MASSACHUSETTS MOSQUITO CONTROL
ANNUAL OPERATIONS REPORT

2012 Year of Report Date of Report: 1/3/2013

Project/District Name: **Cape Cod Mosquito Control Project**

Address: 86 WILLOW STREET

City/Town: YARMOUTH PORT Zip: 02675

Phone: 508-775-1510 Fax: 508-362-7917

E-mail: CCMCP@CCMCP.NET

Report prepared by: ***Gabrielle Sakolsky, Entomologist and Asst. Superintendent***

NPDES permit no. **MAG87A024**

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

ORGANIZATION SETUP:

Please list your Commissioner's names:

Jere Downing	Chairman
Charles Sumner	Vice Chairman
J. Gregory Milne	Secretary
James Quirk	
Arthur Neill	

Please list the Supt./Director's name: John W Doane

Please list the Supt./Director's contact phone number: 508-775-1510
Please list your Asst. Supt./Asst. Director's name: Gabrielle Sakolsky

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

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

Full time: 23
Part time:
Seasonal: 1
Other: (please describe)

Please break these down into the following areas:

Administrative staff: 3
Field staff: 20
Please check off all that apply, and list employee name(s) next to each category:
☒ Public relations John W. Doane, Superintendent & Gabrielle Sakolsky, Asst. Superintendent
☒ Information technology Caitlin Barrett
☒ Entomologist Gabrielle Sakolsky
☐ Wetland Scientist
☐ Biologist
☒ Education Gabrielle Sakolsky
☒ Laboratory Gabrielle Sakolsky
☒ Operations Bart Morris
☒ Facilities
☒ Other (please list) Administrative Caitlin Barrett

For the year of this report, we maintained:
16 vehicles
2 modified wetland equipment (list type)
0 ULV sprayers (list type)
Larval control equipment (list type) 16-Four (4) gallon electric backpack sprayers
Other (please be specific):

Comments: Cape Cod Mosquito Cotrol Project is overseen by five commissioners. One of these is appointed by the Cape Cod Selectmen and Town Councilors Association and one is appointed by the Cape Cod Municipal Managers Association.

How many cities & towns in your service area? 15
Please list: Barnstable, Bourne, Brewster, Chatham, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Provincetown, Sandwich, Truro, Wellfleet, Yarmouth

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

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 program is to manage mosquito populations in Barnstable County below the nuisance level and to protect public health.

Please give the time frame for this program: April through October

Describe the areas that this program is used: All fresh water & salt water areas found to contain mosquito larvae.

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: AquabacXT #62637-1, Aquabac G #62637-3, Agnique MMF #53263-28, Agnique MMF PAK35 #53263-30, BVA2 #70589-1, Cocobear #8329-93
Catch basins: Altosid PelletsWSP #2724-448, Vectolex WSP #73049-20, Agnique MMF PAK35 #53263-30
Containers: Altosid pellets WSP #2724-448
Other (please list):

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

Wetlands: AquabacXT is 0.5 to 1 pint per acre, AquabacG is 2.5 to 10 pounds per acre, Agnique MMF is 0.2 to 1 gallon per acre, Agnique MMF PAK35 is used at 10 pounds per acre, BVA2 is 2 to 3 gallons per acre, Cocobear is 2 to 3 gallons per acre
Catch basins: Altosid WSP is 1 seven gram packet per basin, Vectolex WSP is 1 ten gram packet per basin, Agnique MMF PAK35 is used at 1 35 gram pack per basin.
Containers: Altosid WSP 1 seven gram packet per 135 ft of surface.
Other:

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

☒ Larval dip counts – please list trigger for application:
☒ Historical records
☒ Best professional judgment

Comments: _____

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

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: We educate home and business owners to remove any containers on their property that would create larval habitat for mosquitoes.

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: We remove obstructions in ditchesthat prevent water from flowing.

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 128,000
Mechanized cleaning 200
Other (please list):

Comments: _____

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

Hand cleaning 28,000

Mechanized cleaning 5,300

Other (please list):

What time frame during the year is this method employed? October 1 through April 1

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 **pre and post larval dip counts**
Ground ULV Adulticide:
Source Reduction: **source reduction projects are only undertaken in response to high larval counts. Larval counts and amount of pesticide application is monitored in following years.**
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 larval habitats are monitored regularly throughout the treatment season. Data is entered into a GIS data base and reviewed in a timely manner. Larvacide efficacy is checked at the beginning and the end of the season at a minimum of 18 sites. Source reduction projects are evaluated on a yearly basis.**

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? No

If yes, please describe:

Please give an estimate of total square feet or acreage:

What time frame during the year is this method employed?

Comments: _____

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

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: 0

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
☐ NJ light traps w/CO_2
☐ Canopy
☐ Canopy

Other (please describe): Bioquip EVS light traps used with carbon monoxide

Please describe the purpose of this program: To sample adult mosquito populations to assess efficacy of our larval control project and monitor for the presence of arbovirus.

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

If yes, please describe how you chose these long-term sites. Long term sites for resting boxes were chosen based on the presence of Culiseta melanunra and roosting bird populations. Gravid traps are placed in locations where there are high Culex populations or where crows congregate as a sentinel. Long term light traps locations are placed in a variety of habitats to target certain mosquitoes of concern. This includes control siteswhere larviciding is not permitted.

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? 15

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: One human case of WNV in a Barnstable resident in 2007.

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

WNV: remote
EEE: remote

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

WNV: moderate

EEE: moderate

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

Comments: _____

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

EDUCATION, OUTREACH & PUBLIC RELATIONS

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

If yes, please describe: We present educational programs to a variety of organizations in Barnstable county. Our field crews hand out informational pamphlets to homeowners.

Please check off all that apply:

☒ School based program
☒ Website
☒ PR brochures/handouts
☒ Community events
☐ Science fairs
☒ Meeting presentations
☒ Other (please describe): Annual Budget and Operations meeting with public notice

Please give an estimate of attendance/participants in this program: 1200

Please list some events you participated in for the year of this report: Cape Cod Community College Environmental Technology lectures; Classroom programs at Yarmouth elementary school; Educational Program at Cape Cod Academy; Town Boards of Health meetings; Barnstable County Review Committee

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

Have you performed any research projects, efficacy, bottle assays, etc.? Yes

If yes, please elaborate on your research projects: We evaluated different trap designs for greenhead fly control

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

If yes, please elaborate on your collaborations this past year: We work closely with Dr. Aimlee Laderman, Director of the Swamp Research Center at the Marine Biological Laboratory regarding Atlantic white cedar swamps; Dr. Steven Mihok, inventor of the NZI traps evaluating trap designs in the Northeast U.S. marshes.

Please provide a list of technical reports, white/grey papers, publication in journal or trade magazines, etc. Pesticide Envionmental Stewardship Program reports to EPA, NZI trapping paper in progress; Rey, Jorge R.; Walton, William E.; Wolfe, Roger J.; Connelly, C. R.; O'Connell, Sheila M.; Berg, Joe; Sakolsky-Hoopes, Gabrielle E.; Laderman, Aimlee D. 2012. "North American Wetlands and Mosquito Control." Int. J. Environ. Res. Public Health 9, no. 12: 4537-4605.

Does your staff participate in educational opportunities? Yes

If yes, please list the training and education your staff received this year: Staff attended Field Day training sponsored by the NMCA and an NMCA Meeting; Annual Backpack sprayer calibration training; AMCA webinars;DAR Spill Response Training

Please list the certifications and degrees held by your staff: Mass Pesticide Applicators license and commercial certification, CDL and hydraulic license, Master of Science in Entomology.

Comments: _____

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? Yes

If yes, please describe: We perform selective ditch maintenance to allow predatory fish access to stagnant pools. We also use bacterial larvicides such as BTI in our program.

Is this program the introduction of mosquito predators or the enhancement of habitat for native predators? Enhancement of habitat for native predators and introduction of natural pathogens to control mosquito populations.

Please check off all that apply:

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

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

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: We have a Trimble GOS unit that we use to record trap sites, locations of pipes, etc. Access Computer databases are used to recors all work completed as well as all trap information. We have historical aerial photographs as well as Mass GIS orthos.

Please describe your current GIS abilities: Intermediate

Give details if possible on your GIS abilities: We are cuurently using Mass GIS with ARC GIS 9 viewer. We have added a layer to the Mass GIS maps showing the unique numbers for each of our work sites. All work is entered into an Access database that is connected to the maps.

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

Comments: _____

REVENUES & EXPENDITURES

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

For Fiscal Year 2011 revenue total $1,662,428 from all 15 towns in Barnstable County. Expenditures were as follows: AA payroll account $1,004,912.00; FF account was $9,350.00; DD account was $287,633.00; EE account was $9442.00; GG account was $69,000.00; BB account was $1,000.00.

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

Comments: Barnstable $294,390.00
Bourne $91,486.00
Brewster $76,271.00
Chatham $125,138.00
Dennis $133,331.00
Eastham $59,295.00
Falmouth $239,394.00
Harwich $103,764.00
Mashpee $101,745.00
Orleans $78,067.00
Provincetown $50,737.00
Sandwich $87,201.00
Truro $44,963.00
Wellfleet $49,884.00
Yarmouth $126,662.00

Comments: Town funding assessments include State Reclamation Board.

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: Agnique MMF
EPA Reg. #: 53263-28
Application method: hand sprayer
Targeted life stage: Larvae/pupae
Total amount of concentrate applied: 71 gallons
Comments: 32% active ingredient; 284 applications to 173 sites

Product Name: Aquabac G
EPA Reg. #: 62637-3
Application method: hand

Targeted life stage: Larvae
Total amount of concentrate applied: 372 pounds
Comments: 2.8% active ingredient 14 applications to 9 sites

Product Name: Aquabac XT
EPA Reg. #: 62637-1
Application method: hand/backpack sprayer
Targeted life stage: Larvae
Total amount of concentrate applied: 246 gallons
Comments: 8% active ingredient 2012 applications to 704

Product Name: BVA2
EPA Reg. #: 70589-1
Application method: hand sprayer
Targeted life stage: Larvae/pupae
Total amount of concentrate applied: 55 gallons
Comments: 97% active ingredient 96 applications to 79 sites

Product Name: Altosid WSP
EPA Reg. #: 2724-448
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 3 pounds
Comments: 4.25% active ingredient 166 road drains and containers treated

Product Name: Vectolex WSP
EPA Reg. #: 73049-20
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 25 pounds
Comments: 7.5% active ingredient 1129 road drains treated

Product Name: Altosid Pellets
EPA Reg. #: 2724-448
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 180 pounds
Comments: 4.25% active ingredient 11688 road trains treated

Product Name: Cocobear
EPA Reg. #: 8329-93
Application method: hand sprayer
Targeted life stage: Larvae/pupae
Total amount of concentrate applied: 59 gallons
Comments: 10% active ingredient 20 applications to 18 sites

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. Cape Cod National Seashore, Mass Audubon owned properties, Mashpee Wildlife Refuge

SPECIAL PROJECTS

Do you perform any inspectional services such as inspections at sewage treatment facilities or review sub division plans? No

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: If we are contacted by local or state officials about clogged stormwater systems, clogged culverts or other areas that create larval habitat we address the problem through water management or larvicide treatments.

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

If yes, please elaborate: In Barnstable, we continue to work with the Town of Barnstable to keep a culvert in Cotuit open. We also worked with the Town of Falmouth on restoring tidal flow in the marsh area in Woods Hole, and keeping open the culvert at Racing Beach. The Town of Eastham also partnered with us on a culvert issue in the area on Dyer Prence and Governor Prence Roads.

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

If yes, please elaborate: We performed ditch maintenanced on DCR/Army Corp saltmarsh restoration project on Sagamore Marsh.

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

If yes, please elaborate:

CHILDREN AND FAMILIES PROTECTION ACT

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

If yes, please explain: All schools located in Barnstable County were required to add our larvicide products to their school outdoor IPM plan.

If you have data on compliance with this Act and your program, please list here: All public schools, private schools and parochial schools have notified us.

If you had difficulties with implementation of your program due to this law, please elaborate here: No

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: Cape Cod Mosquito Control Project is a partner under the EPA's Pesticide Environmental Stewardship Program under the auspices of the American Mosquito Control Association. Cape Cod Mosquito Control Project works closely with the Town Boards of Health, Town Conservation Commissions and occassionally with the County Board of Health, as well as working with local citizens who have mosquito concerns.