

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



2014 Year of Report

Date of Report: January 15, 2015

Project/District Name: **Town of Nantucket**

Contractor: **Vector Disease Control International**

Address: 180 Polpis Road

City/Town: Nantucket, MA

Zip: 02554

Phone: 800-413-4445

Fax: 866-839-8595

E-mail: Nantucket@vdc.net

Report prepared by: *Emily Hibbard of Vector Disease Control International.*
Report reviewed and commented on by *Kara Buzanoski, Nantucket Director of Public Works.*

NPDES permit no. MAG87A139

If you have a mission statement, please include it here:

The goal of VDCI's Nantucket mosquito control program is to identify and treat mosquitoes in the most ecologically responsible manner through continuous monitoring techniques, source reduction, increased sanitation, and the use of lowest risk pesticides when necessary. All mosquito management decisions will be made after conducting surveillance and determining that mosquito populations have reached an action threshold. VDCI will implement a zero tolerance threshold and treat breeding populations in a most environmentally sound manner. Source reduction will be the primary control method and the application of larvicides will only be applied when source reduction is not an option. The approved larvicide used will be species specific and will not harm humans, animals, birds, other insects, fish, shellfish, plants or the environment. Aerial and truck spraying for adults will not be employed. Private property owners will be permitted to opt out of testing and treatment.

ORGANIZATION SETUP:

Please list your Commissioner's names:

The Nantucket Mosquito Control Program is managed through a partnership with the Town of Nantucket and Vector Disease Control International. The Nantucket Mosquito Control Commissioners are:

Kara Buzanoski.....Department of Public Works Director
Email: kbuzanoski@nantucket-ma.gov

Helene Weld, RN.....Board of Health
Email: hmweld@gmail.com

Charles Stott.....Email: stott.charles9@gmail.com

Ken Giles.....Email: kgiles35@comcast.net

Sarah Oktay.....Email: sarah.oktay@umb.edu

Do you have a website? Yes

If yes, please list the web address here:

http://www.nantucket-ma.gov/Pages/NantucketMA_DPW/Mosquito%20Control

<http://vdci.net>

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

Dan Markowski, National Operations Director
Cristina Flores, Regional Operations Director
Emily Hibbard, Entomologist and Contract Supervisor
Michael Lennon, Biologist and Application Manager
Matthew Salem, Field Technician and Application Specialist
Marc Bellaud, Biologist

Please break these down into the following areas:

Administrative staff: Cristina Flores, Emily Hibbard

Field staff: Emily Hibbard, Dan Markowski, Michael Lennon, Mathew Salem

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

- Public relations: Dan Markowski, Cristina Flores, Emily Hibbard
- Information technology: Emily Hibbard, Cristina Flores
- Entomologist: Dan Markowski
- Wetland Scientist
- Biologist: Emily Hibbard
- Education: Emily Hibbard
- Laboratory: Emily Hibbard
- Operations: Emily Hibbard, Michael Lennon, Mathew Salem
- Facilities: Emily Hibbard
- Other (please list)

For the year of this report, we maintained:

1 vehicle

0 modified wetland equipment (list type)

0 ULV sprayers (list type)

3 Larval control equipment (list type) 2 Backpack sprayers, 1 hand spreader

Other (please be specific):

Comments:

How many cities & towns in your service area? 1

Please list: Nantucket

Any changes to your service area this year? n/a

Please list cities/towns added or removed n/a

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):

Comments:

LARVAL MOSQUITO CONTROL:

Do you have a larval mosquito suppression program? yes

If yes, please describe the purpose of this program:

The purpose of this mosquito control suppression program is to manage mosquito populations in Nantucket County below the nuisance level and to protect public health.

Please give the time frame for this program: May 1st – September 30th

Areas:

Areas treated are all authorized fresh water and salt water habitats found to contain mosquito larvae through the use of ground applied larvicides by hand and/or portable and backpack equipment.

