384	

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

FY2013	
Avon	17,878
Bellingham	56,710
Braintree	78,428
Canton	86,497
Dedham	59,148
Dover	54,531
Foxboro	68,517
Franklin	103,371
Holbrook	25,368
Medfield	52,872
Medway	39,362
Millis	30,966
Milton	70,591
Needham	83,073
Norfolk	40,782
Norwood	60,855
Plainville	30,944
Quincy	118,620
Randolph	51,808
Sharon	71,485
Stoughton	70,472
Walpole	83,541
Westwood	58,341
Weymouth	94,816
Wrentham	54,438
Total	1,563,414

Comments: These numbers include the SRMCB budget share.

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: Duet Dual-action insecticide
EPA Reg. #: 1021-1795-8329
Application method: ULV truck mounted
Targeted life stage: Adult
Total amount of concentrate applied: 961.77 gallons
Comments: _____

Product Name: VectoBac G
EPA Reg. #: 730 49-10
Application method: Helicopter, hand
Targeted life stage: Larvae
Total amount of concentrate applied: 49,177.93 lbs
Comments: _____

Product Name: Fourstar Briquets
EPA Reg. #: 83362-3
Application method: hand
Targeted life stage: Choose one
Total amount of concentrate applied: 4,613 briquets
Comments: _____

Product Name: Altosid XR Briquet
EPA Reg. #: 2724-421
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 4,148 briquets
Comments: _____

Product Name: VectoLex WSP
EPA Reg. #: 73049-20
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 3,864 pouches
Comments: _____

Product Name: Altosid 30 day briquet
EPA Reg. #: 2724-375
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 4
Comments: _____

Product Name: CocoBear
EPA Reg. #: 8329-93
Application method: hand pump sprayer
Targeted life stage: Larvae/pupae
Total amount of concentrate applied: 930.45 oz
Comments: _____

Product Name: Mavrik Perimeter
EPA Reg. #: 2724-478
Application method: mist sprayer

Targeted life stage: Adult
Total amount of concentrate applied: 30.25 oz
Comments: _____

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:
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. Our largest exclusion zone is the Massachusetts Audubon Society's Moose Hill Wildlife Sanctuary in Sharon. NCMCD does not adulticide or larvicide this area. Moose Hill accounts for approximately 11% of the Town of Sharon's wetland area. The towns of Canton and Norfolk have smaller, but still significant Audubon properties that are excluded. All resident exclusion zones are located via parcel maps, geocoding, or field checks, and a 300-foot buffer zone is placed around them. These areas are shown on the field crew ULV maps, along with the written address of the exclusion.

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: NCMCD is in direct communication with both state DOT and local DPW departments with regard to clogged culverts, general drainage issues, and stormwater systems. NCMCD coordinates with several local DPWs annually to clean outfall areas and drainage pipes and associated drainage ditches of sand and debris that may eventually discharge into adjacent wetlands. Some town departments have assisted NCMCD by bearing the burden of disposing of sands and sediments NCMCD removes from drainage ditches and/or streams. NCMCD has communicated with several Conservation Agents and Planning Board members in recent years relative to review, advise and discussion of stormwater issues.

Have you worked with these departments on long term solutions? Please choose one

If yes, please elaborate:

Did you conduct or participate in any cooperative research or restoration projects? Yes

If yes, please elaborate: We worked with the Town of Norwood improving drainage throughout their Municipal Light Department Transmission Line from the Sharon town Line to Westwood town line. The NCMCD cleared several swales/ditches and previously maintained streams to allow for safe access for emergency vehicles to the lines as well as increase public use of such area as part of the Town of Norwood's Greenway Plan.

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: Throughout the Districts service area, NCMCD has approximately 225 schools and 250+ day cares that must comply with this law. Each school/day care has been located either through parcel maps, when available, or through geocoding, combined with aerial photography. These properties are excluded from routine applications. The exclusion zones are clearly marked on the ULV route maps that are posted on the districts website in an effort to keep the public informed of the exclusionary status of these areas.

If you have data on compliance with this Act and your program, please list here: NCMCD has a GIS layer showing points as locations of schools/day cares, and has a separate GIS layer depicting red lines as the exclusion zones around such properties. These are displayed on ULV notification maps during the ULV season.

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: _____