MASSACHUSETTS MOSQUITO CONTROL
ANNUAL OPERATIONS REPORT

2012 Year of Report Date of Report: 11/01/2012

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

Address: 140 North Walker St

City/Town: Taunton Zip: 02780

Phone: 508-823-5253 Fax: 508-828-1868

E-mail: brismosqmt@comcast.net

Report prepared by: ***Jennifer Dacey***

NPDES permit no. **MAG87A075**

If you have a mission statement, please include it here: To serve the community by suppressing both nuisance and disease carrying mosquito populations to tolerable levels in the most environmentally sensitive and economical manner. We utilize a variety of methods in such a way as to minimize potential effects on people, wildlife, and the environment.

Our commissioners live and work in the county and all decisions are made in a fiscally responsible manner. The project advocates public outreach and education through cooperative efforts with local officials, school departments and the news media.

ORGANIZATION SETUP:

Please list your Commissioner's names:

Arthur Tobin, Chairperson
Christine Fagan
Joseph Barile
Robert Davis
Gregory Dorrance

Please list the Supt./Director's name: Jennifer Dacey
Please list the Supt./Director's contact phone number: 508-823-5253
Please list your Asst. Supt./Asst. Director's name: Stephen Burns

Do you have a website? Yes If yes, please list the web address here: http://www.bristolcountymosquitocontrol.com

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

Full time: 10

Part time: 0
Seasonal: 1
Other: (please describe)

Please break these down into the following areas:

Administrative staff: 4
Field staff: 6
Please check off all that apply, and list employee name(s) next to each category:
☒ Public relations Jennifer Dacey, Stephen Burns
☐ Information technology
☒ Entomologist Priscilla Matton
☒ Wetland Scientist Priscilla Matton, Stephen Burns
☐ Biologist
☒ Education Jennifer Dacey, Priscilla Matton
☒ Laboratory Priscilla Matton
☒ Operations Stephen Burns, Jennifer Dacey
☒ Facilities Stephen Burns
☒ Other (please list) Administrative Assistants: Barbara Johnson, Teri Medeiros, Field Technicians: John Gibbs, John Rapoza, John Moniz, Drew Bushee, Joshua Nickerson , Katherine Sittig-Boyd

For the year of this report, we maintained:
11 vehicles
3 modified wetland equipment (list type) 2 low ground pressure escavators, 1 low ground pressure mower
11 ULV sprayers (list type) 4 London Fog (GPS), 1 Curtis DynaJet (GPS), 2 Guardian (GPS), 4 Beecomist
Larval control equipment (list type)
Other (please be specific): 1 Truck and trailer to transport , 1 Bulldozer, 1 Brushcutter attachment

Comments: _____

How many cities & towns in your service area? 20
Please list: Acushnet, Attleboro, Berkley, Dartmouth, Dighton, Easton, Fairhaven, Fall River, Freetown, Mansfield, New Bedford, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Somerset, Swansea, Taunton, Westport.

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

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): Mapping and GIS**

Comments: _____

LARVAL MOSQUITO CONTROL:

Do you have a larval mosquito suppression program? Yes

If yes, please describe the purpose of this program: The larval suppression program is one of our most effective methods to reduce the number of biting mosquitoes by preventing mosquitoes from maturing into adults, protecting human health and improving the quality of life of our residents. We employ larviciding techniques to current and historical mosquito breeding sites.

Please give the time frame for this program: May - October

Describe the areas that this program is used: We target the following areas: freshwater wetlands, saltmarshes, cedar and red maple swamps, catch basins, other permanent and temporary water bodies, and artifical containers that traps water for extended periods of time.

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: Vectobac G #73049-10
Catch basins: VectoLex WSP #73049-20 and VectoMax WSP 73049-429
Containers: VectoLex WSP #73049-20 and VectoMax WSP 73049-429
Other (please list):

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

Wetlands: 2.5 lbs/acre
Catch basins: 1 pouch per catch basin
Containers: 1 pouch per 50 sq ft
Other:

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

☒ Larval dip counts – please list trigger for application: 1+ per 5 dips
☒ Historical records
☒ Best professional judgment

Comments: All of our larval monitoring sites have GPS coordinates and are mapped for use in the truck computers.

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

ADULT MOSQUITO CONTROL:

Do you have an adult mosquito suppression program? Yes

If yes, please describe the purpose of this program: Bristol County's program is designed to decrease the number of vector carrying and nuisance mosquitoes. There has been consistant detection of both West Nile Virus and Eastern Equine Encephalitis in our county. During the 2012 eason we had one human case of WNV in Attleboro. During the 2011 season, Bristol County had one human death from EEE.

Please give the time frame for this program: June - October

Describe the areas that this program is used: We accept requests for adult mosquito control applications from residents, buisnesses, town officials and other organizations within our 20 towns. Targeted applications occur in areas where WNV and EEE positives have occurred.

Do you use:
☒ **Truck applications**
☐ **Portable applications**
☐ **Aerial applications**
☐ **Other (please list):**
Comments: _____

Please list the names of the products used with EPA #:
1). Anvil 10+10 ULV, EPA Reg # 1021-1688-8329
2).
3).
4).
5).
6).

Please list your application rates for each product:
1). 0.21fluid oz per acre - 0.62 fluid oz per acre
2).
3).
4).
5).
6).

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

Frequency of applications are dependent upon vector control activities, physical characteristics of the area and/or environmental issues. Applications are made in accordance with label directions.

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

☐ Landing rates - please list trigger for application
☒ Light trap data - please list trigger for application When virus is isolated
☒ Complaint calls - please list trigger for application We perform applications at residents property upon request.
☒ Arbovirus data
☒ Best professional judgment

Comments: _____

***Please attach a link to maps of treatment areas if possible. Our treatment area includes all 20 town in our county. County map is attached. Individual maps of specific treatment areas are available on request but are too large to attach (we completed over 14,000 requests during the 2012 season).**

SOURCE REDUCTION

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

If yes, please describe your program: Our program involves a ditch maintenance program, OMWM and education. We will remove containers, tires and other articles that would be potential breeding sites. We often inspect properties and offer advice to landowners and businesses how to reduce and remove standing water or any other materials that would be conducive to mosquito breeding.

What time frame during the year is this method employed? Year round

Comments: _____

DITCH MAINTENANCE

Do you have a ditch maintenance program? Yes

Please check all that apply:
☒ Inland/freshwater
☒ Saltmarsh

If yes, please describe: Our goal is to remove debris, silt and vegetation from drainage ditches throughout our service area, to improve water flow. This includes both hand and mechanized work. Proper water flow will eliminate standing water conducive to larval mosquito development. We use erosion control materials and re-seed to stabilize soils disturbed by our operations.

Please check off all that apply INLAND DITCH MAINTENANCE:

☒ **Hand tools**
☒ **Mechanized equipment**
☒ **Other (please list): Erosion control materials**
Comments: Our project has continued to implement the use of environmetally sensitive silt and erosion control materials to stabilize soils disturbed by our operations. This includes but is not limited to: Straw and coconut blankets, straw bales, jute mats, conservation seed and sedi-stop rolls within the waterway.

Please check off all that apply SALTMARSH DITCH MAINTENANCE:

☒ **Hand cleaning**
☒ **Mechanized cleaning**
☒ **Other (please list): Erosion control materials**

Comments: Our project has continued to implement the use of environmetally sensitive silt and erosion control materials to stabilize soils disturbed by our operations. This includes but is not limited to: Straw and coconut blankets, straw bales, jute mats, conservation seed and sedi-stop rolls within the waterway.

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

Hand cleaning 50,551 feet (cleaning), 34,433 feet (brush cut) = 84,984 feet
Mechanized cleaning 2.68 acres
Other (please list):

Comments: In addition to

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

Hand cleaning 9,987 feet (cleaning), 211 feet (brush cut) = 10,198
Mechanized cleaning 0.12 acres
Other (please list):

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

Comments: We completed 27 mechanaized ditch maintenance projects within our member communities.

***Please attach a link to maps of ditch maintenance areas if possible. Ditch maintentance occurred throughout our county in all 20 towns/cities. Individual maps of specific areas are available on request but are too large to attach.**

MONITORING (Measures of Efficacy)

Please describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands: **n/a**
Larvicide – catch basins: **We utilize a hand made dipper in order to access the catch basins. Samples are taken at random catch basins in a particular town.**
Larvicide-hand/small area **We monitor 10% of treatment locations with a standard 350 ml dipper.**
Ground ULV Adulticide: **We place mosquito traps in locations where a ground ULV application will take place. We trap before and after the application to note efficacy.**

Source Reduction: **We return to 10% of our source reduction locations to check for new containers or objects that contribute to breeding.**
Open Marsh Water Management:
Other (please list):

Provide or list standard steps, criterion, or protocols regarding the documentation of efficacy, (pre and post data) and resistance testing (if any): **Traps are placed and mosquitoes collected before an after applications. Results from pre and post applications are analyzed.**

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? Yes

If yes, please describe: no projects were performed in 2012. However, the goal of our OMWM is to create greater access for mosquito-eating fish to areas on the marsh that support mosquito larval development.

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

What time frame during the year is this method employed? n/a

Comments: We did not perform any OMWM work.

