

**MASSACHUSETTS MOSQUITO CONTROL
ANNUAL OPERATIONS REPORT**



2012 Year of Report Date of Report: 12-12-12

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

Address: Box 72 142 R Pembroke Street

City/Town: Kingston Zip: 02364

Phone: 781-585-5450 Fax: 781-582-1276

E-mail: atexeira@plymouthmosquito.org

Report prepared by: Anthony Texeira

NPDES permit no. **MAG 87A025**

If you have a mission statement, please include it here: to maintain an efficient, economical mosquito control operation that will provide the best results possible, be consistent with all ecological aspects and consider the best interests of member communities.

ORGANIZATION SETUP:

Please list your Commissioner's names:

Carolyn Brennan - Chairman

John Kenny

Leighton Peck

Kimberly King

Michael Valenti

Please list the Supt./Director's name: Anthony Texeira

Please list the Supt./Director's contact phone number: 781-585-5450

Please list your Asst. Supt./Asst. Director's name:

Do you have a website? Please select If yes, please list the web address here:
<http://www.plymouthmosquito.org>

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

Full time: 12

Part time: 1

Seasonal: 6

Other: (please describe)

Please break these down into the following areas:

Administrative staff: 3

Field staff: 16

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

- Public relations Daniel Daly
- Information technology
- Entomologist Ellen Bidlack
- Wetland Scientist
- Biologist
- Education Daniel Daly, Ellen Bidlack
- Laboratory
- Operations Jo Ann Fawcett, Steve Gillette
- Facilities Anthony Texeira, Steve Gillette
- Other (please list) Pilot & Excavator operator - Greg Goodband, Excavator operator - Brian Callahan, Field Technicians - Dan Cabral, Richard Goodwin, Christopher Hanna and George Rego

For the year of this report, we maintained:

18 vehicles

1 modified wetland equipment (list type) Link-Belt excavator

8 ULV sprayers (list type)

14 Larval control equipment (list type) 2 Hydraulic units, 2 backpack sprayers, 10 pump

Other (please be specific): 1 Link-Belt excavator 1 Cessna AG Wagon w/boom nozzle & grandular spreader

Comments: _____

How many cities & towns in your service area? 28

Please list: Abington, Bridgewater, Brockton, Carver, Cohasset, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Lakeville, Marion, Marshfield, Mattapoisett, Middleboro, Norwell, Pembroke, Plymouth, Plympton, Rochester, Rockland, Scituate, Wareham, West Bridgewater, Whitman

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

<http://www.plymouthmosquito.org/map.htm>

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 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

Please give the time frame for this program: April- September

Describe the areas that this program is used: a variety of fresh water wetlands and salt marshes breeding sites

Do you use:

- Ground applied (includes hand, portable and/or backpack)
- Helicopter applications
- Other (please list): Airplane application

Comments: _____

What products do you use in – (please use product name and EPA#)

Wetlands: Vectobac 12AS 73049-38, Vectolex CG 73049-20, BTI Briquets 6218-47, Altosid XR 2724-421

Catch basins: Altosid XR 2724-421

Containers: BTI Briquets 6218-47, Altosid XR 2724-421

Other (please list):

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

Wetlands: Vectobac 12AS 1 pint per acre by plane

Catch basins: Altosid pellets 7 gramms per basin

Containers: Altosid pellets 7 gramms per basin 1 BTi Briquet for 100 sq ft

Other:

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

- Larval dip counts – please list trigger for application: +1
- Historical records
- Best professional judgment

Comments: _____

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

<http://www.plymouthmosquito.org/map.htm>

ADULT MOSQUITO CONTROL:

Do you have an adult mosquito suppression program? Yes

If yes, please describe the purpose of this program: The goal of our program is to reduce the number of biting mosquitoes to protect human health and improve the quality of life of our residents

Please give the time frame for this program: May - October (end date depends on virus activity and weather conditions)

Describe the areas that this program is used: Project wide PCMCP accepts requests for adult mosquito control from residents , buisnesses and town officials

Do you use:

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

Comments: _____

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

1). Duet 1021-1795-8329

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

Please list your application rates for each product:

- 1). Duet 1021-1795-8329 .062 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

Each resident household has a maximum of 8 treatments per season

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

- Landing rates - please list trigger for application exceeds 1 per night
- Light trap data - please list trigger for application exceeds 5 per night
- Complaint calls - please list trigger for application exceeds 2 per geographical area
- Arbovirus data
- Best professional judgment

Comments: _____

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

<http://www.plymouthmosquito.org/map.htm>

SOURCE REDUCTION

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

If yes, please describe your program: Our source reduction program is comprised of our ditch maintenance program, OMWM and education. We often inspect properties and offer advice to landowners regarding actions they can take to reduce the amount of mosquito production on their property.

