Commonwealth of Massachusetts

STATE RECLAMATION AND MOSQUITO CONTROL BOARD

NORTHEAST MASSACHUSETTS MOSQUITO CONTROL AND WETLANDS MANAGEMENT DISTRICT

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2019 Best Management Practice Plan
Nahant

FY20 Percentage of assessment allocated to specific measures as prescribed by individual municipalities Best Management Practice (BMP) in the Town of Nahant.

NEMMC is requesting an increase of 1.5% in the assessment for FY 2020 due to continued increases in operational costs that include an increase in the cost of leasing the facility, increased costs in purchasing pesticides, an increase in costs for vehicle/heavy equipment maintenance and repairs, a cost of living increase, step raises and payroll taxes. Our primary goal is to protect our subscribing communities from virus. We will do all in our power to reduce the mosquito populations on a regional and town wide basis, thus reducing the virus risk to our residents. We look for continued support and understanding from all the communities we serve if we are to be successful.

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.

FY20 Estimated District Budget for the Town of Nahant	$ 7,169.00
FY20 State Reclamation and Mosquito Control Board (4.79%)	$ 299.00
FY20 Total Estimated Assessment for the Town of Nahant	$ 7,468.00

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

District Control Measures specific to Nahant

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 with Board of Health approval)**

Exception: Additional preemptive adulticiding may be added to Nahant BMP for 2019. Scheduling of this treatment shall be determined through NEMMC surveillance of mosquitoes from traps in Nahant: This additional spraying may be done in the following areas around the Golf Course (Kelley Greens at Nahant), Lowlands – Heritage Trail, Flash Road recreation area, Baileys Hill Park, and the Furbush Sanctuary, to the extent allowed and if accessible.

Barrier Treatment **(By Board of Health and School Department 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.

2018 Nahant Mosquito & Arbovirus Surveillance Summary

Above average mid to late summer temperatures mixed with increased precipitation caused increases in most summer floodwater mosquito populations. Due to these same conditions; populations of container and floodwater breeding mosquitoes increased significantly resulting in heightened WNV activity statewide. The mosquito collections from our gravid traps and the number of positive mosquito pools "batches" in our district and statewide reflect this increased WNV activity. At the end of the season the states drought level was reversed; mosquito species requiring steadier groundwater reserves (*Cs. melanura, Cq. perturbans*) seemed to bounce back considerably from the additional precipitation the state received during the 2018 season.

Catch basin larvicide treatments (completed on 7/22/2018) reduced *Cx. pipiens/restuans* populations breeding in this habitat type throughout the season. School basins were not treated and outdoor IPM plans for the schools in Nahant need to be updated for 2019. The district treated a total of 341 basins in Nahant. Coordinated basin cleaning schedules with the DPW results in much earlier catch basin treatments which increase this reduction. Additional public education is needed to help further reduce *Cx. pipiens* breeding on agricultural fields, flooded lawns, in abandoned pools, gutters and in unattended artificial containers on residential properties.

Total Mosquito Collected in Nahant	**2017**	**2018**	**% change**
1 CDC CO2/Light trap	260	91	-65%
1 Gravid Trap	28	21	-25%
Totals	**288**	**112**	**-61%**

Mosquito Species- pest/disease list- Nahant	**2017**	**2018**	**% change**	**WNV/EEE +**	**District Total 2018**
Culiseta melanura (red maple swamp/acid bog)	0	0	0	NO	1,072
Culex pipiens (container/catch basins/high organics)	26	16	-38%	NO	1,365
Culex restuans (container/catch basins/tires/ditches)	4	2	-50%	NO	374
Culex salinarius (brackish water/phragmities/roadside ditches)	250	72	-71%	NO	2,527
Coquillitidia perturbans (cattail)	1	0	-100%	NO	27,474
Aedes vexans (rainwater/fresh floodwater)	0	9	-	NO	813
Ochlerotatus japonicus (tree hole/container breeder)	0	4	-	NO	501
Ochlerotatus sollicitans (salt marsh)	0	4	-	NO	932
Ochlerotatus cantator (salt marsh)	7	2	-71%	NO	5,848
Ochlerotatus canadensis (snowmelt/woodland pool)	0	0	0	NO	1,109

- 11 standard surveillance mosquito pools/batches were sent to the MA DPH lab for testing in 2018.

There were **NO WNV/EEE** detections in Nahant for 2018**.** However, there were WNV infected mosquitoes collected from Saugus, Salem and WNV human cases identified from Lynn, Salem, Saugus, Revere, Winthrop and Marblehead. At the end of 2018, the arboviral risk level for Nahant remained LOW for EEE and MODERATE for WNV. Risk Categories are described in Table 2 of the 2018 MDPH Surveillance and Response Plan.

Mosquito infection history (WNV/EEE) in Nahant:

Collection Date	Species	Test Type	Result
8/8/2016	*Culex pipiens*	WNV	Positive
8/10/2016	*Culex pipiens*	WNV	Positive
8/15/2016	*Culex pipiens*	WNV	Positive
8/17/2016	*Culex pipiens*	WNV	Positive
8/22/2016	*Culex pipiens*	WNV	Positive
8/24/2016	*Culex pipiens*	WNV	Positive
8/29/2016	*Culex pipiens*	WNV	Positive
8/31/2016	*Culex pipiens*	WNV	Positive
9/7/2016	*Culex pipiens*	WNV	Positive
9/21/2016	*Culex pipiens*	WNV	Positive
9/21/2016	*Culex salinarius*	WNV	Positive
9/28/2015	*Culex pipiens*	WNV	Positive
9/3/2013	*Culex pipiens*	WNV	Positive
8/22/2012	*Culex pipiens/restuans* complex	WNV	Positive
8/21/2011	*Culex pipiens/restuans* complex	WNV	Positive
8/21/2011	*Culex pipiens/restuans* complex	WNV	Positive
8/24/2011	*Culex pipiens/restuans* complex	WNV	Positive
8/2/2006	*Culex species*	WNV	Positive

There were no arbovirus detections in Nahant prior to 2006. However, the increasing frequency and number of WNV detections are becoming evident in our District, especially during drought years. Surrounding communities have had extensive WNV history, in both mosquitoes and humans. It is recommended Nahant residents take necessary precautions; from July to the first full heavy frost, to reduce the risk of infection from WNV and other arboviruses, regardless of low mosquito populations and/or aggressiveness of control.

Refer to the 2018 Massachusetts State Arbovirus Surveillance and Response Plan viewed online at: https://www.mass.gov/lists/arbovirus-surveillance-plan-and-historical-data#response-plan-

Focus of Operations for 2019

Regional control efforts will focus primarily on larval surveillance and treatment, adult mosquito surveillance, virus testing and preemptive virus intervention strategies. Specific to Nahant the primary focus of control efforts will be on freshwater larviciding, catch basin treatments and virus intervention for WNV and EEE.

- School IPM program coordinators should confirm all schools are updated for outdoor mosquito control with our District for 2019. Coordinators please call our office or visit the MDAR School IPM website @ https://massnrc.org/ipm/schools-daycare/ipm-tools-resources/ipm-plan-maker/make-your-ipm-online/locate-school-plan.asp# for more information.

Regional Control Measures

Regional Adult Mosquito Surveillance Program: CDC/CO2 Light traps are used to sample the adult mosquito population, monitor both short and long term trends and determine population density of bridge vectors (human biters) of WNV and EEE. Gravid traps are designed to collect adult female *Culex* species the primary vectors (bird biters) of WNV.

At least one of these dual function units is placed in a fixed location in each member municipality for a total of 36 deployed throughout the District. Mosquitoes are collected and identified from each trap once per week beginning mid-May until September 31st. The MA DPH may extend testing into October. In the event mosquitoes collected from these traps test positive for EEE or WNV the District will add supplemental CDC CO2/Light traps at specific sites within the municipality.

Supplemental trapping criteria for 2019:

After the 1st positive WNV/EEE primary vector species (bird biters) in any municipality supplemental traps could be placed in locations with these parameters:

- Radius of collection
- Distance from historic trap
- Topography
- Human population density
- Bridge vector potential breeding sites
- Schools/parks/recreation areas
- Site security
- Wetland/wooded/shaded/moist areas

Supplemental mosquito collections will be sent to State Laboratory for arbovirus testing.

The District will operate 128 resting boxes at 16 sites. Resting boxes are designed to collect blood fed female *Culiseta melanura* mosquitoes relevant to EEE transmission. Eight resting boxes will be placed at each fixed location and there will be two fixed locations in communities bordering New Hampshire as well as other communities considered to be at risk. The District will collect and identify samples from each trap every week and the specimens will be tested for virus.