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

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: 10

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

☒ Gravid traps	
☒ Resting boxes	
☒ CDC light traps	☐ Canopy
☒ CDC light traps w/CO_2	☐ Canopy
☐ ABC light traps	☐ Canopy
☐ ABC light traps w/CO_2	☐ Canopy
☒ NJ light traps	☐ Canopy
☐ NJ light traps w/CO_2	☐ Canopy

Other (please describe): ULV light trap with and without CO2

Please describe the purpose of this program: Our surveillance program is designed to monitor the numbers of nuisance mosquitoes and to assess if any Eastern Equine Encephalitis or West Nile Virus activity is present, what towns it is present in, and at what level it is occuring.

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

If yes, please describe how you chose these long-term sites. Sites are choosen based on the presence of viruses found in mosquitoes or humans.

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

- ☒ *Ae. albopictus*
- ☐ *Ae. cinereus*
- ☒ *Ae. vexans*
- ☐ *An. punctipennis*
- ☐ *An. quadrimaculatus*
- ☒ *Cq. perturbans*
- ☒ *Cx. pipiens*
- ☒ *Cx. restuans*
- ☒ *Cx. salinarius*
- ☒ *Cs. melanura*
- ☒ *Cs. morsitans*
- ☐ *Oc. abserratus*
- ☒ *Oc. canadensis*
- ☒ *Oc. cantator*
- ☐ *Oc. excrucians*
- ☐ *Oc. fitchii*
- ☒ *Oc. j. japonicus*
- ☐ *Oc. punctor*
- ☒ *Oc. sollicitans*
- ☐ *Oc. stimulans*
- ☒ *Oc. taeniorhynchus*
- ☒ *Oc. triseriatus*
- ☐ *Oc. trivittatus*
- ☐ *Ps. ferox*
- ☐ *Ur. sapphirina*

☐ Other (please list):

Do you participate in the MDPH Arboviral Surveillance program? Yes

How many pools do you submit weekly on average? 25

Please check off the arboviruses found in your area in the past 5 years:

- ☒ West Nile Virus
- ☒ Eastern Equine Encephalitis
- ☐ Other Please list:

Did the above listed diseases cause human or horse illnesses? Yes

Please explain: This season we had one human case of West Nile Virus in Attleboro from which the patient recovered from. Last season we had one human fatality from EEE in Raynham.

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

WNV: High risk: New Bedford. Moderate risk: Dartmouth, Freetown, Acushnet and Fairhaven. All other towns were low risk.
EEE: Critical risk: Raynham. High risk: Easton. Moderate risk: Dighton, Taunton, Berkley, Freetown, Norton, and Mansfield. all other towns were low risk.

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

WNV: Severe risk: Easton, Raynham and Taunton. High risk: Norton, Rehoboth, Freetown, Acushnet, and New Bedford. All other towns are Moderate risk.
EEE:

What time frame during the year is this method employed? Year round

Comments: There were no towns in Bristol County that are low or remote risk. We had 1 human case of West Nile Virus in the town of Attleboro, that person recovered. There were 100 pools of mosquitoes that tested positive for EEE and 49 pools that tested positive for West Nile Virus.

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

EDUCATION, OUTREACH & PUBLIC RELATIONS

Do you have an education/public outreach program program? Yes

If yes, please describe: Numerous radio, newspaper interviews, attendance at public events, creation of a BCMCP website, twitter account (both the website and Twitter account are used to post relevant information and updates regrading virus isolations). Presentations are given to various organizations (including schools and senior centers).

Please check off all that apply:

☒ School based program
☒ Website
☒ PR brochures/handouts
☒ Community events
☒ Science fairs
☒ Meeting presentations

☐ Other (please describe):

Please give an estimate of attendance/participants in this program: ~1500

Please list some events you participated in for the year of this report: NMCA Annual Meeting, NMCP Field Day, AMCA Annual Meeting, Presentations at local schools, BCMCP Budget Meeting for cities and towns, Meeting with the Army Corps of Engineers.

What time frame during the year is this method employed? Year round

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

If yes, please elaborate on your research projects: n/a

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: n/a

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

Does your staff participate in educational opportunities? Yes

If yes, please list the training and education your staff received this year: Northeast Mosquito Control Association Field Day, NMCA Annual Meeting, AMCA Annual Meeting.

Please list the certifications and degrees held by your staff:
Jennifer Dacey- B.S. Wildlife Biology and Management, M.S. Environmental Sciences, Certified Pesticide Applicator
Stephen Burns- B.S. in Business Management, Certified Pesticide Applicator, CDL license, Hoisting Engineer license, FEMA certified, Chainsaw Certification,
Priscilla Matton- B.S in Zoology, M.Sc. in Entomology, Certified Pesticide Applicator
Jonathan Gibbs- Certified Pesticide Applicator, CDL license, Hoisting Engineer license, Chainsaw Certification
Drew Bushee-Certified Pesticide Applicator, CDL license, Hoisting Engineer license, Chainsaw Certification
John Moniz- Licensed Pesticide Applicator, CDL license, Hoisting Engineer license, Chainsaw Certification
John Raposo- Licensed Pesticide Applicator, Chainsaw Certification
Joshua Nickerson- Licensed Pesticide Applicator, CDL license, Hoisting Engineer license, Chainsaw Certification

Comments: _____

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? Yes

If yes, please describe: We remove blockages that restrict the movement of predatory fish, allowing them to reach mosquito larvae.

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

Please check off all that apply:

☒ Predatory fish
☒ Predatory invertebrates
☐ Other (please describe):

What time frame during the year is this method employed?

Comments: _____

INFORMATION TECHNOLOGY

Does your program use (check all that applies):

☒ Computers
☒ GIS mapping
☒ GPS equipment
☒ Computer databases
☒ Aerial Photography
☒ Other (please describe): Create posters and maps, Powerpoint, Excel, ArcView, MapPoint. trucks use handheld and ULV based GPS for pesticide applications.

Please describe your capabilities in these areas: Proficient

Please describe your current GIS abilities: Advanced

Give details if possible on your GIS abilities: ArcView and MapPoint are used to create maps, application locations and provide guidance for our applicators. A Tremble device and Pathfinder program are used to record locations.

Please describe any changes/enhancements in this area from the previous year: Staff was trained on any updates to these systems.We created a website for the project.

Comments: We maintain a databased for spray requests to help streamline the amount of calls that our project receives. We created a website this year for our project that contains information pertinent to the public and will include what areas (towns, streets) will be treated the following day.

REVENUES & EXPENDITURES

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

ATTLEBORO	$72,190.00
BERKLEY	$25,965.00
DARTMOUTH	$122,476.00
DIGHTON	$33,141.00
EASTON	$61,713.00
FAIRHAVEN	$34,607.00
FALL RIVER	$94,411.00
FREETOWN	$52,436.00
MANSFIELD	$56,819.00
NEW BEDFORD	$83,397.00
NORTH ATTLEBORO	$58,415.00
NORTON	$53,545.00
RAYNHAM	$41,585.00
REHOBOTH	$67,928.00
SEEKONK	$41,609.00
SOMERSET	$33,801.00
SWANSEA	$45,942.00
TAUNTON	$103,153.00
WESTPORT	$85,338.00
Total:	$1,200,023.00

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

Comments: The State Reclamation and Mosquito Control Board policy requires a public meeting with member cities and towns. This meeting was held on November 29, 2012. The Board also requires letters of support (of the upcoming proposed budget) from member towns be submitted to them.

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: Anvil 10+10
EPA Reg. #: 1021-1688-8329
Application method: Truck based GPS guided ULV
Targeted life stage: Adult
Total amount of concentrate applied: 281.6 gallons
Comments: Amount applied during 2012 season was less that previous year.

Product Name: VectoMax WSP
EPA Reg. #: 73049-429
Application method: Place (in catch basin)
Targeted life stage: Larvae
Total amount of concentrate applied: 246.4 lbs
Comments: 11,178 packets (10 grams each)

Product Name: VectoLex WSP
EPA Reg. #: 73049-20
Application method: Place (in catch basin)
Targeted life stage: Larvae
Total amount of concentrate applied: 258.5 lbs
Comments: 11,724 packets (10 grams each)

Product Name: VectoBac G
EPA Reg. #: 73049-10
Application method: Place
Targeted life stage: Larvae
Total amount of concentrate applied: 842.5 lbs
Comments: _____

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:
Comments: _____

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:

Comments: _____

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:
Comments: _____

Product Name:
EPA Reg. #:
Application method:
Targeted life stage: Choose one
Total amount of concentrate applied:
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. Canoe River and Hocomock ACEC, and areas of Priority Habitat. Map of areas are attached.

SPECIAL PROJECTS

Do you perform any inspectional services such as inspections at sewage treatment facilities or review sub division plans? Yes

If yes, please elaborate Perform entomological work when requested by member towns. Review, inspect and treat retention ponds in subdivisions.

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: Extensive work is done with member towns and local government agencies such as the Department of Public Works, local health boards, Conservation Commissions, engineering departments and highway departments.

Have you worked with these departments on long term solutions? Yes

If yes, please elaborate: We have worked clearing waterways and rebuilding culverts, etc. to improve water flow for the long term.