What time frame during the year is this method employed? Throughout the year

Comments: _____

DITCH MAINTENANCE

Do you have a ditch maintenance program? Yes

Please check all that apply:

- Inland/freshwater
- Saltmarsh

If yes, please describe: Hand and Mechanized Equipment

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 46,455
Mechanized cleaning 7625
Other (please list):

Comments: _____

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

Hand cleaning 530
Mechanized cleaning 9310
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:	Pre and Post application
Larvicide – catch basins:	
Larvicide-hand/small area	Prior to application
Ground ULV Adulticide:	Periodic landing rate checks and trapping data
Source Reduction:	
Open Marsh Water Management:	Pre and Post implementation
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): **Per established Mass. Best Management Practice Standards**

OPEN MARSH WATER MANAGEMENT

Do you have an OMWM program? Yes

If yes, please describe: We have had an OMWM program on and off since the late 1980's. We currently have permits from the Army Corps of Engineers until 2015.

Please give an estimate of total square feet or acreage: The OMWM site is on a marsh that is less than 30 acres in size. The actual area of disturbance is estimated to be 7,000sq ft..

What time frame during the year is this method employed? Fall and Winter

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: There were 14 MDPH traps in our district this year. The number was higher this year due to the increase in EEEV activity. The project has 14 to 22 that are set during the season.

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 checked="" type="checkbox"/> ABC light traps w/CO ₂ | <input type="checkbox"/> Canopy |
| <input checked="" 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 of this program is three fold to monitor the mosquitoes for diseases, to determine general population levels and to decide where we can better focus our larvaciding efforts.

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

If yes, please describe how you chose these long-term sites. We maintain a system of NJ traps that have been at the same locations for numerous years. In cooperation with DPH we have in recent years begun to maintain our own sites for disease surveillance. Locations were chosen using a variety of factors including disease history, neighboring wetlands and location of DPH traps.

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

- | | |
|--|---|
| <input 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 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 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 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 type="checkbox"/> <i>Cs. morsitans</i> | <input checked="" type="checkbox"/> <i>Ps. ferox</i> |
| <input checked="" type="checkbox"/> <i>Oc. abserratus</i> | <input 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? Yes

How many pools do you submit weekly on average? 60

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

West Nile Virus

Eastern Equine Encephalitis

Other Please list: Dog Heartworm

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

Please explain: 3 human EEE cases 3 animal EEE cases 1 human WNV case

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

WNV: We started at low risk for all of our district.

EEE: all towns were at low risk except West Bridgewater, Bridgewater, Middleborough and Carver. These four towns were at moderate risk.

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

WNV: all 28 towns were at moderate risk.

EEE: Moderate Risk: Hull, Hingham, Hanover, Rockland, Abington, Brockton, Whitman and Cohasset

High Risk: Norwell, Scituate, Duxbury, Pembroke, Hanson, East Bridgewater, Bridgewater, Kingston, Carver, Middleborough, Lakeville, Plymouth, Wareham, Marion and Mattapoisett

Critical Risk: Marshfield, Plympton, Halifax, West Bridgewater and Rochester

What time frame during the year is this method employed? We started trapping at the end of May but as per DPH's request we did not submit mosquitoes until June 23, 2011. Surveillance continued until 18 September 2011.

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: The Project participated in the Town of Wareham's annual health faire, made evening presentations in several mosquito awareness nights (Hanson, Whitman, Rochester, Marion, and Mattapoisett). Several council on aging presentations. Made six presentations to grade six students (3 D's of mosquito protection and the importance of EPA registered repellents). Made presentaion to grade 11 environmental science class on mosquito life cycle and EEE/WNV cycles.

Please check off all that apply:

- School based program
- Website
- PR brochures/handouts
- Community events
- Science fairs
- Meeting presentations
- Other (please describe): Interviews on WATD Radio, frequent news releases to area papers and their related web sites (Wicked Local news as one example).

Please give an estimate of attendance/participants in this program: The number of participants vary from as few a six to fifty.

Please list some events you participated in for the year of this report: The Project participated in the Town of Wareham's annual health faire, made evening presentations in several mosquito awareness nights (Hanson, Whitman, Rochester, Marion, and Mattapoisett). Several council on aging presentations. Made six presentations to grade six students (3 D's of mosquito protection and the importance of EPA registered repellents). Made presentaion to grade 11 environmental science class on mosquito life cycle and EEE/WNV cycles

What time frame during the year is this method employed? throughout the year

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

If yes, please elaborate on your research projects: The Project has been researching and developing lessons for school districts that are based on the Massachusetts Curriculum Frameworks, especialy in the area oh Comprehensive Health and is now in the process of seeking school input and a possible pilot program.