Describe the areas that this program is used:

Areas treated are all authorized fresh water and salt water habitats found to contain mosquito larvae through the use of ground applied pesticides by hand and/or portable and backpack equipment.

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: Aquabac 200g EPA Reg. # 62637-3, Vectobac G EPA Reg. # 73049-10

Catch basins: Vectolex WSP EPA Reg. # 73049-20

Containers: Vectolex WSP EPA Reg. # 73049-20, Vectobac G EPA Reg. # 73049-10

Other (please list):

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

Wetlands: 2.5-20lbs/acre

Catch basins: 1 pouch/50 sq ft

Containers: 1 pouch/50 sq ft or 2.5-10lbs/acre

Other:

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

Larval dip counts – please list trigger for application: 1-10 per dip

Historical records

Best professional judgment

Comments:

ADULT MOSQUITO CONTROL:

Do you have an adult mosquito suppression program? No

If yes, please describe the purpose of this program:

Please give the time frame for this program:

Describe the areas that this program is used:

Do you use:

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

Comments: _____

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

- 1).
- 2).
- 3).
- 4).
- 5).
- 6).

Please list your application rates for each product:

- 1).
- 2).
- 3).
- 4).
- 5).
- 6).

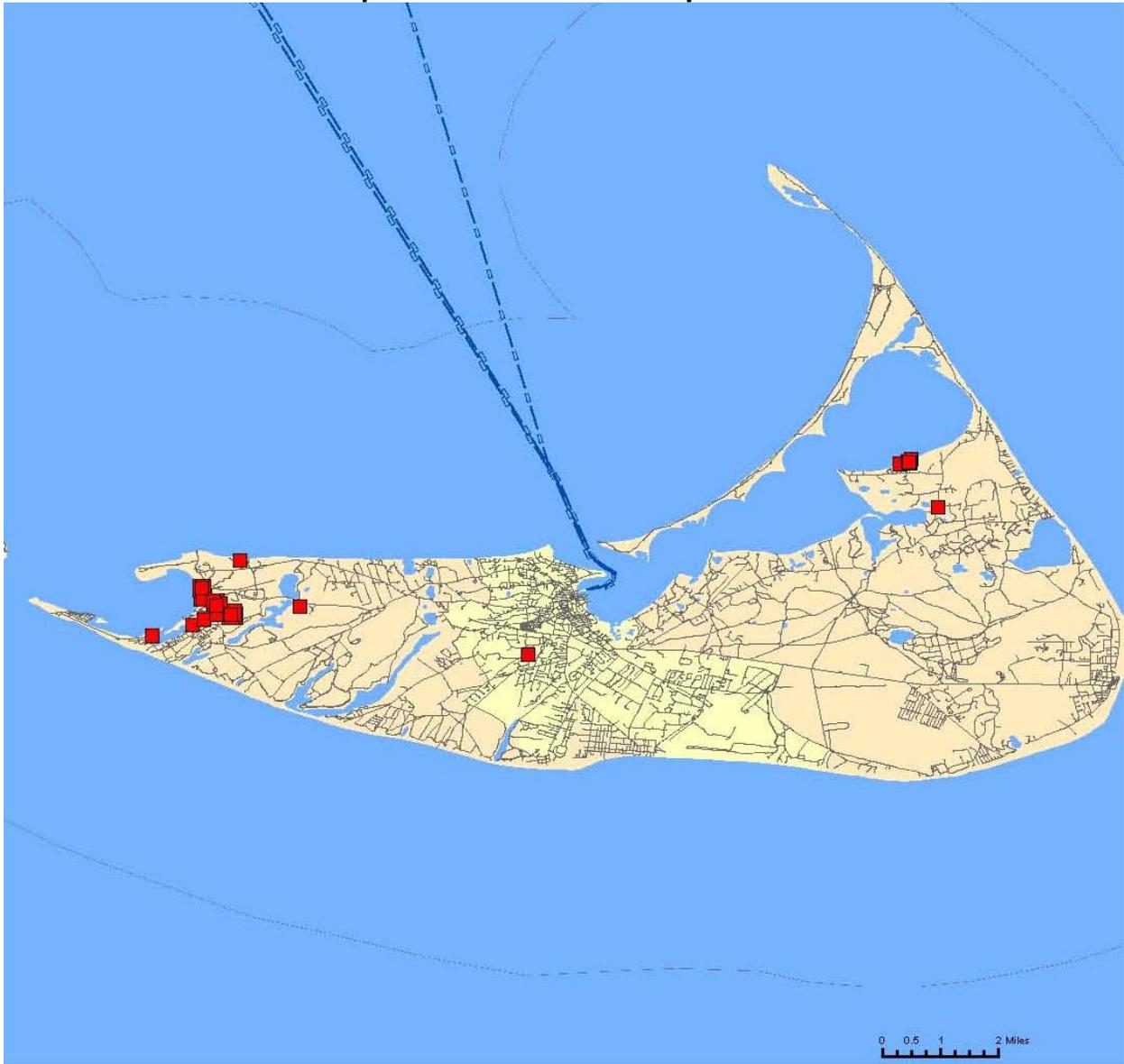
Please describe the maximum amounts or frequency used in a particular time frame such as season and areas