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

If yes, please elaborate: n/a

Did you or participate on any **State/Regional/National workgroups or panels or attend any meeting pertaining to the above**?

If yes, please elaborate: n/a

CHILDREN AND FAMILIES PROTECTION ACT

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

If yes, please explain: 265 day cares and 150 locations of private, and public school properties located in our county.

If you have data on compliance with this Act and your program, please list here: We are able to go onto the state website and view the school or daycares IPM plan. If it is not up to date, we inform them of the information they need to add (if applicable) or tell them they simply need to update it to the current year. We will not take a spray request until the IPM plan is up to date.

If you had difficulties with implementation of your program due to this law, please elaborate here: No, we simply ask the school or daycare to update their IPM plan and remind them of the requirements (notifciation, etc.).

Comments: We confirm that the schools or daycare's IPM plan is up to date by checking it online at the states website. We also require that the facility fill out, sign and fax back to us, a document stating that they are aware they must send out all notifications and adhere to other requirements (posting, etc.) under CFPA.

NPDES SECTION

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

If yes please list any corrective actions here: n/a

GENERAL COMMENTS

Please list any comments not covered in this report: _____

THE COMMONWEALTH OF MASSACHUSETTS
STATE RECLAMATION AND MOSQUITO CONTROL BOARD

BRISTOL COUNTY MOSQUITO CONTROL PROJECT

140 NORTH WALKER STREET, TAUNTON, MA 02780
TEL:(508)823-5253 FAX: (508)828-1868

COMMISSIONERS
SUPERINTENDENT
ARTHUR F. TOBIN, CHAIRMAN
M.S.
GREGORY D. DORRANCE
SUPERINTENDENT
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JOSEPH BARILE
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JENNIFER E. DACEY,
ASST.
STEPEHN BURNS

Bristol County Mosquito Control Project (BCMCP)
End of the 2012 Season Report

This report is based on data collected from CO_2-baited CDC traps, UV light traps, resting boxes and gravid traps.

Total Pools Submitted for Testing 2012: 423 Pools
- Total Pools Submitted for Testing 2011: 444 Pools

Total Pools Submitted from Bristol Co. by MA DPH in 2012: 958 Pools
- Total Pools Submitted for Testing 2011: 217 Pools

Total Number of Mosquitoes Tested in 2012: 17,365
- Total Number of Mosquitoes Tested in 2011: 15,575

Total Number of Mosquitoes Tested from Bristol Co. by MA DPH in 2012: 28,482
- Total Number of Mosquitoes Tested in 2011: 6,804
- Total Number of Mosquitoes Tested in 2010: 4,662

Total Number of Non-submitted Mosquitoes 2012: 29,855
- Total Number of Non-submitted Mosquitoes 2011: 14,164

Total Number of Non-submitted Mosquitoes from Bristol Co. by MA DPH 2012: 19,612
- Total Number of Non-submitted Mosquitoes 2011: 9,624

2012 Combined Data:
Total Pools Tested: 1,381
Total Mosquitoes Tested: 45,847
Total Non-Submitted: 49,467
Total Collected: 95,314

2011 Combined Data:
Total Pools Tested: 661
Total Mosquitoes Tested: 22,379
Total Non-Submitted: 23,788
Total Collected: 46,167

Virus Isolations:

- **WNV 2012: 49 Pools**
  - 7 pools of *Cs. melanura*
  - 42 pools of *Cx. pipiens/ restuans* complex

- **WNV 2011: 28 Pools**
  - 10 pools of *Cs. melanura*
  - 15 pools of *Cx. pipiens/ restuans* complex
  - 2 pools of *Culex* species, including *Cx. salinarius*
  - 1 pool of *Ae. vexans*

- **EEE 2012: 100 Pools**
  - 47 pools of *Cs. melanura*
  - 8 pool of *Cx. pipiens/ restuans*
  - 31 pool of *Cq. perturbans*
  - 4 pool of *Ae. vexans*
  - 8 pool of *Oc. canadensis*
  - 2 pool of *Cx. salinarius*
  - Most EEE positive mosquitoes were collected from CO_2 – baited traps.

- **EEE 2011: 31 Pools**
  - 27 pools of *Cs. melanura*
  - 1 pool of *Cx. pipiens/ restuans*
  - 2 pool of *Cq. perturbans*
  - 1 pool of *Ae. vexans*

Mosquito activity/trends for the 2012 Season?

The mosquito season began following warmer than normal fall and winter temperatures, which are conducive to overwintering. Overall rainfall was below average region wide in the early spring, leaving many wetlands without standing water. There was little to no spring species of record this season. Surveillance for Eastern Equine Encephalitis (EEE) in 2012 began at below normal levels in Bristol County. Low numbers of *Cs. melanura* were being collected from our traps in areas of past EEE isolations and high late season populations.

The first EEE isolation was from Easton on July 9th from *Cs. melanura* and *Cq. perturbans.* Compared to 2011, the first isolation from Raynham was on August 1st from *Cs. melanura*, activity was earlier then normal. The first human biting mosquito *Cq. perturbans* isolation for Bristol County occurred on August 15, 2011 over a month later compared to 2012. This season human and bird biting mosquitoes tested positive during the same Epi-week. Activity in the Raynham/ Easton Hockomock Swamp complex continued throughout the season, playing a major role in EEE activity. Bristol County's activity was comparable to the activity in Plymouth County this season with the exception of Easton which accounted for 71 positive EEE pools. The swamp complex in Rehoboth, a historical site for EEE, collected positive *Cq. perturbans* on July 15th again before collections of *Cs.*

melanura. This collection was over a month earlier then collection in 2011, demonstrating an expansion from the Hockomock complex. Following multiple and sustained positives in human biting mosquitoes from the Raynham/ Easton area, human and horse cases became a real concern.

This prompted an aerial intervention of Anvil® 10 + 10 ULV to approximately 389,440 acres in southeastern Massachusetts. The application was conducted over three-nights from Friday July 20 till Sunday July 22, 2012 during the evening hours to help combat EEE in the region. Nine towns within Bristol County were included in the application. Efficacy of the application to the 21 communities within the spray-zone reduced the overall mosquito population by 60 percent.

Trapping results pre and post adulticide for Bristol 7/20

Species	Total outside spray area		Total inside spray area	
	Pre	**Post**	**Pre**	**Post**
Cq. perturbans	21.6	5.6	573.8	29
Cs. melanura	39.3	15	17.7	2
Ae. vexans	19.3	6	16.5	8.75
Oc. canadensis	69.6	31	144.5	76
Overall	**178**	**64**	**834.7**	**122.7**

There were four traps in the treatment area and three outside.

Overall: 58%

Cq. perturbans: 81%
Cs. melanura : 71%
Ae. vexans : ND
Oc. canadensis : ND

Efficacy within Bristol Co. exhibited a great deal of variation in success depending on trap placement. The Easton test trap was in an open field adjacent to a cattail swamp. There was 99.5 % efficacy for *Cq. perturbans,* 91.4% for *Ae. vexans* and 96.1% for *Cs. melanura* at this location. However, the Raynham site which is close to DPH's Easton site showed no control for *Cq. perturbans*, *Cs. melanura*, or *Ae. vexans*. This trap was located in the woods along the Hockomock in very thick tree cover. Temperature and wind speed played a role during the application and the collections. Due to the variability between the traps, calculating an overall efficacy number does not really reflect what actually took place. There were a number of species that were present in low numbers prior to the intervention what were not seen following the application.

Following the application, EEE activity continued in the Raynham/ Easton Hockomock Swamp complex. A second aerial intervention to approximately 109,893 acres and 4 towns within Bristol County and 2 in Plymouth County was conducted on August 13, 2012. Efficacy of the application to the 6 communities within the spray-zone reduced the overall mosquito population by 60 percent.

Trapping results pre and post adulticide for Bristol 8/13/12

Species	Total outside spray area		Total inside spray area	
	Pre	**Post**	**Pre**	**Post**
Cq. perturbans	4.25	5.25	49.25	13
Cs. melanura	54.5	75.5	95.25	24.25
Ae. vexans	3	4	24.75	8.75
Oc. canadensis	1.75	1.25	10	11
Culex	2	2	149.25	75.25
Overall	**75.75**	**95**	**336.75**	**154**

There were four traps in the treatment area and four outside.

Overall: 63%

Cq. perturbans: 78.8%
Cs. melanura : 81.8%
Ae. vexans : 73%
Oc. canadensis : ND
Culex: 50%

Efficacy within Bristol County did not exhibit the same amount of variability for the second application. The Easton test trap in an open field adjacent to a cattail swamp showed 95% efficacy for *Cq. perturbans,* and 90.2% for *Cs. melanura* at this location. The Raynham site showed 88.6% efficacy for *Cq. perturbans*, and 84.9% efficacy for *Cs. melanura*. Temperature and wind speed played a role during the application and the collections. Overall, the application reduced the number of *Cq. perturbans* within the spray zone; however populations continued to rebound until mid-August.

