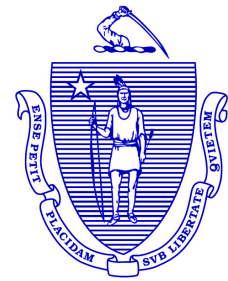


MASSACHUSETTS MOSQUITO CONTROL

ANNUAL OPERATIONS REPORT



Year Report Covers: 2021 Date of Report: 01/14/2022

Project/District Name: Norfolk County Mosquito Control District

Address: 144 Production Road, Suite C

City/Town: Walpole Zip: 02081

Phone: (781) 762-3681 Fax: (781) 769-6436

E-mail: dave.lawson@norfolkcountymosquito.org

Report prepared by: David Lawson

NPDES permit no. **MAG87B255**

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 District activities. The Commissioners each live or work within a community serviced by the District, 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 District's website announces the Commission's monthly meetings and planned agendas, and hosts minutes from past meetings."

ORGANIZATION SETUP:

Commissioner names:

Robin Chapell

Norman Jacques

Maureen MacEachern

Richard Pollack

Linda Shea

Superintendent/Director name: David Lawson

Superintendent/Director contact phone number: (781) 762-3681

Asst. Superintendent/Director name: Caroline Haviland - Field Operations Manager

District/Project website: <http://www.norfolkcountymosquito.org>

Twitter handle: @

Facebook page: <http://www.facebook.com/Norfolk-County-Mosquito-Control-District-152138671525303/?fref=ts>

Staffing levels for the year of this report:

Full time: 12

Part time: 0

Seasonal: 1

Other: Two field technicians left service in the 1st quarter of the year. (please describe)

Of the above, how many are:

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

- Administrative Liz Donnell, David Lawson, Caroline Haviland
- Biologist Kaitlyn O'Donnell, Caroline Haviland
- Educator Kaitlyn O'Donnell, David Lawson
- Entomologist Kaitlyn O'Donnell
- Facilities David Lawson, Caroline Haviland
- Information technology Nate Boonisar
- Laboratory Kaitlyn O'Donnell
- Operations Caroline Haviland, David Lawson, Brian Moore, William Haviland, Robert O'Halloran, John Tuana, Anthony Caso, Eric Tarala, Greg Gangitano
- Public relations Kaitlyn O'Donnell, Caroline Haviland, David Lawson, Nate Boonisar
- Wetland scientist Caroline Haviland
- Other (please describe) GIS - Nate Boonisar

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

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

1 Larval control equipment (list type) Mid-Atlantic Equipment high pressure larvicide unit;

8 ULV sprayers (list type) 7 Clarke Dura Promists, 1 Cougar

19 Vehicles

Other (please be specific): A-1 Mist sprayer for truck mounted barrier applications.

Comments: _____

How many cities and towns are in your service area?* 25

Alphabetical 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

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: Targeted preemptive control measures are the most cost effective, efficient and environmentally friendly way to reduce mosquito populations. NCMCD applies biorational insecticides to shallow water to control mosquitoes in their most vulnerable aquatic stages in an attempt to prevent the emergence of adult mosquitoes. A GIS database of mosquito larval development sites are checked and treated as necessary by means of hand, truck and/or aerial application. 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 the NCMCD. 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 products with the active ingredient 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 products at the same rates are utilized. Truck mounted larvicide application equipment is used for treating wetlands that are at the edge of roadways and parking lots.

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.

NCMCD continued research and surveillance in consideration of conducting fall aerial applications to control Coquilletidia perturbans in the unique wetland habitats that they overwinter in. In September of 2018, the District treated 124 acres of habitat in Westwood and Franklin with VectoLex FG (Bacillus sphaericus). During the fall of 2019, the District treated 136 acres. In 2020, the District treated 130 acres. 144 acres were treated in 2021 in Dedham and Westwood.

What months is this program active? April - September

Describe the types of areas where you use this program: 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 on river floodplain areas especially within wetlands adjacent to the Neponset and Charles Rivers. Maps of aeri ally targeted wetlands are available on the District's website. The new focus on Cq. perturbans is treating deep marsh habitat with specific vegetation that is utilized by this mosquito larvae to complete its life cycle.