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
- Complaint calls - please list trigger for application
- Arbovirus data
- Best professional judgment

Comments: _____

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



SOURCE REDUCTION

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

If yes, please describe your program:

Source reduction efforts involve the removal, dumping, drilling holes, or filling of any containers that would create a larval habitat for mosquitoes including but not limited to trash/recycling bins, birdbaths, buckets, wheelbarrows, children's pools, puddles, ditches, etc.

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

DITCH MAINTENANCE

Do you have a ditch maintenance program? No

Please check all that apply:

- Inland/freshwater
- Saltmarsh

If yes, please describe:

Please check off all that apply INLAND DITCH MAINTENANCE:

- Hand tools
- Mechanized equipment
- Other (please list):

Comments: _____

Please check off all that apply SALTMARSH DITCH MAINTENANCE:

- Hand cleaning
- Mechanized cleaning
- Other (please list):

Comments: _____

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

- Hand cleaning
- Mechanized cleaning
- Other (please list):

Comments: _____

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

- Hand cleaning
- Mechanized cleaning
- Other (please list):

What time frame during the year is this method employed?

Comments: _____

***Please attach a link to maps of ditch maintenance areas if possible.**

MONITORING (Measures of Efficacy)

Please describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands:

Larvicide – catch basins:

Larvicide-hand/small area

Weekly dip counts and larval rearing

Ground ULV Adulticide:

Source Reduction:

Weekly dip counts and larval rearing

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):

All treated locations were monitored weekly. Dip count numbers, larval stage, and species were recorded when identified.

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? No

If yes, please describe: n/a

Please give an estimate of total square feet or acreage: n/a

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

Comments: n/a

***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 traps in your service area: 8

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

- | | |
|---|---------------------------------|
| <input checked="" type="checkbox"/> Gravid traps | |
| <input type="checkbox"/> Resting boxes | |
| <input type="checkbox"/> CDC light traps | <input type="checkbox"/> Canopy |
| <input checked="" type="checkbox"/> CDC light traps w/CO ₂ | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> ABC light traps | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> ABC light traps w/CO ₂ | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> NJ light traps | <input type="checkbox"/> Canopy |
| <input type="checkbox"/> NJ light traps w/CO ₂ | <input type="checkbox"/> Canopy |

Other (please describe):

Please describe the purpose of this program:

The purpose is to sample adult mosquito populations to assess efficacy of the larval control measures and to monitor for the presence of arboviruses. All adults collected are counted and identified to species.

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

If yes, please describe how you chose these long-term sites.