Surveillance for West Nile virus was more comparable to an active WNV season. Gravid trap collections compared to 2011 were down by 25% in most of our trapping locations. High populations were collected from Fall River in June, decreased following truck-based ULV interventions and then held steady throughout the season. Fall River did not have any mosquitoes test positive for WNV in 2009 or 2011 and only 2 pools in 2010. In 2012, 7 pools of *Cx. pipiens/ restuans* tested positive for WNV from early August till the end of September. This sustained activity and the isolation of EEE was a great concern to the City. New Bedford had an active season with WNV at multiple trap locations within the city. This continued from early August till mid-September. Epi-week 34 (week ending August 25) was a very active time for WNV with positives found in New Bedford, Somerset, Easton, Norton, North Attleboro, Dighton and Berkley. This activity is comparable to the most active week in 2010 while in 2011 Epi-week 37 (week ending September 16) was very active for WNV. *Cs. melanura* and *Cx. pipiens/ restuans* complex were the only species to test positive for WNV in Bristol County.

We collected 169 Asian Tiger mosquitoes- *Ae. albopictus* from the New Bedford site located in close proximity to a tire recycling plant, compared to the 34 collected in 2011 and 2 collected in 2010. This was the fourth year in a row that *Ae. albopictus* was collected from this site. The Westport site where on 9/13/2011 ten *Ae. albopictus* were collected was turned over to MA DPH as a collection site. Further trapping was scheduled to determine location and movement of this species but EEE activity superseded this investigation. Though the population was higher than previous seasons, BCMCP did not receive any additional complaints or calls for service from the area. Many other areas around the country where *Ae. albopictus* is present collected record numbers this season. On August 24th, 50 *Ae. albopictus* collected during the week were submitted for testing and were negative for both WNV and EEE.

Virus Interventions:

This was an active WNV season in Bristol County; and it has been detected every year since 2001. There were repeated interventions for the virus in Fall River sometimes in conjunction was EEE isolations. During Epi-weeks 32-39, truck-based interventions around trap sites continued in an attempt to reduce the *Culex* populations in the areas. This included control for a large public event within the City and a night application in response to the sustained activity. New Bedford saw similar activity and interventions were conducted in conjunction was EEE isolations. This worked extremely well in the New Bedford and Fall River areas.

Besides the 2 aerial applications, truck-based EEE interventions were completed in response to high mosquito populations, virus isolations and residential request. This was especially important in areas of Raynham and Easton where positive EEE mosquito activity along the Plymouth border was sustained. Many of BCMCP's towns collected positive EEE mosquitoes and applications were made throughout the county using truck-based ULV applications. Similar to the 2010 and 2011 outbreaks, *Cq. perturbans* was the main epizootic vector in 2012.

To date the towns of Raynham, Easton and Taunton are in the Critical Risk category for EEE. The towns of Norton, Rehoboth, Freetown, New Bedford and Acushnet are in the High-risk category for EEE. All other towns (12) are in the Moderate-risk category for EEE. To date all 20 towns are in the Moderate-risk category for WNV. There were no horse cases for WNV or EEE reported in the County. There were no human cases of WNV or EEE reported in the County.

Number of requests for service, is up, down etc:

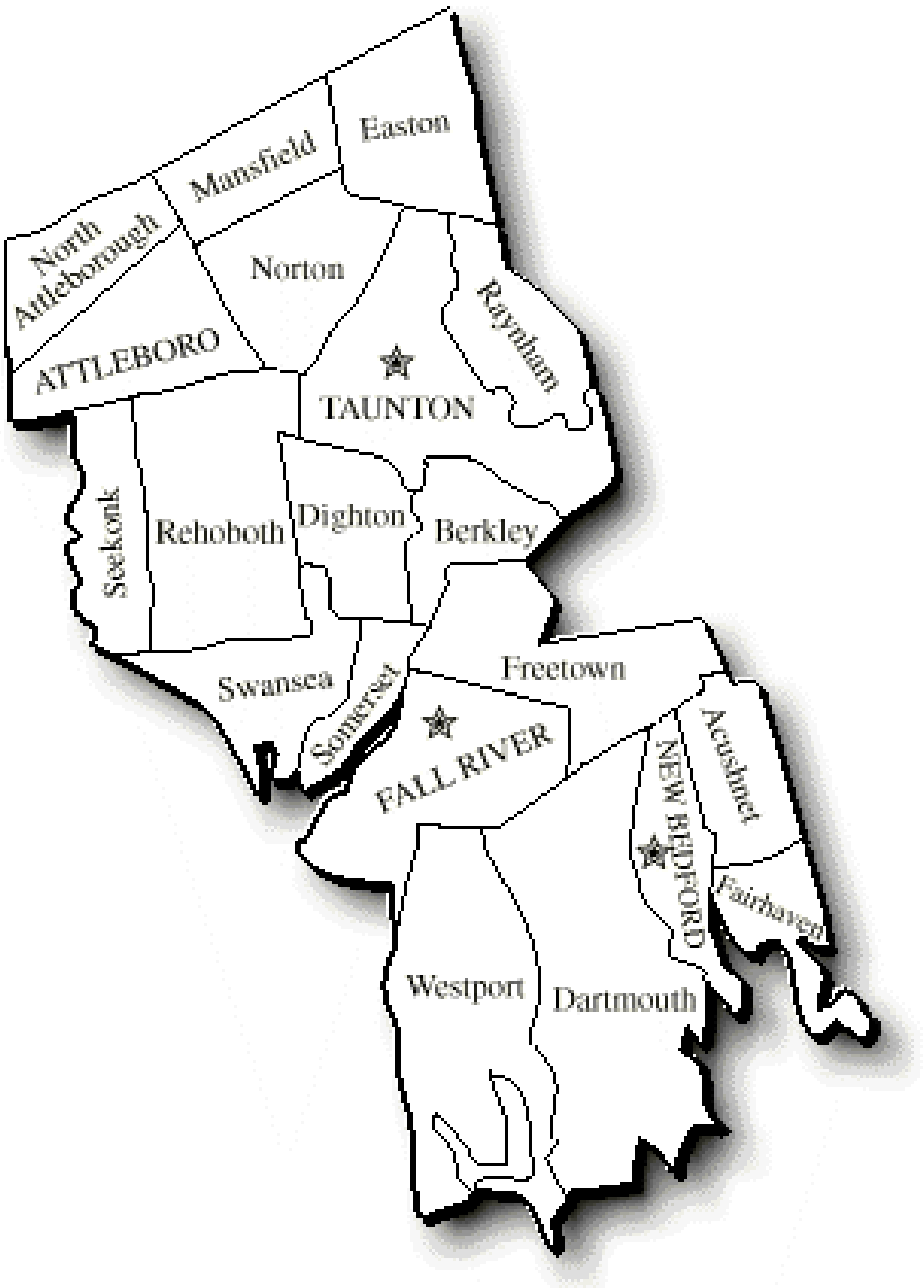
Year to date Bristol has received 14,778 calls for service as of 10/10/12 and we stopped taking residential requests as of 9/10/12. In 2009, Bristol had received 15,964 calls for service, 17,508 calls for service in 2010 and 14,320 calls for service in 2011.

Bristol County Mosquito Control Project's Outreach:

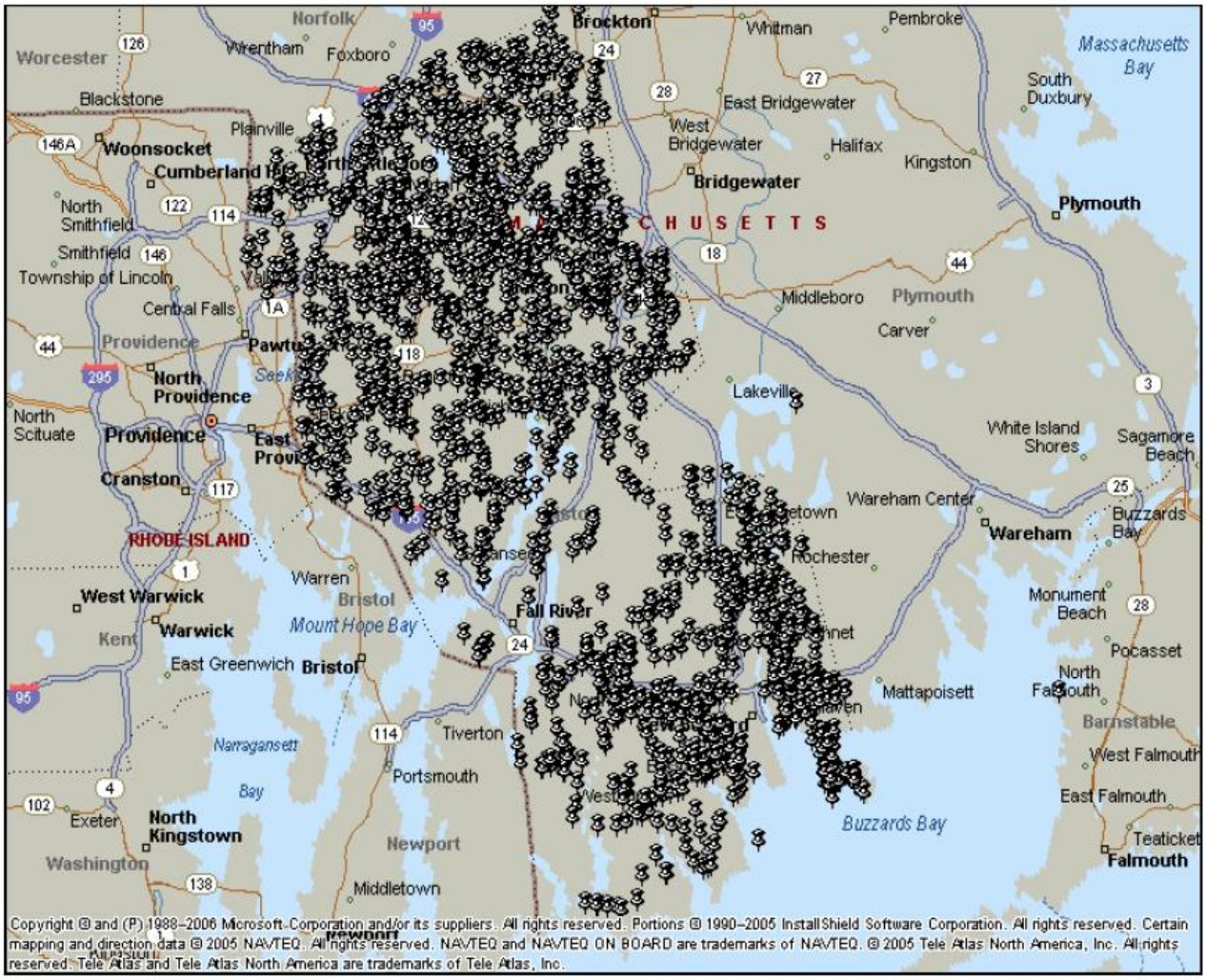
Coordination between BCMCP and the local Boards of Health was ongoing relative to control/surveillance options in the vicinity of WNV and EEE positive mosquito pools. We participated in a variety of public outreach projects including radio, newspaper, and television interviews. Multiple meetings took place between school officials and BCMCP as the concern of EEE increased, especially in Easton and Raynham. We appeared before Board of Health

