MASSACHUSETTS MOSQUITO CONTROL

ANNUAL OPERATIONS REPORT

Year Report Covers: 2017 Date of Report: 01/18/2018

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

Address: 259 Willow Street Unit 3

City/Town: Yarmouthport Zip: 02675

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Report prepared by: ***Gabrielle Sakolsky, Audrey Russano, Caitlin Slowik***

NPDES permit no. **MAG87A024**

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

ORGANIZATION SETUP:

Commissioner names:

J. Gregory Milne	Jere Downing
Rodney Collins	James Quirk
Arthur Neill	_____

Superintendent/Director name: John Doane
Superintendent/Director contact phone number: 508-775-1510
Asst. Superintendent/Director name: Gabrielle Sakolsky

District/Project website: http://ccmcp.net
Twitter handle: @
Facebook page: http://www.facebook.com/https://www.facebook.com/Cape-Cod-Mosquito-Control-Project-701819736681827/

Staffing levels for the year of this report:
Full time: 26
Part time:
Seasonal:
Other: (please describe)

Of the above, how many are:
(Please check off all that apply, and list employee name(s) next to each category)

☒ Administrative Caitlin Slowik
☐ Biologist
☐ Educator
☒ Entomologist Gabrielle Sakolsky
☒ Facilities Bart Morris
☒ Information technology Audrey Russano
☐ Laboratory
☐ Operations
☐ Public relations
☐ Wetland scientist
☐ Other (please describe)

For the year of this report, the following were maintained (enter number in the column to the left):

2 Modified wetland equipment (list type) excavator, piston bully
22 Larval control equipment (list type) backpack sprayers
____ ULV sprayers (list type)
17 Vehicles
Other (please be specific):

Comments: _____

How many cities and towns are in your service area?* 15
Alphabetical list: Barnstable, Bourne, Brewster, Chatham, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Provincetown, Sandwich, Truto, Wellfleet, Yarmouth

Were there any changes to your service area this year? No
Cities/towns added:
Cities/towns removed:

***Please attach a map of your service area (or a website link to that map).**

INTEGRATED PEST MANAGEMENT (IPM):

Check off all services that your district/project currently provides to member cities and towns as part of an IPM program (details will be provided in the sections below):

☐ **Adult mosquito control**
☒ **Adult mosquito surveillance**
☒ **Ditch maintenance**
☒ **Education, Outreach & Public education**
☒ **Larval mosquito control**
☒ **Larval mosquito surveillance**
☐ **Open Marsh Water Management**

☒ **Research**
☐ **Source reduction (tire removals)**
☐ **Other (please list):**

Comments: _____

LARVAL MOSQUITO CONTROL:

If you have a larval mosquito control program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: The purpose of this program is to manage mosquito populations in Barnstable County below nuisance level and to protect public health.

What months is this program active? April through October

Describe the types of areas where you use this program: All fresh water & salt water areas found to contain mosquito larvae.

Do you use:
☒ **Ground application (hand, portable and/or backpack, etc.)**
☐ **Aerial applications**
☐ **Other (please list):**
Comments: _____

List all products that you use for larval mosquito control in the table below (leave blank if not applicable)**:**

Product Name	**EPA #**	**Application Rate(s)**	**Application Method**	**Targeted life stage**	**Habitat Type**	**Total finished product applied**
AquaBac XT	62637-1	.5 to 1 pint per acre	Hand	Larvae	☒ Catch basins ☒ Containers ☒ Wetland ☐ Other (please list):	440 gallons
AquaBac G	62637-3	2.5 to 10 pounds per acre	Hand	Larvae	☒ Catch basins ☒ Containers ☒ Wetland ☐ Other (please list):	903 pounds
BVA2	70589-1	2 to 3 gallons per acre	Backpack sprayer	Larvae/pupae	☒ Catch basins ☒ Containers ☒ Wetland ☐ Other (please list):	723 gallons
Spheratax WSP	84268-2	1 pack per basin	Hand	Larvae	☒ Catch basins ☒ Containers ☒ Wetland ☐ Other (please list):	390 pounds
Altosid WSP	2724-448	1 pack per basin	Hand	Larvae	☒ Catch basins ☒ Containers ☒ Wetland ☐ Other (please list):	47 pounds
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	

List all products that you use for larval mosquito control in the table below (leave blank if not applicable)**:**

Product Name	EPA #	Application Rate(s)	Application Method	Targeted life stage	Habitat Type	Total finished product applied
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	
				Choose one	☐ Catch basins ☐ Containers ☐ Wetland ☐ Other (please list):	

What is your trigger for larviciding operations? (check all that apply)
☒ Best professional judgment
☒ Historical records
☒ Larval dip counts – please list trigger for application:
☐ Other (please describe):
Comments: _____

Please attach a map of your service area (or a website link to that map).

ADULT MOSQUITO CONTROL:

If you have a larval mosquito control program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program:

What is the time frame for this program?

Describe the types of areas where you use this program:

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

For each product used, please list the name, EPA #, and application rate(s):

Product Name	**EPA #**	**Application Rate(s)**	**Application Method**	**Total finished product applied**

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)
☐ Arbovirus data
☐ Best professional judgment
☐ Complaint calls (Describe trigger for application:)
☐ Landing rates (Describe trigger for application)
☐ Light trap data (Describe trigger for application)
Comments: _____

Please attach a map of your service area (or a website link to that map).

SOURCE REDUCTION (Tire Removals)

If you practice source reduction methods, such as tire removal, please fill out the section below, else skip ahead to the next section.

Please describe your program:

What time frame during the year is this method employed?

Comments: _____

WATER MANAGEMENT/DITCH MAINTENANCE

If you have a water management or ditch maintenance program, please fill out the section below, else skip ahead to the next section.

Please check all that apply:
☒ Inland/freshwater
☒ Saltmarsh
Please describe your program: We remove obstructions in ditches that prevent water from flowing.

For **inland/freshwater water management**, check off all that apply.

Maintenance Type	**Estimate of cumulative length of culverts, ditches, swales, etc. maintained (ft)**
☒ Culvert cleaning	880 culverts opened/snaked
☒ Hand cleaning	210842'
☒ Mechanized cleaning	100'
☐ Stream flow improvement	
☐ Other (please list):	

Comments: _____

For **saltmarsh ditch maintenance**, check off all that apply:

Maintenance Type	**Estimate of cumulative length of ditches maintained (ft)**
☒ Hand cleaning	47385'
☒ Mechanized cleaning	275'
☐ Other (please list):	

Comments: _____

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

Comments: _____

Please attach a map of ditch maintenance areas (or a website link to that map).

OPEN MARSH WATER MANAGEMENT

If you have an Open Marsh Water Management program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program:

What months is this program active?

Please give an estimate of total square feet or acreage:

Comments: _____

Please attach a map of OMWM areas (or a website link to that map).

MONITORING (Measures of Efficacy)

Describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands:

Ground ULV Adulticide:

Larvicide – catch basins:

Larvicide-hand/small area pre and post larval dip counts

Open Marsh Water Management:

Source Reduction: source reduction projects are only undertaken in response to high larval counts. Larval counts and amounts of pesticide application is monitored in following years.

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 thoughout the treatment season. Data are entered into an ArcGIS online database and reviewed in a timely manner. Larvicide 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.

Check the boxes below, indicating if your program has performed any of the following:

Research Project	Details
Bottle assays	
Efficacy testing	

Other:	
Other:	

ADULT MOSQUITO SURVEILLANCE

If you have an adult mosquito surveillance program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: To assess populations to determine efficacay of program as awell as identifying presence of vectors/arbovirus.

What months is this program active? June - October

Check off all trap types currently in use by your program:

- ☐ ABC light traps
- ☐ ABC light traps w/CO_2
- ☒ CDC light traps
- ☒ CDC light traps w/CO_2
- ☒ Gravid traps
- ☐ Landing rate tests
- ☐ NJ light traps
- ☐ NJ light traps w/CO_2
- ☒ Ovitraps
- ☒ Resting boxes
- ☐ Canopy
- ☐ Canopy
- ☐ Canopy
- ☐ Canopy
- ☐ Canopy
- ☐ Canopy
- ☒ Other (please describe): Modified gravid traps, BioQuip EVS light traps with carbon dioxide

Do you maintain long-term trap sites in any of your areas? Please choose one

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

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*
- ☐ Other (please list):
- ☒ *Oc. abserratus*
- ☒ *Oc. canadensis*
- ☒ *Oc. cantator*
- ☐ *Oc. j. japonicus*
- ☒ *Oc. sollicitans*
- ☒ *Oc. taeniorhynchus*
- ☐ *Oc. triseriatus*
- ☐ *Oc. trivittatus*
- ☐ *Ps. ferox*
- ☐ *Ur. sapphirina*

Do you participate in the MDPH Arboviral Surveillance program? Yes
How many pools do you submit weekly on average? 15

Number of traps in your service area **placed by MDPH**: 0
Were these long-term trap sites or supplemental trapping sites? Choose one

Which arboviruses were found in your area during the previous mosquito season? Enter the number of pools/cases below:

Arbovirus	Positive Mosquito Pools	Equine Cases	Human Cases
☒ Eastern Equine Encephalitis (EEE)	0	0	0
☒ West Nile Virus (WNV)	9	0	1
☐ Other (please list):			

Comments: _____

For each arbovirus listed below, please list the risk levels in your project area at both the start and end of the season (if more than one, please list all):

Arbovirus	Start of Season	End of Season
EEE	Remote - 3 towns low	Remote - 3 towns low
WNV	Low	Low - 6 towns moderate

Comments: _____

EDUCATION, OUTREACH & PUBLIC RELATIONS

If you have an education/outreach program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: We present educational programs to a variety of organizations in Barnstable County. Our field crews hand out information pamphlets to homeowners.

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

Check off all education/outreach methods that were performed by your program this year:
☒ Development/distribution of brochures, handouts, etc.
☒ Door-to-door canvassing (door hangers, speaking to property owners, etc.)
☒ Facebook page, Twitter, or other social media
☐ Mailings (Describe target audience(s):)
☐ Media outreach (interviews for print or online media sources, press releases, etc.)
☒ Presentations at meetings
☒ School-based programs, science fairs, etc.
☒ Tabling at events (local events, annual meetings, etc.)
☒ Website
☐ Other (please describe):

Estimate the audience reached this year using the education/outreach methods above: 2400
Comments:

List your program's top 3 education/outreach activities for this year:

1. Cape Cod Community College Environmental Science Program
2. Brewster Conservation Day
3. Health fairs

Were you involved in any collaborations with the following partners this year? Provide details below, including a list of technical reports, white/grey papers, journal publications, trade magazine articles, etc:

☒ Academia
☐ Another mosquito control district/project
☒ Another state agency (DCR, DPH, etc.)
☐ Environmental groups
☒ Industry

List any training/education your staff received this year: Staff attended Field Day training sponsored by NMCA; annual NMCA conferences; annual backpack sprayer calibration training; EEA training; Safety and PPE training

Please list the certifications and degrees held by your staff: Mass Pesticide Applicator's Licenses, Commercial certifications, CDL and hydraulic license, Master of Science Entomology

Comments: We work with Karen McKenzie Bedoukian Research Inc Danbury CT to evaluate new greenhead fly trap types; Dr. Dan Kline USDA/ARS/CMAVE Gainesville FL Htrap testing; Pesticide Environmental Stewardship Program; collaboarting with Louisiana State University, National Park Service, US Fish and Wildlife, US Geographic Survey, Waquoit Bay Reserve and Woods Hole Oceanographic Institute as an end user on a project entitled 'Evaluating the Impact of Hydrolic Alterations on Salt Marsh Sustainability in a Changing Climate.'

INFORMATION TECHNOLOGY (IT)

Does your program use (check all that apply):

☒ Aerial Photography
☒ Databases
☐ Dataloggers (monitoring for temperature, etc.)
☒ GIS mapping (Describe:)
☒ GPS equipment
☒ Smartphones
☒ Tablets/Toughbooks
☐ Other (please describe):

Describe any changes/enhancements in IT from the previous year: This year we continue to increase new layers to our field collection data. The layers consist of pipes and ditches. This

data has a two-fold purpose: to assist Cape Cod towns in receiving credit for drainage system management, and to document location of pipes.

Describe any difficulties your program had with IT software/equipment this year: No significant difficulties noted.

Comments: _____

REVENUES & EXPENDITURES

Please provide the amounts for your approved budgets for the current, previous, and future fiscal years. Please note if the budget for the next fiscal year is an estimate, or put "n/a" if it is not yet available.

Fiscal Year	Approved Budget
2017	$2,017,423.91
2018	$2,161,744.80

List each member municipality, along with the corresponding (cherry sheet) funding assessment dollar amount, for the current fiscal year (or provide a web link to this information):

BARNSTABLE $376,589.94
BOURNE $119,990.84
BREWSTER $102,697.88
CHATHAM $174,250.63
DENNIS $178,790.29
EASTHAM $79,134.86
FALMOUTH $306,765.59
HARWICH $135,339.22
MASHPEE $131,231.91
ORLEANS $107,020.37
PROVINCETOWN $66,813.08
SANDWICH $107,020.37
TRURO $59,679.16
WELLFLEET $60,976.20
YARMOUTH $155,444.45

Comments:

SERVICE REQUESTS

How many service requests did you receive this season? 318
How many were for larviciding? 318
How many were for adulticiding?

Was this an increase or decrease over last season? Increase

Comments: Wet season

EXCLUSIONS

How many exclusion requests did you receive this season? 9

Was this an increase or decrease over last season? Increase

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

SPECIAL PROJECTS

Did your program perform any of the following special projects? Check all that apply.

- ☐ Inspectional services (inspections at sewage treatment facilities, review of subdivision plans, etc.)

  Describe:

- ☒ Work with DPW departments or other local or state officials to address stormwater systems, clogged culverts, or other areas identified as man-made mosquito problem areas

  Describe:

- ☐ Work with groups as described above on long term solutions?

  Describe:

- ☒ Conduct or participate in any cooperative research or restoration projects?

  Describe: See Education, Outreach & Public Relation Section

- ☒ Participate in any state/regional/national workgroups or panels, or attend any meeting pertaining to the above?

  Describe: Stakeholder in the Herring River Resoration Taskforce

- ☒ Work on any biological control projects, such as enhancement of habitat for native predators, release of predatory fish or invertebrates, etc.?

  Describe:

CHILDREN AND FAMILIES PROTECTION ACT (CFPA)

Is your program impacted by the CFPA? Yes

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

If you have data on compliance rates with the CFPA within your program area, please list here: All public schools, private schools and parochial schools have notified us

Describe any difficulties you have had with the implementation of your program due to the CFPA, please elaborate here: no

Comments:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PROGRAM

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

If yes, please list any corrective actions here: _____

GENERAL COMMENTS

Please add any comments here for topics not covered elsewhere 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 with the Cape and Islands Health Agents Coalition, the US Fish and Wildlife Service, MA Division of Marine Fisheries as well as working with local citizens who have mosquito concerns.