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:

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

Does your staff participate in educational opportunities? Yes

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

Please list the certifications and degrees held by your staff: Excavator operator ,Pilot - Greg Goodband, U.S. Commercial Airline Certificate, Commercial Certification 34 + 47 CDL, Hoisting License- Excavator operator - Brian Callahan Commercial Certification 47 CDL, Hoisting License, - Field Technicians: Dan Cabral Applicator license- Brandon Gillete Applicator license- Richard Goodwin Commercial Certification 47, Hoisting License - Christopher Hanna Commercial Certification 47, Hoisting License - George Rego Applicators license, CDL, Hoisting License - Ellen Bidlack B.S., M.A., Commercial applicators Certificate 47 - Anthony Texeira B.S., M.A.T. Commercial Certificate 47 - General Foreman Steve Gillett Commercial Certification 47, CDL, Hoisting License, Dan Daly BS, M Ed., CAGS.

Comments: _____

BIOLOGICAL CONTROL EFFORTS

Do you have a biological control program? Yes

If yes, please describe: We participated in two research projects. One was examining the age structure of *Cs. melanura* and *Cq. perturbans*. We are also participating in a project concerning transovarial transmission of EEEV.

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: Our goal is to use computers and GIS technology to improve record keeping, efficiency and communication. As a result these tools have been used in a variety of ways to meet these goals. Over the past 10 years our service requests have been put directly into a database. We have been using this Service Request system since 2009. The system decreases data entry errors and speeds handling of the requests. We have geocoded two years of service requests to help us identify areas where we can improve our larviciding. Other ways we have been using technology includes installing PDAs and GPS units in all our trucks with ULV sprayers. This system tracks when and where the sprayer was used as well as other information. PCMCP's also uses GIS technology to map our trap sites and help determine trap placement breeding sites and sensitive habitats. We are developing a system using GIS and computer databases to improve tracking of our hand larviciding sites and ditch maintainace.

Please describe your current GIS abilities: Intermediate

Give details if possible on your GIS abilities:

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 FY12 PCMCP had a budget assessment of \$1,358,733 plus a rollover amount from FY11 of \$10,916, and a supplemental budget of \$100,000, a combined total of \$1,469,658, Payroll expenditure was \$727,220. Chargebacks from Group Insurance, Medicare, Work. Comp. was in the vicinity of \$176,000. Retirement portion was \$139,446. Insecticides purchased was \$120,000. Auto, liability, airplane insurance totaled approximately \$41,000. The balance was expended on rent for Project facility, rent for Project aircraft (also maintenance on aircraft), utilities, office supplies, miscellaneous shop supplies, repairs and maintenance on state vehicles, heavy equipment, fuel for vehicles and airplane, lab equipment, etc.

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

Comments:

ABINGTON -\$28,027
BRIDGEWATER -\$51,687
BROCKTON - \$91,379
CARVER -\$49,115
COHASSET - \$30,240
DUXBURY -\$56,556
EAST BRIDGEWATER -\$32,354
HALIFAX -\$24,450
HANOVER -\$38,719
HANSON -\$26,502
HINGHAM -\$72,274
HULL -\$21,514
KINGSTON -\$35,900
LAKEVILLE -\$44,629
MARION -\$30,102
MARSHFIELD -\$70,455
MATTAPOISETT -\$31,200
MIDDLEBORO -\$93,574
NORWELL -\$42,402
PEMBROKE -\$44,413
PLYMOUTH -\$183,162
PLYMPTON -\$18,915
ROCHESTER -\$42,430
ROCKLAND -\$27,689
SCITUATE -\$54,328
WAREHAM -\$70,295
WEST BRIDGEWATER -\$25,777
WHITMAN -\$20,295

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: Altosid pellets/Altosid pellets wsp
EPA Reg. #: 2724-448
Application method: Hand
Targeted life stage: Larvae
Total amount of concentrate applied: 922lbs
Comments: _____

Product Name: Duet
EPA Reg. #: 1021-1795-8329
Application method: ULV
Targeted life stage: Adult
Total amount of concentrate applied: 489
Comments: _____

Product Name: FLIT 10EC
EPA Reg. #: 8329-67
Application method: Hydraulic sprayer
Targeted life stage: Adult
Total amount of concentrate applied:
Comments: _____

Product Name: Altosid XR briquets
EPA Reg. #: 2724-421
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 4lbs
Comments: _____

Product Name: Summit b.t.i. briquets
EPA Reg. #: 6218-47
Application method: hand
Targeted life stage: Larvae
Total amount of concentrate applied: 36 1/2lbs
Comments: _____

Product Name: Vectobac 12AS
EPA Reg. #: 73049-38
Application method: Hydraulic sprayer/pump can
Targeted life stage: Larvae
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?
Choose one

If yes, please explain, and attach maps or a web link if possible.

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: We continue to work with local DPW on water management programs

Have you worked with these departments on long term solutions? No

If yes, please elaborate:

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

If yes, please elaborate:

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 public school districts within the Project membership, except one, have included mosquito control in their IPM plans and have fully complied with the requirements of the Act

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: No difficulties, however each year districts need to be briefly reminded about the process. When the schools have new staff, they tend to need a more detailed explanation of the process. All are eager to fully comply.

Comments:

NPDES

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: _____