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

Do you use:

Ground application (hand, portable and/or backpack, etc.)

Aerial applications

Other (please list): truck hydraulic hose for liquid Bti.

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 GR	73049-486	2.5 - 10 lbs/acre	hand/back pack blower	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	14lbs
VectoBac G	73049-10	2.5 - 10/acre	hand/back pack blower	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	1,673.92 lbs
VectoBac 12AS	73049-38	0.25 - 2 pints/acre	Mist Sprayer	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	0 gal
VectoLex FG	73049-20	5 - 20 lbs /acre	aerial/backpack	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	1,683lbs
VectoLex WSP	73049-20	1 pouch /50sq ft.	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	10,460 pouches
Fourstar 90 day briquet	83362-3	1 briquet/100 sq. ft.	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input checked="" type="checkbox"/> Containers <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Other (please list): Pools	5,552 briquets
Fourstar 45 day briquet	83362-3	1 briquet/100 sq. ft.	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	5,698 briquets

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
Altosid XR briquet	2724-421	1 briquet/100 sq. ft.	hand	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Other (please list): Pools	29 briquets
Altosid 30 day briquet	2724-375	1 briquet/100 sq. ft.	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Other (please list): Pool	172 briquets
Altosid WSP	2724-448	1 briquet/135 sq. ft.	hand	Larvae	<input checked="" type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	12,281 pouches
CocoBear oil	8329-93	10 oz./1000 sq. ft.	hand	Larvae/pupae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	5 oz
MetaLarv SPT	73049-475	2.5-10 lbs /acre	aerial	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	160 lbs
VectoBac GS	73049-10	2.5-10lbs. / acre	aerial	Larvae	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	1,962.54 lbs
				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: any larvae
- Other (please describe):

Comments: _____

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

<http://norfolkcountymosquito.org/service-request/>

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: When larviciding is not a viable option (example: *Coquillettidia perturbans* or *Culiseta melanura*) 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.

What is the time frame for this program? May through October

Describe the types of areas where you use this program: ULV applications can be conducted anywhere the Districts trucks can access, though mostly on paved streets in residential neighborhoods.

Barrier applications are conducted on municipal properties that the public utilizes and where the public may be at risk, such as schools, public parks, and athletic fields.

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
Zenivex E4	2724-807	1.0 oz/acre	Truck mounted ULV	1,407.51 gal
Mavrik Perimeter	2724-478	0.1oz/gal/1000 sq. ft.	Truck mounted sprayer/ or backpack sprayer	0 gal
Suspend	432-1514	.25-1.5	Truck mounted	221.6 gal

		oz/gal	sprayer	

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

ULV is potentially conducted in each town once per week. Possibly more if a disease threat warrants further applications. Barrier applications are conducted based on requests from municipal officials and our own assessments and surveillance. Barrier applications are effective for a couple weeks, and so not repeated for at least 2 weeks.

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

- Arbovirus data
- Best professional judgment
- Complaint calls (Describe trigger for application: GEIR - more than one call per square mile)
- Landing rates (Describe trigger for application GEIR - more than one bite per minute)
- Light trap data (Describe trigger for application GEIR - more than 5 human biting mosquitoes per trap per night)

Comments: _____

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

www.norfolkcountymosquito.org/service-request/

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: 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 that hold water with mosquito larvae present. In 2012 NCMCD initiated a tire removal program which continued into 2021. The District picks up tires from residents who request this service. Tires must be off the rim and the District takes no more than 10 tires per resident per year. The District also removes dumped tires from the environment. Locations are reported as employees find tires during routine field work. 449 tires were removed and recycled in 2021.

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

Comments: NCMCD shuts down tire removal as a service during the 'mosquito' season, April through September due to the fact that the tire removal work District's from more important control work.

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 NCMCD reduces the potential for larval mosquito development through a variety of methods under this category. Our Freshwater Water Management Program includes Ditch & Pond Maintenance, as well as culvert area clearing conducted to improve water quality and increase water flow. Crews utilize excavators when ditches require heavy work. Crews also employ hand tools to clear ditches and culverts.