These sites were determined based on historical mosquito collection data. Gravid Traps are placed in locations where there are high Culex populations and/or locations where mosquitoes pose a high threat to human health. CDC light traps with CO₂ are placed in a variety of habitats known to have high population densities. These locations include sites where larviciding is not permitted.

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. cantator</i> |
| <input checked="" type="checkbox"/> <i>Ae. cinereus</i> | <input checked="" type="checkbox"/> <i>Oc. excrucians</i> |
| <input checked="" type="checkbox"/> <i>Ae. vexans</i> | <input checked="" type="checkbox"/> <i>Oc. fitchii</i> |
| <input 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. punctor</i> |
| <input checked="" type="checkbox"/> <i>Cq. perturbans</i> | <input checked="" type="checkbox"/> <i>Oc. sollicitans</i> |
| <input checked="" type="checkbox"/> <i>Cx. pipiens</i> | <input checked="" type="checkbox"/> <i>Oc. stimulans</i> |
| <input checked="" type="checkbox"/> <i>Cx. restuans</i> | <input checked="" type="checkbox"/> <i>Oc. taeniorhynchus</i> |
| <input checked="" type="checkbox"/> <i>Cx. salinarius</i> | <input checked="" type="checkbox"/> <i>Oc. triseriatus</i> |
| <input checked="" type="checkbox"/> <i>Cs. melanura</i> | <input checked="" type="checkbox"/> <i>Oc. trivittatus</i> |
| <input checked="" type="checkbox"/> <i>Cs. morsitans</i> | <input checked="" type="checkbox"/> <i>Ps. ferox</i> |
| <input checked="" type="checkbox"/> <i>Oc. abserratus</i> | <input checked="" type="checkbox"/> <i>Ur. sapphirina</i> |
| <input checked="" type="checkbox"/> <i>Oc. canadensis</i> | |

Other (please list):

Do you participate in the MDPH Arboviral Surveillance program? No

How many pools did you submit this year?

615 mosquitoes were tested for arboviruses using RAMP assays at VDCI's private laboratory. VDCI maintains a cold-chain shipping process in its laboratory testing policies.

Please check off the arboviruses found in your area **this** year:

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

Did the above listed diseases cause human or horse illnesses? No

Please explain:

There were no positive test results and no human, avian, or equine illnesses reported