Commissions in many of our towns to explain the importance of mosquito control, surveillance and adulticide applications. We presented at multiple Council on Aging events within the county. We also spoke to the Raynham school district students, K-8th grade on the importance of personal protection against mosquito bites, highlighting the 5 D's of prevention.

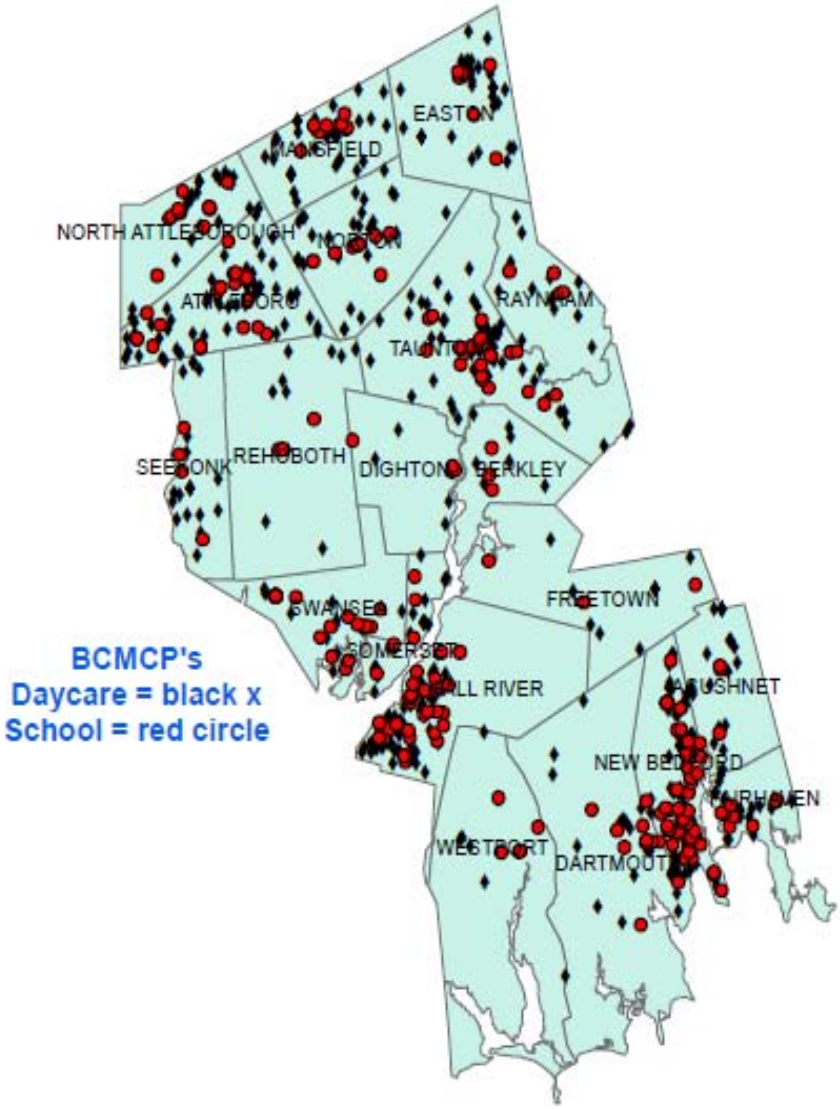
Bristol County Mosquito Control Project



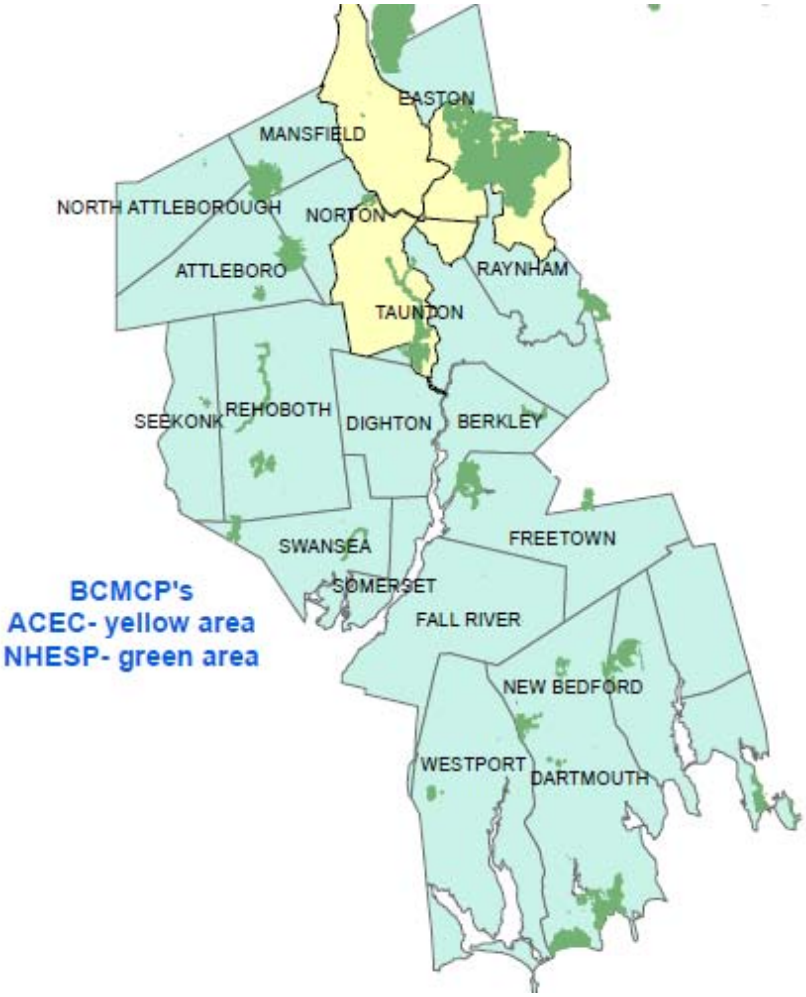
BCMCP's Computerized GPS Larval Sites



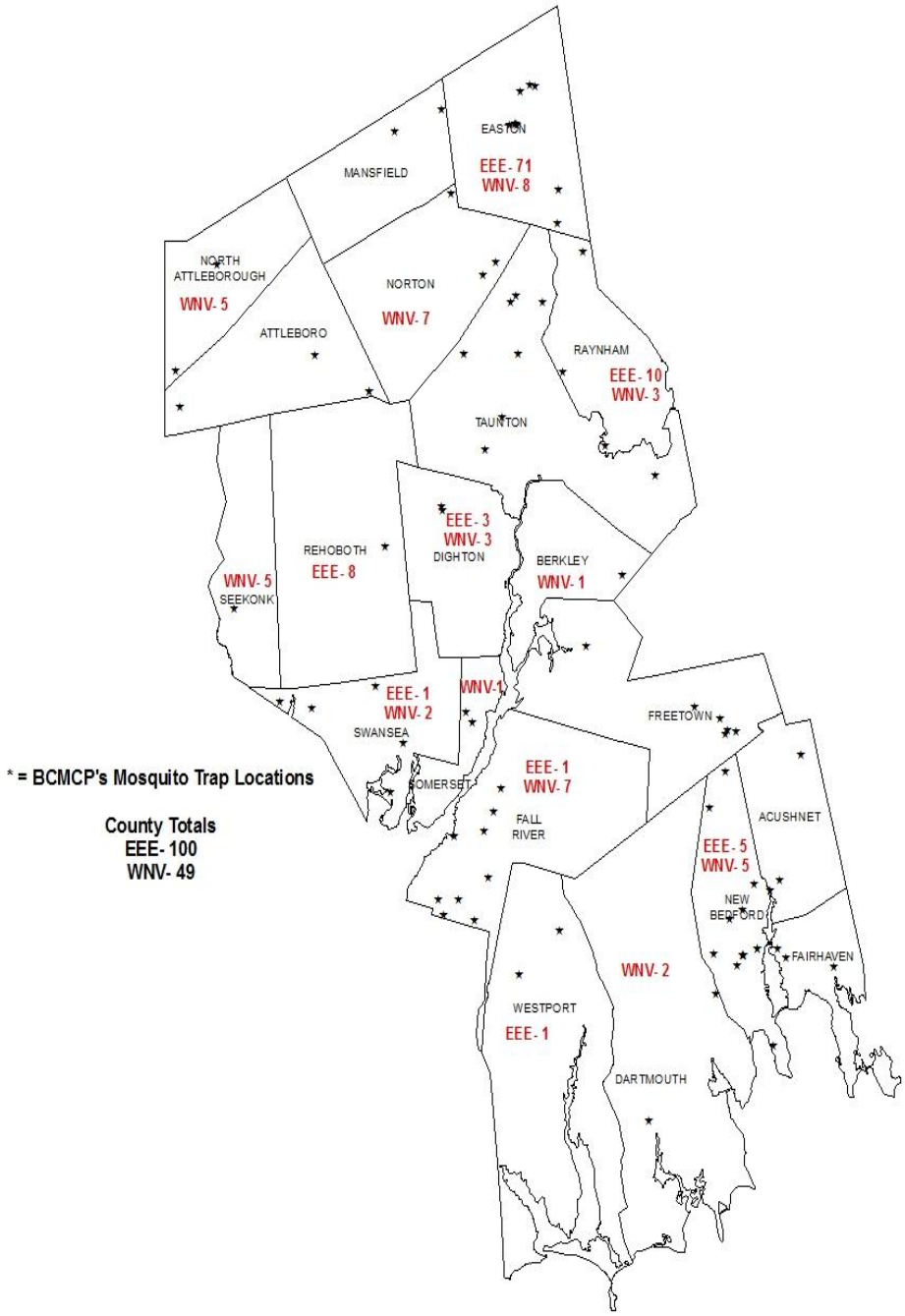
Bristol County Schools and Daycares



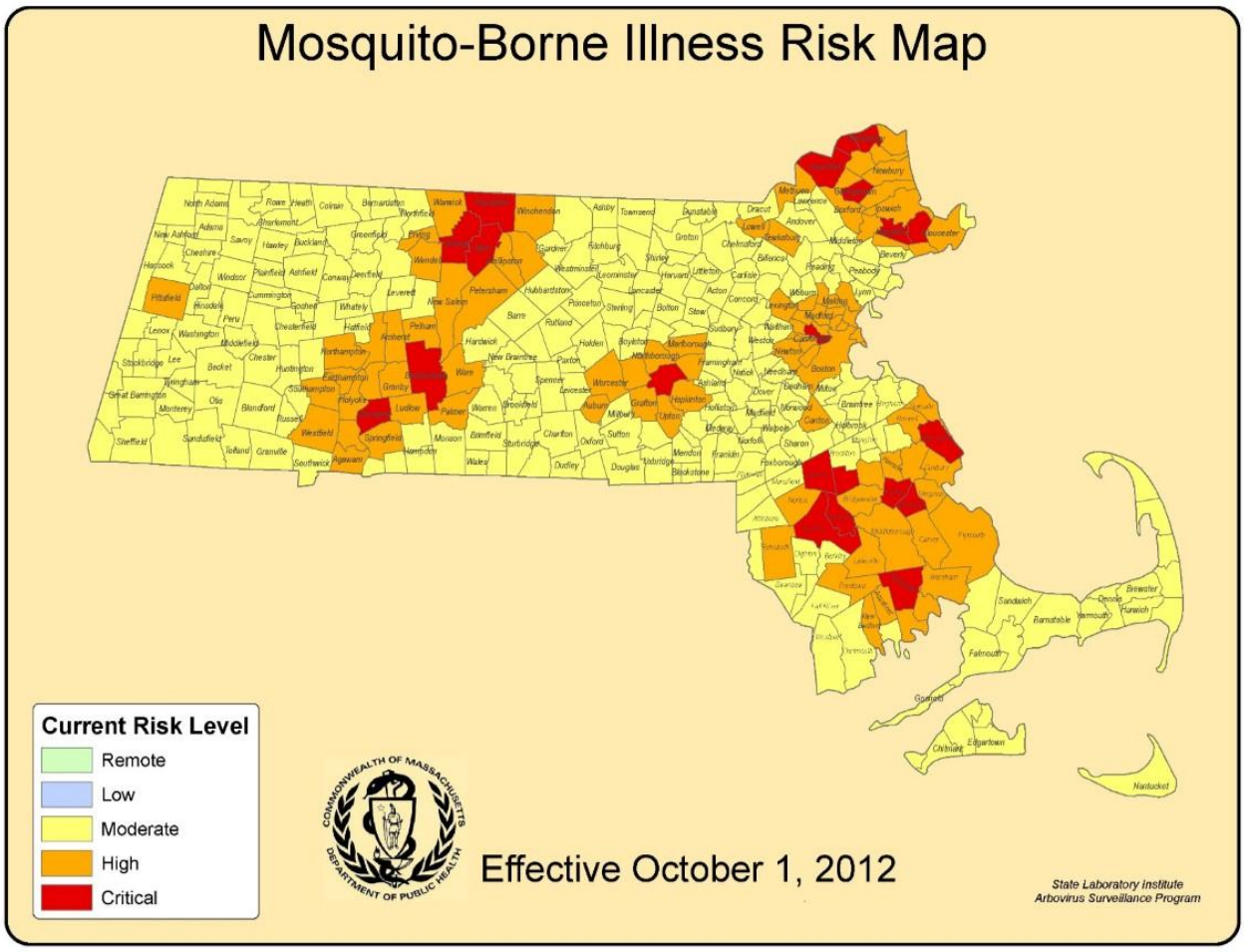
Bristol County Priority Habitat Map



Bristol County Mosquito Trap Sites and Positives per Town/City



MA Department of Health Risk Map



THE COMMONWEALTH OF MASSACHUSETTS
STATE RECLAMATION AND MOSQUITO CONTROL BOARD

BRISTOL COUNTY MOSQUITO CONTROL PROJECT

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SUPERINTENDENT
JENNIFER E. DACEY M.S.
ASSISTANT SUPERINTENDENT
STEPHEN BURNS

November 6, 2012

NOTICE OF PUBLIC MEETING TO PRESENT AND DISCUSS
ITS PRELIMINARY PROPOSED BUDGET FOR F/Y 2014

Notice is hereby given that the Bristol County Mosquito Control Project (the "District") will hold an informational public meeting at the time and place indicated below in order to present and discuss the District's preliminary proposed budget for F/Y 2014, and to receive comments and answer questions from the public and local public officials in connection therewith.

Date: November 29, 2012
Time: 7:00 p.m. – 8:00 p.m.
Location: Bristol County Agricultural High School
135 Center St.
Dighton, MA 02715

A copy of the District's preliminary proposed budget is available for inspection during regular business hours at the following location:

Bristol County Mosquito Control Project
140 North Walker Street
Taunton, MA 02780

The total dollar amount of the District's preliminary proposed budget for F/Y 2014 and for the fiscal year immediately preceding are as follows:

F/Y 2013 = $1,229,095.00
F/Y 2014 = $1,290,550.00

The member municipalities within the District together with each municipality's estimated proportionate share thereof, expressed both as a percentage and as a dollar amount, is as set forth on Form SRB-1, Page 2. As of the date of this notice, the District is comprised of 20 municipalities as listed on Form SRB-1, Page 2. If the composition of the District changes because one or more municipalities join or withdraw from the District, the total preliminary budget will be adjusted pro rata.

Copies of the preliminary proposed budget will be available for inspection at the meeting, at which reasonable time will be accorded to those in attendance to ask questions and to offer comments. Comments may also be sent directly to the State Reclamation and Mosquito Control Board via the Executive Director or Project Administrator by April 15th.

Cherry Sheet Contribution from Member Towns and Cities 2012

CITY / TOWN	CONTRIBUTIONS FY12
ACUSHNET	$31,552.00
ATTLEBORO	$72,190.00
BERKLEY	$25,965.00
DARTMOUTH	$122,476.00
DIGHTON	$33,141.00
EASTON	$61,713.00
FAIRHAVEN	$34,607.00
FALL RIVER	$94,411.00
FREETOWN	$52,436.00
MANSFIELD	$56,819.00
NEW BEDFORD	$83,397.00
NORTH ATTLEBORO	$58,415.00
NORTON	$53,545.00
RAYNHAM	$41,585.00
REHOBOTH	$67,928.00
SEEKONK	$41,609.00
SOMERSET	$33,801.00
SWANSEA	$45,942.00
TAUNTON	$103,153.00
WESTPORT	$85,338.00
	$1,200,023.00

Bristol County Mosquito Control Project

Seasonal Findings 2012

Why do we have mosquito control?

To prevent, detect and combat emerging mosquito-borne viruses in our county.
"Disease prevention through preparedness" AMCA.

Of greatest concerns are:
Eastern Equine Encephalitis and West Nile Virus

EEE - ~ 33% mortality and significant brain damage in most survivors.
- There is no specific treatment for EEE; care is based on symptoms.
- All ages are at risk but >age 50 and <age 15, or have compromised immune systems are at greatest risk for developing severe disease.

WNV - Most often it has mild effects generally called West Nile fever.
- More severe forms, which can be life threatening, may be called West Nile encephalitis or West Nile meningitis.
- People over the age of 50 are more likely to develop serious symptoms of WNV.

What we do

Surveillance

1. Discovers the extent and location of mosquito populations.
2. Enables us to track virus activity.
3. Enables our project to better plan treatment areas.

Methods: Trapping
Larval dipping

CDC Light Trap

Gravid Trap

Larviciding * both are based on the surveillance data
Adulticiding

Source Reduction
- Water management, ditch maintenance, etc.

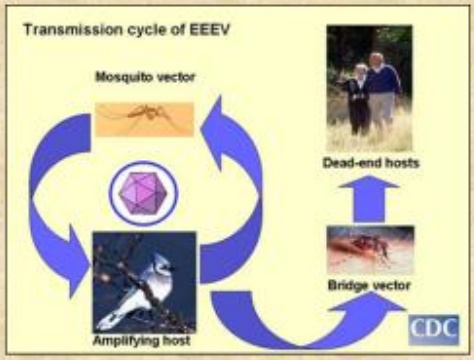
Public Outreach, Education

Larval Dipping

EEE Surveillance

EEE is maintained in a cycle between *Culiseta melanura* mosquitoes and avian hosts.

Transmission to humans requires mosquito species capable of creating a "bridge" between infected birds and uninfected mammals such as some *Aedes*, *Coquillettidia*, and *Culex* species.



Culiseta melanura prefers to breed in freshwater hardwood swamps (cedar and red maple).

Hockomock Swamp – This 6,000-acre (24 km^2) land is considered the second largest wetland in the state. Area in and around is a "hot spot" for EEE activity.

The first EEE isolation was from Easton on July 9th, ~1 month earlier than 2011.

- 2 pools of *Culiseta melanura* (primary vector for EEE, bird feeder).
- 2 pools of *Coquillettidia perturbans* (bridge vector for EEE, bird and mammal feeder)

Easton / Raynham: EEE activity continued throughout the season in these areas due to their close proximity to the Hockomock Swamp.

Concern for the risk of human and livestock cases occurring grew following multiple and sustained positives in human biting mosquitoes.

This prompted an aerial application for 3 consecutive nights (July 20, 21, 22). Nine towns within Bristol County were included (Easton, Raynham, Taunton, Norton, Berkley, Dighton, Freetown, Acushnet, Rehoboth).

EEE activity continued in the Easton/Raynham Hockomock area.

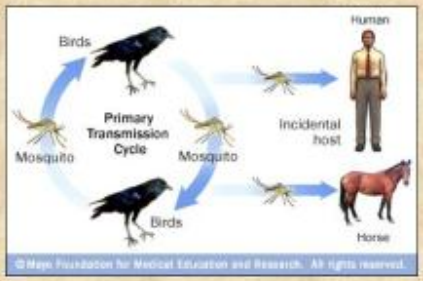
A second aerial application was performed on August 13 which included four towns in Bristol County (Easton, Raynham, Taunton, Norton).

West Nile Virus Surveillance

West Nile Virus has been detected in Bristol County every year since 2001.
(1st detected in New York in 1999).

Culex pipiens *"Northern House Mosquito"*

- Primary vector species for transmitting WNV (primarily feeds on birds).
- Wide range of larval habitats but are usually associated with water that has a high organic content. Reaches greatest numbers in large urban centers.
- Catch basins and storm drains provide ideal habitat.
- The species also deposits its eggs in artificial containers including tin cans, tires and any refuse that allows stagnant water to puddle.



Mosquito Testing

Trapped mosquitoes are identified to species and placed in vials.

A "pool" of mosquitoes contains a vial with up to 50 mosquitoes of the same species.

Number of mosquitoes per pool depends on how many of that particular species were trapped the previous night.

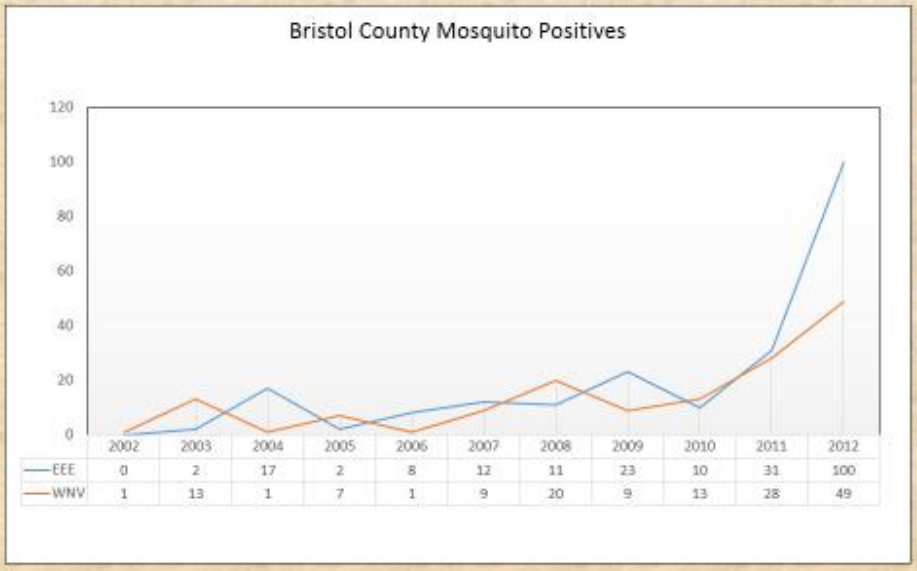
The MA DPH will only accept certain mosquito species for testing. (species of medical importance).

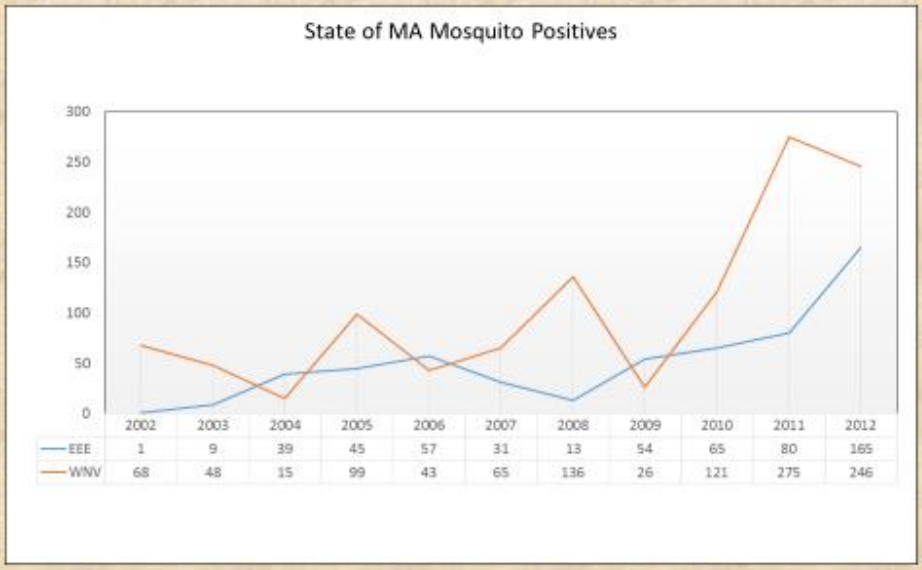
BCMCP
Mosquito pools submitted: **423**
Number of mosquitoes tested: **17,365**

MA DPH
Mosquito pools collected: **958**
(Easton, Raynham, Rehoboth, New Bedford, Westport)
Number of mosquitoes tested: **28,482**

Total number of mosquitoes tested = **45,847**

EEE = 100 **WNV = 49**

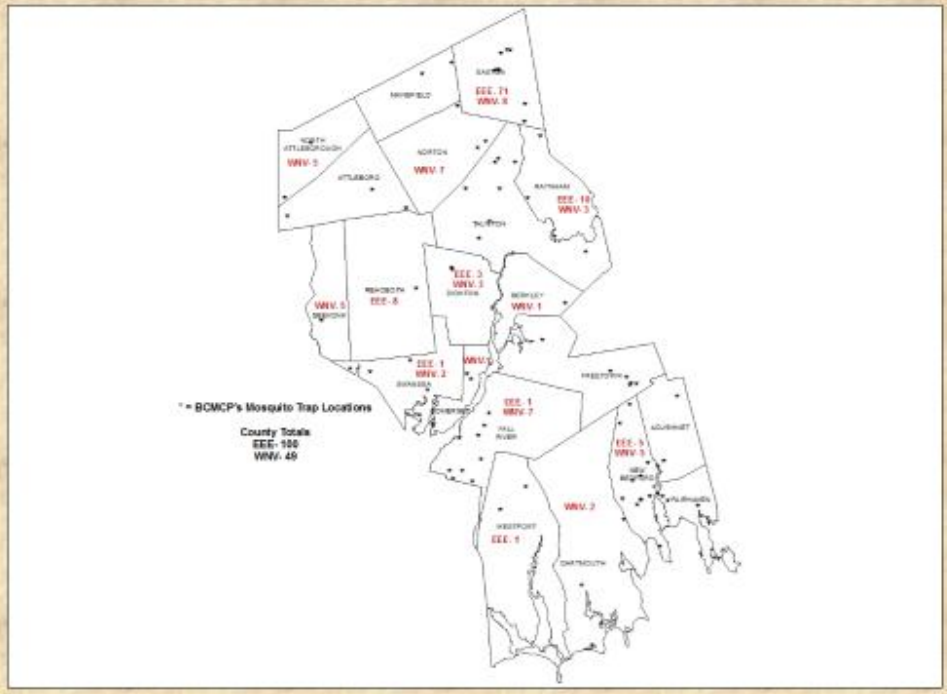


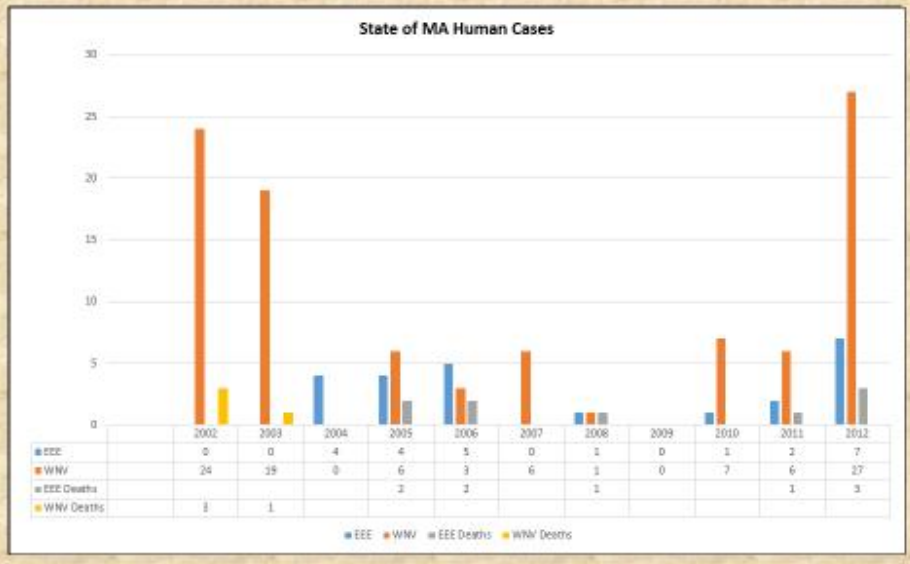


By Town:

	EEE	WNV
Acushnet	0	0
Attleboro	0	0
1 human case WNV		
Berkley	0	1
Dartmouth	0	2
Dighton	3	3
Easton	71	8
Fairhaven	0	0
Fall River	1	7
Freetown	0	0
Mansfield	0	0
New Bedford	5	5
N. Attleboro	0	5
Norton	0	7
Raynham	10	3
Rehoboth	8	0
Seekonk	0	5
Somerset	0	1
Swansea	1	2
Taunton	0	0
Westport	1	0

* No animal cases





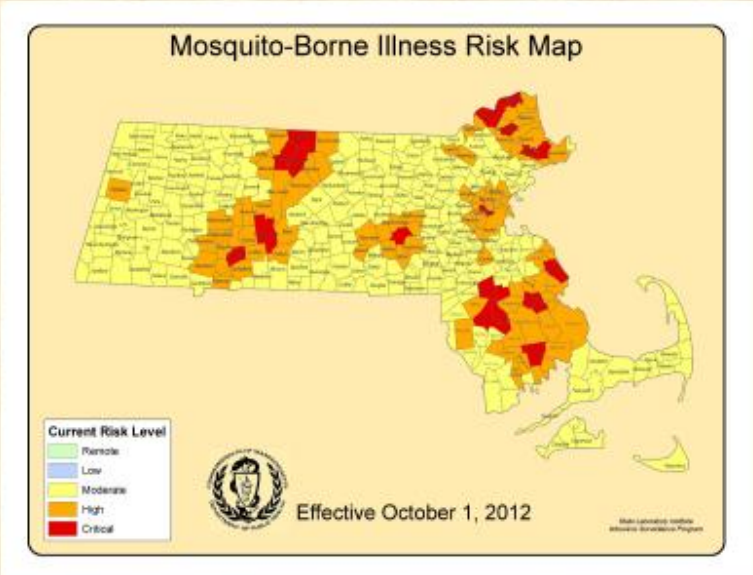
Risk Map

Risk = The likelihood that a human case of EEE or WNV will occur.

Severe Risk
Easton
Raynham
Taunton

High Risk
Norton
Rehoboth
Freetown
Acushnet
New Bedford

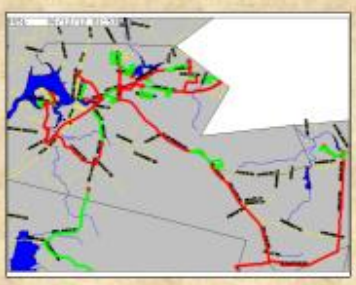
*** All other towns in Bristol County are considered to be at a Moderate Risk level.



Inside of our technicians vehicles

They have GPS units which are connected to computers and sprayers to guide the technicians and document when the sprayer is on, how much was sprayed, at what time that street was sprayed, etc.

Red dots on the computer screen show the technician where no spray zones are located .



Street maps can be generated that show when the sprayer was turned on and turned off.

Adulticiding

Performed to reduce the number of adult mosquitoes.

We use a product called Anvil 10+10. It is applied by a calibrated ULV sprayer (mounted to the back of a truck) that uses 0.62 fluid ounces per acre. It is applied as a fine mist and breaks down very quickly in the environment, especially when exposed to sunlight.

We spray from 2am - dawn to target actively flying mosquitoes, when other insects (such as bees and butterflies) are not flying.

Larviciding

Performed to reduce the number of mosquito larvae in their breeding habitat.

We use products that contain *Bacillus thuringiensis israelensis (B.t.i)*, which is a soil bacterium that contains proteins which rupture the gut of mosquito larvae when ingested.

B.t.i. is specific to mosquitoes, blackflies and midges. It breaks down quickly in the environment and is essentially non-toxic to other insects, humans and other mammals.

2012 Spray Requests

Total number of spray requests completed = 14,778
Total number of catch basins treated = 22,902

	Sprays	Catch Basins		Sprays	Catch Basins
Acushnet	272	932	New Bedford	180	1,790
Attleboro	903	1,316	N. Attleboro	364	1,079
Berkley	328	468	Norton	1,375	1,173
Dartmouth	875	2,263	Raynham	1,438	874
Dighton	235	600	Rehoboth	625	1,248
Easton	1,826	1,399	Seekonk	647	773
Fairhaven	1,932	0	Somerset	75	792
Fall River	122	1,711	Swansea	366	1,108
Freetown	648	1,080	Taunton	1,130	2,060
Mansfield	958	1,036	Westport	479	1,200

Water Management / Source Reduction

In the late Fall, Winter and early Spring, our workers clear out clogged saltmarshes, wetlands, drainage ditches, culverts and streams to prevent stagnant water from occurring and becoming a breeding site for mosquitoes.

In salt marshes, it also enables predatory fish to access the area and feed on mosquito larvae.

In Acres

Brush	Reclaim	Tractor ditch	Tractor brush
33,594	49,513	12,979	2,800

Padanaram Harbor

Cowyard Marsh

Star of the Sea

Quinn School

Many areas are inaccessible to our machines and the work must be performed by hand using brush saws, chain saws, rakes, shovels, etc.

Sediment control is also an important part of our work. We utilize many types of materials and techniques, including straw bails and blankets, silt fences, jute, coconut fiber mats and the re-seeding of disturbed areas.

Going Forward…

Continue:

- Our surveillance and testing to monitor what's happening in our county.
- Adulticide and larvicide programs to keep mosquito populations to a minimum.
- Water management / source reduction efforts, in order to monitor to reduce the number of breeding locations.

Extend public education and outreach – Key to preventing additional breeding sites and virus transmission. To this end, we have created a website: www.bristolcountymosquitocontrol.com

Aerial larvicide in spring of 2012 for early intervention.

Monitor for new viruses coming into area. MA Mosquito Control Projects have asked the state to allow us to work in conjunction with CT Agricultural Experiment Station to test mosquitoes that were trapped and not sent to DPH for testing of viruses other than EEE and WNV to see if anything else is coming into the area.

Any Questions?