In the event *Cs. melanura* mosquitoes collected from resting box sites test positive for EEE the District will deploy supplemental CDC CO2/Light traps in high risk areas.

Virus Testing: Specimens from our trap collections will be sent to The Massachusetts Department of Public Health (MA DPH) to be tested for the presence of encephalitis viruses. Our District mosquito testing results will be available on Fridays of each week. The MA DPH will contact the municipalities BOH officers as well as our District of any positive test results.

Mosquito virus testing criteria for 2019:

Phase I

- June 15th to August 1st
- Primary vectors (bird biters): *Cs. melanura, Cs. morsitans, Cx. pipiens* and *Cx. restuans*
- Other mosquito species may be tested on a case by case basis.

Phase II

- August 1st to October 1st (or October 15th for MA DHP extended season)
- Primary vectors (species listed above) + Bridge vectors (bird/mammal biters): *Ae. cinereus, Ae. vexans, Cq. perturbans, Cx. salinarius, Oc. canadensis, Oc. japonicus, Oc. taeniorhynchus, Ps. ferox* and *Oc. sollicitans*
- Other mosquito species may be tested on a case by case basis.

Regional Vector/Virus Intervention: Control efforts will focus on early intervention strategies in municipalities that have shown a greater risk to mosquito borne virus based on events of the previous seasons and surveillance data as prescribed in the District's Integrated Pest and Vector Management Plan (IPVMP). This approach is in the best interest of all member municipalities as focused early intervention strategies seem to demonstrate containment of WNV, and may reduce the risk of EEE exposure to humans and the migration of virus to other municipalities.

Regional Aerial Salt Marsh Larviciding Program: Coastal salt marshes in neighboring communities from Ipswich to the New Hampshire border will be aerially larvicided by helicopter to control salt marsh mosquitoes in accordance with the respective Best Management Practice Plans. Salt marsh mosquitoes are capable of flying up to 25 miles in search of a blood meal and then return to the salt marsh in order to lay eggs. Coastal communities as well as many inland cities and towns receive direct and immediate benefit from the control of salt marsh mosquitoes.

- Aerial bacterial larviciding operations in coastal communities (2 treatments in 2018). These applications provide relief from salt marsh mosquito (*Oc. cantator*/*Oc. sollicitans*) hatches for all municipalities in our District.

Control Measures Specific to Nahant

Ground Larviciding: Larviciding sites from the District's data base, including retention ponds, detention basins and areas requested by the local Board of Health will be checked and treated for mosquito larvae as necessary, beginning in March or as snow melt allows, to September 30th and beyond if circumstances warrant and conditions allow.

Catch Basins: Catch Basin treatments will be scheduled with local DPWs so that each municipality's annual cleaning of basins does not jeopardize the treatment and effectiveness of the larvicide used to control mosquito larvae in these basins. ***The timing of catch basin cleaning is very important and will dictate what type of larvicide will be used to control the mosquito breeding in these basins.*** BT/BS (bacterium) products work very well to control mosquito larvae in cleaned basins, but do not work well in uncleaned basins or ones high in organic matter. A Methoprene product would have to be used in uncleaned catch basins. Depending

on the DPW's cleaning schedule, basins will be checked and treated as necessary beginning May 1st through August 31st.

Manual Ditch Maintenance: In the course of ground larviciding and catch basin treatments, roadside ditches and culverts will be manually cleared of manageable blockages and debris in order to reduce mosquito breeding habitat and / or potential habitat.

Adulticiding: The District uses a system called Ultra Low Volume (ULV) for ground adulticiding applications. ULV is designed to dispense very small amounts of pesticides over a large area. While this is a cost effective means of reducing mosquito populations on a large scale, it only affects those mosquitoes present at the time of the application and repeated applications are sometimes necessary to sustain the initial reduction in the mosquito population in some areas.

Virus intervention will be at the request of and coordinated through the Board of Health with recommendations from Northeast MA Mosquito Control of specific areas to be targeted. Applications to schools must be in compliance with 333 CMR 14.08.

Exception: Additional preemptive adulticiding may be added to Nahant BMP for 2019. Scheduling of this treatment shall be determined through NEMMC surveillance of mosquitoes from traps in Nahant: This additional spraying may be done in the following areas around the Golf Course (Kelley Greens at Nahant), Lowlands – Heritage Trail, Flash Road recreation area, Baileys Hill Park, and the Furbush Sanctuary, to the extent allowed and if accessible.

- ***Residential Pesticide Exemption****:* Residents who request their property be excluded from pesticide applications must comply with the legal process to exempt their property. Pursuant to 333 CMR 13.03, individuals may request exclusion from wide area applications of pesticides by the District for the 2019 calendar year starting January 1st 2019. Requests **must be made to the Department of Agricultural Resources** online, and **will go into effect 14 days** from the date the request is received. All exclusion requests expire on December 31st, 2019. The exclusion request can be accessed from either our districts website or directly from the Department of Agricultural website:

  https://www.mass.gov/how-to/exclusion-from-wide-area-pesticides-application

Barrier Treatment:
To reduce the need for repeated ULV applications and provide more sustained relief from mosquitoes in high public use areas, the District can provide barrier treatments to public use areas such as schools, playgrounds, athletic fields, etc., at the request of the Board of health and/or school departments. **Applications to schools must be in compliance with 333 CMR 14.08.**

Ditch Maintenance / Wetlands Management: The town may petition the District to undertake larger scale ditch maintenance projects, wetland enhancement and restoration projects requiring specialized mechanized equipment and expertise. Petitioned sites will be evaluated and a site specific proposal will be written for acceptable projects. Wetland management projects must have a mosquito remediation component. Wetland management projects may be beyond the scope of any municipality's assessment and may require a separate and additional appropriation.

Tire Recycling Program: Tires have historically been discarded on public and private properties, in both upland and wetland environments. Once a pile is started it can quickly grow into a substantial public health issue and is a known source of mosquito proliferation.

Discarded tires almost always hold water and are a prime location for artificial container breeding mosquito species, most notably *Culex pipiens*, *Culex restuans* and *Ochlerotatus japonicus*. *Cx. pipiens* and *Cx. restuans* are considered to be the key vector species of both encephalitis viruses in the District. *Oc. japonicus* is a new species to Massachusetts since 2000, and is thought to have been imported into the United States in used tires. *Oc. japonicus* has also shown to be a competent vector of West Nile virus. Invasive mosquito species are known to travel in containers like tires.

Aedes albopictus, an exotic invasive species, is now established in Central and Southern Massachusetts and has made an appearance in the northeast district during 2018. This species has the potential for arbovirus transmission and breeds in discarded tires. As in previous seasons, the district will be maintaining tire water sample programs, tire collections and larviciding in order to monitor and control the spread of this species in the district.

Property Inspection: While the District is authorized under the provisions of Chapter 252, section 4 of the General Laws of the Commonwealth to enter upon lands for the purpose of inspection, it is not a regulatory agency. It also is not our intention to impose on any resident or business, but rather to be a resource for information and technology to help property owners prevent or abate mosquitoes to the mutual benefit of the property owner and the community.

The district receives many requests from municipal Boards of Health to inspect abandoned properties. With the increased health risk associated with property abandonment the District will take an aggressive approach to property inspections. In the course of our routine activities in your community, if we discover such properties, we will inspect and report these properties to the Board of Health. We understand that addressing concerns related to such properties is a matter of time and process. In the long term we will offer any support that may be appropriated to resolve mosquito problems related to such properties and in the short term with the Board of Health's support we will implement the necessary control measures to mitigate the immediate mosquito problem associated with such properties.

Mosquito Habitat Mitigation: The District will represent the town's mosquito control concerns in an advisory capacity relative to proposed development and where prudent as requested by local health officials.

Research and Development: The District will evaluate the efficacy and efficiency of current control methods, investigate new methods, procedures and technologies in mosquito control and wetlands management and evaluate their implications for use in Nahant.

Education and Outreach: The District will present educational displays and programs on mosquito control and related wetlands management programs at the request of health officials, schools or civic organizations. The District will also monitor and update local schools, daycares etc. regarding IPM plans and current child protection requirements.

Social Media: In the recent past, the District has recognized the need to provide information on our activities in a timelier manner. Social media is proving to be the go to method of disseminating information for many companies and individuals.

The District maintains a valuable website. This site is full of resources, information and provides more timely updates of our activities. We have found that many questions can be answered through our website and we will continue to increase our web presence.

www.nemassmosquito.org