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

WNV: n/a
EEE: n/a

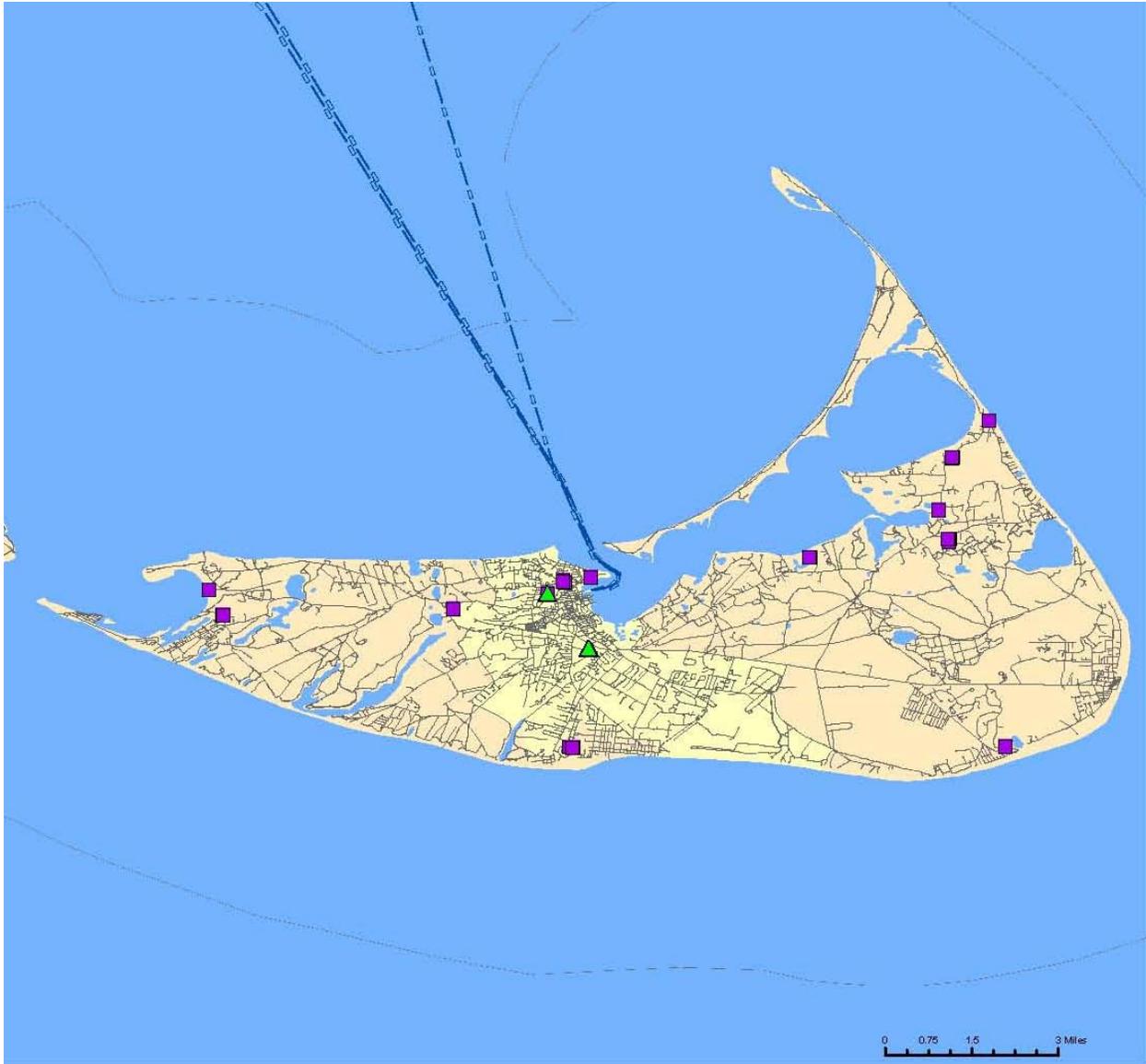
At what arbovirus risk level did the year end in your area? (If more than one please list)

WNV: low
EEE: low

Comments:

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

Adult Surveillance, Trapping locations, Nantucket, MA 2014



EDUCATION, OUTREACH & PUBLIC RELATIONS

Do you have an education/public outreach program? Yes

If yes, please describe:

VDCI corresponded regularly with the Nantucket Mosquito Control Advisory Board, the Madaket Conservation Foundation, the Wauwinet Landowners Association, the Board of Health, the Nantucket Civic League, and the Department of Public Works.

VDCI maintained regular communication with Cape Cod Mosquito Control superintendent, Gabrielle Sakolsky.

Please check off all that apply:

- School based program
- Website
- PR brochures/handouts
- Community events
- Science fairs
- Meeting presentations
- Other (please describe): County Fair

Please give an estimate of attendance/participants in this program: 75+

Please list some events you participated in for the year of this report:

A public presentation hosted by the University of MA's Nantucket Field Station was given by the VDCI team on the Nantucket Mosquito Control Project

Public presentation at the Nantucket Civic League Annual Summer Breakfast

Public presentation of mosquito data at Board of Health Meetings

Interactive table with information and live larval samples at the Nantucket County Fair

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

Have you performed any research projects, efficacy, bottle assays, etc.? n/a

If yes, please elaborate on your research projects:

Are you involved in any collaboration with academia, industry, environmental groups, etc.? yes

If yes, please elaborate on your collaborations this past year:

VDCI Nantucket worked closely with the University of Massachusetts Nantucket Field Station to educate visiting students, professors, and researchers on mosquito biology and control. The VDCI lab was based from this location and small talks were given on a weekly basis to lab visitors. Additional collaborations included adult trapping on Tuckernuck Island performed by students and the field station director, Dr. Sarah Oktay. VDCI has also submitted monthly reports to the Madaket Conservation Foundation to include in their bi-weekly newsletters.

