Commonwealth of Massachusetts

STATE RECLAMATION AND MOSQUITO CONTROL BOARD

NORTHEAST MASSACHUSETTS MOSQUITO CONTROL AND WETLANDS MANAGEMENT DISTRICT

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Operations

Barry Noone: *District Director*
Kimberly A. Foss.: *Entomologist*
Robyn A. Januszewski: GIS/*Biologist*
Katelynn E. King: *Wetlands Project Coordinator*

Commissioners

John W. Morris, CHO: *Chair*
Vincent J. Russo, MD, MPH: *Vice Chair*
Paul Sevigny, RS, CHO
Joseph T. Giarrusso, Conservation Officer
Rosemary Decie, RS

2022 Best Management Practice Plan
Danvers

FY23 Percentage of assessment allocated to specific measures as prescribed by individual municipalities Best Management Practice (BMP) in the Town of Danvers

NEMMC is requesting a 3% increase above the FY2022 certified assessment for a FY2023 operational budget. During FY2022 the District reorganized allowing more technicians in the field while maintaining our current staffing level. FY2022 allowed the district the opportunity to replace one of our frontline heavy equipment pieces which was 23 years old. Due to ongoing pandemic challenges, the district was unable to make the vehicle purchases it had intended to keep on schedule with our vehicle and equipment replacement plan. Our FY2023 budget addresses funding for staffing changes, allowing for two vehicle replacements, and to adapt with increased costs of materials, energy, fuel, and pesticides. With the region experiencing environmental changes, it remains challenging to plan for a "normal" year of mosquito control. Often dictated by the weather, mosquito populations, additional treatment for viruses and requests from member municipalities, NEMMC will work diligently to deal with exceptional mosquito nuisance and health issues.

Assessment: As estimated by the Massachusetts Department of Revenue, Division of Local Services, in accordance with Chapter 516 of the General Laws of the Commonwealth. The assessment formula is based on a regional concept, which considers square miles and evaluation. The district offers this breakdown as a general guide to how funds are allocated specific to your community.

FY23 Estimated District Budget for the Town of Danvers	$ 65,711.00
FY23 State Reclamation and Mosquito Control Board	$ 2,816.00
FY23 Total Estimated Assessment for the Town of Danvers	$ 68,527.00

-Committed to the principals of mosquito control and wetland management -

District Control Measures specific to Danvers

General Operational Cost Share

Regional Adult Mosquito Surveillance Program

Regional Vector / Virus Intervention

Surveillance

Ground Larviciding

Catch Basin Treatments

Manual Ditch Maintenance

Adulticiding **(Virus Intervention ONLY with Board of Health approval)**

Barrier Treatment **(By Board of Health request only)**

Ditch Maintenance / Wetlands Management

Tire Recycling Program

Property Inspections

Mosquito Habitat Mitigation

Research and Development

Education and Outreach

Social Media

NOTE: Any adulticiding, larviciding or treatment of catch basins for mosquito control on public school property requires a current IPM (Integrated Pest Management) Plan. We are often asked by local Boards of Health and/or athletic directors to treat ball fields and/or parks that may be owned/used by the school departments, and without an IPM plan that includes our materials we may not be able to assist.

Board of Health Checklist for 2022

☐ **Schedule an annual Board of Health meeting/ presentation with NEMMC**

Note: meetings will only be scheduled between the dates of October 1st - June 1st

☐ **Review login information for Municipal Toolbox on NEMMC website**

Our Liaison, Kelsey will e-mail you the password and login (see contact below)

☐ **Update School IPMs to have all current and recently added NEMMC pesticide products**

Recently added pesticide products include Metalarv XRP and Merus 3.0

☐ **Schedule Barrier Treatment for schools, parks, and/or public areas for peak mosquito season**

Note: scheduled barrier treatments are recommended between July 15th – August 25th

☐ **Check with Department of Public Works for field access for barrier treatments once scheduled**

☐ **Notify NEMMC with Board of Health contact changes**

Work phone, cell phone, and email are required of primary and secondary contacts

☐ **Review District Phased Response to WNV/EEE Virus Isolations in Integrated Pest and Vector Management Plan (IPVMP)**

For any questions on where to find this information, scheduling, and/or how to complete these tasks, please reach out to our Board of Health Liaison:

Kelsey Liakos, Board of Health Liaison
Cell: (978) 992- 6974
Office: (978) 352- 2800 Email: Kelsey.liakos@mass.gov

Updated 2022 NEMMC Protocols for District Arboviral Events

Climate change is expected to affect the geographic and seasonal patterns of mosquito-borne diseases in the United States. The northeast is experiencing an increase in precipitation and unusually hot temperatures. Since EEE is more prevalent in wetter years and WNV in hotter years the likeness of the district experiencing EEE and/or WNV events in any given year is possible, in some years both viruses can present substantial risk. The district feels that it is beneficial to our subscribing municipalities to set prevention and response criteria preparing for both mosquito-borne viruses.

District Prevention for WNV and EEE

- Adult mosquito surveillance and DPH virus testing
- Larviciding areas that can promote mosquito breeding including municipal catch basins
- Public notification to use personal protective measures from spring to first hard frost
- Wetlands management and stormwater maintenance
- Property inspections to larvicide standing water and remove containers holding water
- Early barrier treatments for public parks, recreation areas and schools
- Tire disposal program

District Response for WNV and EEE

If *risk level increases* for municipality but no virus in municipality:

- Public notification to use personal protective measures
- Additional larviciding of freshwater wetlands and flooded areas
- Recommendation for municipality to complete barrier treatments

If *bird biting mosquitoes* in municipality test positive for virus:

- Public notification to use personal protective measures
- Supplemental adult mosquito trapping and additional DPH virus testing in risk areas
- Additional larviciding of freshwater wetlands and flooded areas
- Retreatment of catch basins (if WNV) in focal area
- Retreatment of hummock swamps (if EEE) in focal area

If *human biting mosquitoes* in municipality test positive for virus:

- Public notification to use personal protective measures Supplemental adult mosquito trapping and additional DPH virus testing in risk areas
- Additional larviciding of freshwater wetlands and flooded areas
- Recommendation for municipality to complete a block adulticide of focal area
- Recommendation for municipality to complete barrier treatments

If *mammal or human case* of WNV or EEE in municipality:

- Public notification to use personal protective measures
- Supplemental adult mosquito trapping and additional DPH virus testing in risk areas
- Additional larviciding of freshwater wetlands and flooded areas
- Recommendation for municipality to complete a block adulticide of focal area
- Recommendation for municipality to complete barrier treatments

Summary of NEMMC District Operations Completed in Danvers during 2021

Date	Activity Completed
1/11/2021	2021 Integrated Pest and Vector Management Plan published to NEMMC website
2/4/2021	2021 Draft Best Management Plans (BMP) e-mailed to BOH for review
4/13/2021	Contacted DPW for catch basin cleaning schedule and treatment notification
4/29/2021	Larviciding- Wenham Street, Old Burley Street (9.0 lbs. Vectobac-G)
4/29/2021	Habitat Site Inspections (7)
4/30/2021	Habitat Site Inspections (14)
5/24/2021	Residential Pesticide Exclusion Received (1)
7/13/2021	(1) Mosquito batch sent to DPH for EEE/WNV testing- Negative
7/20/2021	(1) Mosquito batch sent to DPH for EEE/WNV testing- Negative
7/28/2021	(1) Mosquito batch sent to DPH for EEE/WNV testing- Negative
8/3/2021	(3) Mosquito batch sent to DPH for EEE/WNV testing- Negative
8/5/2021	Larviciding- Middle/Gregory, Dayton Street, Brook Circle, Cordoba Drive (1.43 lbs. VectoMax FG)
8/5/2021	(2) Tires collected- Electronics Avenue
8/5/2021	Catch basin larviciding (2,447 Altosid WSP) + Essex HS, St. Johns Prep, Danvers HS, Thorpe ES (136 Altosid WSP)
8/6/2021	Catch basin larviciding (173 Altosid WSP)
8/7/2021	Catch basin larviciding (254 Altosid WSP)
8/10/2021	Catch basin larviciding (613 Altosid WSP) + Riverside ES (5 Fourstar 90-day)
8/10/2021	(3) Mosquito batch sent to DPH for EEE/WNV testing- Negative
8/11/2021	Catch basin larviciding (552 Altosid WSP) + Holten Richmond MS (10 Fourstar 90-day)
8/11/2021	Catch basin larviciding completed in Danvers- 4,039 basins and 151 school basins= 4,190 total basins
8/24/2021	(1) Mosquito batch sent to DPH for EEE/WNV testing- Negative
8/31/2021	(2) Mosquito batch sent to DPH for EEE/WNV testing-1 batch **WNV** positive (Cx. salinarius)
9/2/2021	Notified BOH- WNV risk raised by DPH to MODERATE
9/3/2021	Larviciding- Collins Street rail trail (35.60 lbs. VectoMax FG)
9/6/2021	Supplemental mosquito trap placed
9/8/2021	(7) Mosquito batch sent to DPH for EEE/WNV testing- Negative
9/8/2021	Habitat Site Inspections- Forest Street
9/14/2021	(2) Mosquito batch sent to DPH for EEE/WNV testing- Negative
9/21/2021	(1) Mosquito batch sent to DPH for EEE/WNV testing- Negative
9/28/2021	(2) Mosquito batch sent to DPH for EEE/WNV testing- Negative
10/1/2021	Adult mosquito surveillance and DPH testing concluded for season
12/28/2021	Tire collected for disposal (8) Dayton Street

- **0 Residential property inspection service requests, down from 2 in 2020**

Informing residents that they can contact the district to inspect for standing water and help identify new breeding areas can help reduce mosquito populations.

- **22 mosquito habitat site inspections**
- **Catch basin larviciding was completed on 8/11/2021: 4,190 total basins were treated (4,039 municipal + 151 school)**
- **1 Residential pesticide exclusions were filed with the district this year from Danvers**
- **Collected and disposed of 10 abandoned tires**

2021 Danvers Mosquito & Arbovirus Surveillance Summary

There was 1 WNV mosquito isolation. There were no EEE mosquito isolations or WNV/EEE human or animal cases in Danvers in 2021. At the end of 2021, the arboviral risk level for Danvers remained at LOW for EEE and was raised to MODERATE for WNV. Risk Categories are described on pages 13, 22, 25 of the 2021 Massachusetts State Arbovirus Surveillance and Response Plan.

Massachusetts DPH assesses arboviral risk levels based on many factors including but not limited to mosquito isolations, locations of acquired veterinary and human infections, virus history locally and in bordering states, weather conditions present and predictions, and current mosquito populations and future trends.

- 24 mosquito pools/batches were sent from Danvers to the MDPH lab for testing in 2021, 1 batch of *Cx. salinarius* tested positive for WNV on 8/30/2021. No mosquito batches tested positive for EEE.

- Supplemental traps were placed around the positive WNV isolation on 9/7/2021. 5 additional mosquito batches were sent for WNV/EEE testing and returned with negative results.

Mosquito virus isolation history (WNV/EEE) in Danvers:

Collection Date	Species	Test Type	Result
8/30/2021	*Culex salinarius*	WNV	Positive
9/17/2013	*Culex pipiens*	WNV	Positive
9/7/2011	*Culex pipiens/restuans* complex	WNV	Positive
8/27/2008	*Culex pipiens/restuans* complex	WNV	Positive

Total Mosquitoes Collected in Danvers	2020	2021	% Change
CDC CO2/Light traps (1) - Mammal & bird feeders/bridge vectors	694	1096	58%
Gravid Traps (1) – Bird feeders/WNV primary vectors	21	74	252%
Totals	**715**	**1170**	64%

Mosquito Species- pest/disease list- Danvers	2020	2021	Change	WNV/EEE +	District Total % change 2020 to 2021
Culiseta melanura (red maple swamp/acid bog)	1	0	-100%	NO	11%
Culex pipiens (container/catch basins/heavy organics)	14	31	121%	NO	64%
Culex restuans (container/catch basins)	4	10	150%	NO	75%
Culex salinarius (brackish water/phragmites/roadside ditches)	372	285	-23%	WNV	747%
Coquillitidia perturbans (cattail)	300	616	105%	NO	-20%
Aedes vexans (rainwater/fresh floodwater)	8	298	3625%	NO	1781%
Aedes japonicus (tree hole/container breeder)	5	33	560%	NO	52%
Aedes sollicitans (salt marsh)	0	0	-	NO	824%
Aedes cantator (salt marsh)	2	3	50%	NO	266%
Aedes canadensis (snowmelt/woodland pool)	3	86	2767%	NO	588%

Red denotes there were positive mosquito batches in the total collections during 2021

WNV/EEE bridge vectors/human biters

- Excessive and prolonged rain events during 2021 caused these species to increase district-wide, there was also an increase in multiple fresh floodwater species in Danvers; *Ae. vexans*, *Ae. canadensis* and *Cx. salinarius*, a brackish water mosquito, increased by a total of 75%. A single batch of *Cx. salinarius* returned with positive WNV results in Danvers on 8/30. The cattail species *Cq. perturbans* have still not recovered from the drought conditions of 2020 and populations continued to decrease district wide. In Danvers however, *Cq. perturbans* increased by 105% in 2021. Informing residents that they can contact the district to inspect for standing water and help identify new breeding areas can also reduce these populations.

WNV primary vectors/bird biters (*Cx. pipiens/restuans*)

- There was a 128% increase in collections of WNV primary vectors from 2020 to 2021 in Danvers. Timely catch basin cleaning and treatments helped keep *Culex* mosquito populations in check. Informing residents that they can contact the district to inspect for standing water and help identify new breeding areas can also reduce these populations.

EEE primary vectors/bird biters (*Cs. melanura*)

- While 2019 was an unprecedented year for EEE statewide, due to early and sustained drought conditions and anticipatory targeted larviciding activities in the Northeast during 2020 the district saw an 81% decrease in Cs. melanura populations from 2019. In 2021 the average precipitation increased, and the district saw a slight 11% increase from 2020. However, there remains a decrease of 48% from the 10-year mean and 50% from the 5-year. It will take several years for these populations to recover from the droughts. Only 1 batch of *Cs. melanura* tested positive for WNV in Boxford during 2021. There were no EEE isolates in this species during 2021.

Pest Status salt marsh mosquitoes (*Ae. sollicitans*)

- *Ae. sollicitans,* a summer-fall salt marsh species, decreased by 824% district-wide. However, despite consistent larviciding and adulticiding, tides, high temperatures, prevailing wind direction, frequent rain and heavy thunderstorm activity caused this mosquito species to become a serious weekly nuisance for the district and its residents throughout 2021.

With forested wetlands in Danvers and in surrounding communities, there remains a local focus of potential EEE virus. Due to extensive WNV history and elevated risk levels in surrounding communities, from mid-July to the first full hard frost, Danvers residents should take necessary precautions to reduce the risk of infection from WNV and EEE, regardless of low mosquito populations and/or aggressiveness of control.

A hard, or killing frost, is defined meteorologically as two consecutive hours of temperatures below 28 degrees Fahrenheit or three hours below 32 degrees. This will occur at different times for different communities, and there may even be variation within communities based on local geography. Although mosquitoes are not killed until a hard frost occurs, they are extremely unlikely to be active when temperatures fall below 50 degrees in the evening (Page 15 of the 2021 MA Arbovirus Plan listed below).

Refer to the 2021 Massachusetts State Arbovirus Surveillance and Response Plan viewed online at:
https://www.mass.gov/lists/arbovirus-surveillance-plan-and-historical-data