Our Open Marsh Water Management (OMWM) Program (which is currently only in maintenance mode) employs methods that improve saltmarsh habitat along with mosquito habitat reduction.

Tire casing collection is a service in which we remove and recycle off rim tires in order to eliminate this source of potential larval mosquito development.

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	309 culverts cleared
<input checked="" type="checkbox"/> Hand cleaning	118,575 feet cleaned
<input checked="" type="checkbox"/> Mechanized cleaning	1,125 feet cleaned
<input type="checkbox"/> Stream flow improvement	
<input checked="" type="checkbox"/> Other (please list): Brushing	980 feet for WM access

Comments: _____

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

Maintenance Type	Estimate of cumulative length of ditches maintained (ft)
<input checked="" type="checkbox"/> Hand cleaning	3,250 feet cleaned
<input checked="" type="checkbox"/> Mechanized cleaning	300 feet cleaned
<input type="checkbox"/> Other (please list):	

Comments: _____

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

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: The NCMCD has conducted OMWM in the past, but has stopped performing OMWM due to regulatory requirements that make it overly burdensome to the District. The Districts OMWM permit from the ACOE expired in January 2016, and was not renewed. Maintenance on past projects is required by the ACOE permit and the District will maintain all past completed OMWM projects.

What months is this program active? Usually, October - March

Please give an estimate of total square feet or acreage:

Comments: Maintenance of OMWM involves work to keep the system in its originally designed and created condition, and does allow some minor tweaking outside of the original design.

Please attach a map of OMWM areas (or a website link to that map). In the municipalities of Braintree, Quincy, Milton and Weymouth.

MONITORING (Measures of Efficacy)

Describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands: In the weeks prior to a spring aerial application, wetlands are dipped in all aerial regions and this data is compiled in the GIS map data. Post application dipping is conducted.

Ground ULV Adulticide: NCMCD did not monitor ULV efficacy in 2021

Larvicide – catch basins: no work done in 2021

Larvicide-hand/small area The Director randomly inspects ground larvicide sites in the spring for employee reporting follow up and concurrently inspects sites for efficacy.

Open Marsh Water Management: NA

Source Reduction: The Field Operations Manager conducts follow-up site visits to water management project sites to make sure the work is functioning as designed.

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):

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

Research Project	Details
Bottle assays	conducted two bottle bioassays to test resistance in adult Culex mosquitoes to etofenprox
Efficacy testing	conducted efficacy testing post aerial Bti application
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: 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. Samples of mosquitoes are submitted weekly to the Massachusetts Arbovirus Surveillance Laboratory (MDPH) and tested for 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. The gravid mosquitoes attracted to these traps are important for virus surveillance because they have previously fed on a host. Bird biting mosquito species are usually the first to pick up West Nile and Eastern Equine Encephalitis viruses each season. Resting boxes are used to supplement the capture of C. melanura for the detection of EEE.

What months is this program active? June - October

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

Trap Type	Canopy? (check box for yes)	Number of traps (leave blank if zero)
<input type="checkbox"/> ABC light trap	<input type="checkbox"/>	
<input type="checkbox"/> ABC light trap w/CO ₂	<input type="checkbox"/>	
<input type="checkbox"/> CDC light trap	<input type="checkbox"/>	
<input checked="" type="checkbox"/> CDC light trap w/CO ₂	<input type="checkbox"/>	34
<input checked="" type="checkbox"/> Gravid trap		28
<input type="checkbox"/> Landing rate test		
<input type="checkbox"/> NJ light trap	<input type="checkbox"/>	
<input type="checkbox"/> NJ light trap w/CO ₂	<input type="checkbox"/>	
<input checked="" type="checkbox"/> Ovitrap		64
<input checked="" type="checkbox"/> Resting box		50
<input type="checkbox"/> Other (please describe):		
<input type="checkbox"/> Other (please describe):		
<input type="checkbox"/> 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:

- | | |
|--|---|
| <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 checked="" 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 checked="" type="checkbox"/> <i>Oc. sollicitans</i> |
| <input checked="" type="checkbox"/> <i>Cq. perturbans</i> | <input checked="" 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 checked="" type="checkbox"/> <i>Cx. salinarius</i> | <input checked="" type="checkbox"/> <i>Ps. ferox</i> |
| <input checked="" type="checkbox"/> <i>Cs. melanura</i> | <input type="checkbox"/> <i>Ur. sapphirina</i> |
| <input type="checkbox"/> <i>Cs. morsitans</i> | |
| <input type="checkbox"/> Others (please list): | |

Number of adult mosquitoes collected this season (whether submitted to DPH or not): 259,297

Number of adult mosquito pools collected this season (submitted and unsubmitted): 4994

Number of ovitrap collections this season, if any: 63

Any other trap collections of note (please describe):

Do you participate in the MDPH Arboviral Surveillance program? Yes

Total number of adult mosquito pools submitted to DPH this past season: 306

How many pools do you submit weekly on average? 18

Number of traps in your service area **placed by MDPH**: 1

Were these long-term trap sites or supplemental trapping sites? long-term

Which arboviruses were found in your area during the previous mosquito season? Enter the number of pools/cases below:

Arbovirus	Positive Mosquito Pools	Equine Cases	Human Cases
<input checked="" type="checkbox"/> Eastern Equine Encephalitis (EEE)	0	0	0
<input checked="" type="checkbox"/> West Nile Virus (WNV)	10	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	remote, low
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: 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 for residents to protect themselves from mosquito bites around the home. 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. Our Entomologist participates in educational activities such as classroom activities in the schools and field education activities with summer camp programs as appropriate, as well as health fairs and farmers markets. Employees leave door hangers at residents homes after completing larvicide requests. The hangers highlight actions a resident can do to reduce or eliminate mosquito breeding on their property. Employees conducting ULV applications, have brochures on the ULV program to hand to residents with questions regarding the program. Employees connect to various outside organizations in an effort to better inform the public about what the District does.

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

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): notification of autumn aerial application for adjacent properties.)
- 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):

Estimate the audience reached this year using the education/outreach methods above: 500
Comments:

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

1. news interviews
2. health fairs
3. summer camp program

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:

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)

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 enter your approved budgets for the current, previous, and future fiscal years.

	Date of Fiscal Year	Approved Budget	Notes
Previous	FY 2021	\$2,001,629	
Current	FY 2022	\$2,061,678	
Future	FY 2023	\$2,113,220	proposed

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):

NCMCD Municipality FY 2021 Total Town Assessment (District plus SRMCB Assessments)

AVON \$21,045

BELLINGHAM \$73,907

BRAINTREE	\$111,337
CANTON	\$116,669
DEDHAM	\$82,153
DOVER	\$68,219
FOXBOROUGH	\$88,216
FRANKLIN	\$135,724
HOLBROOK	\$34,181
MEDFIELD	\$69,143
MEDWAY	\$56,628
MILLIS	\$41,729
MILTON	\$100,024
NEEDHAM	\$121,588
NORFOLK	\$54,683
NORWOOD	\$83,954
PLAINVILLE	\$43,981
QUINCY	\$176,592
RANDOLPH	\$72,106
SHARON	\$98,597
STOUGHTON	\$97,081
WALPOLE	\$113,573
WESTWOOD	\$81,549
WEYMOUTH	\$132,794
WRENTHAM	\$74,582
	\$2,150,055

Comments: _____

SERVICE REQUESTS

How many service requests did you receive this season? 9,701

How many were for larviciding? 365

How many were for adulticiding? 9,238

Was this an increase or decrease over last season? Increase

Comments: 449 Tire Removal Requests in addition to above

EXCLUSIONS

How many exclusion requests did you receive this season? 334

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. Audubon Society property in Canton and Sharon, and Trustees of Reservation property in Medfield, Millis, and Dover.

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: 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 rates with the CFPA within your program area, please list here:

Describe any difficulties you have had with the implementation of your program due to the CFP, please elaborate here:

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: _____