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

2014 Annual Operations Report, Nantucket

Monthly Surveillance Reports submitted to the Mosquito Control Advisory Board

Does your staff participate in educational opportunities? yes

If yes, please list the training and education your staff received this year:

UMass Extension Pesticide Education Program 2014 Pesticide Applicator Workshop

2014 NMCA Field Day: safe pesticide handling, personal protection equipment, spill response, and risk communication training and "Deer Ticks: One Bite can Change your Life" presentation

University of Florida CEU/Recertification training for IPM managers: reading and interpreting a Pesticide Label, Pesticide Modes of Action, Equipment Calibration, IVM and Bee Health, Arthropods of Public Health Importance, Insecticide Resistance Management, Spill Management, Aquatic Weed Management in Mosquito Control

Please list the certifications and degrees held by your staff:

Dan Markowski, PhD Biological Sciences

Emily Hibbard, BS Biology, MS Entomology, MA Pesticide Application License

Michael Lennon, Biologist MA Pesticide Application License

Cristina Flores, Bachelor of Arts and Science degree, Public Health Mosquito Control supervisor

Comments:

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? No

If yes, please describe:

Is this program the introduction of mosquito predators or the 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):

Please describe your capabilities in these areas: Full time GIS staff providing GIS data collection, mapping, and reporting capabilities.

Please describe your current GIS abilities: GIS data collection, mapping, and reporting capabilities.

Give details if possible on your GIS abilities:

Please describe any changes/enhancements in this area from the previous year:

Comments: _____

REVENUES & EXPENDITURES

Nantucket has contracted with Vector Disease Control International for their mosquito control services for 2014. The program is funded directly by the town of Nantucket and the work is performed by Vector Disease Control International in partnership with the Town of Nantucket Department of Public Works.

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: Aquabac 200g
EPA Reg. #: 62637-3
Application method: spreader/backpack sprayer
Targeted life stage: Larvae
Total amount of concentrate applied: 4,412oz
Comments:

Product Name: Vectobac G

EPA Reg. #: 73049-10
Application method: spreader/backpack sprayer
Targeted life stage: Larvae
Total amount of concentrate applied: 23,969oz
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. All land owned by Nantucket Conservation Foundation and The Trustees of the Reservations is excluded.

See Nantucket County interactive property map:
<http://www.mapgeo.com/NantucketMA/>

SPECIAL PROJECTS

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

If yes, please elaborate

Do you work with DPW departments or other local or state officials to address stormwater systems, clogged culverts or other areas that you have identified as man-made mosquito problem areas? yes

If yes, please elaborate: Nantucket DPW has provided a list of known mosquito breeding locations. VDCI has met with the DPW to discuss the need for ditch clearing in several locations

Have you worked with these departments on long term solutions? n/a

If yes, please elaborate:

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

If yes, please elaborate:

Did you or participate in any **State/Regional/National workgroups or panels or attend any meeting pertaining to the above?** VDCI Staff including Dr. Markowski, Cristina Flores, and Emily Hibbard attend multiple National mosquito control

organization meetings around the country. This includes the American Mosquito Control Association (AMCA).

CHILDREN AND FAMILIES PROTECTION ACT

Is your program impacted by the Children and Families Protection Act? no

If yes, please explain:

If you have data on compliance with this Act and your program, please list here:

If you had difficulties with implementation of your program due to this law, please elaborate here:

Comments:

NPDES SECTION

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

If yes please list any corrective actions here:

GENERAL COMMENTS

Please list any comments not covered in this report: