

Site Visit Report (Monday, April 12, 2010)

By Executive Director, Mark S. Buffone

On behalf of the State Reclamation and Mosquito Control Board (Board), the Executive Director reports that after careful planning and preparation during the winter months, mosquito control programs such as Norfolk County Mosquito Control Project began to implement aerial larvicide operations to control mosquitoes developing in various permanent and semi-permanent wet habitats. See the 2010 Aerial Larvicide Map for Norfolk Mosquito Control Project target areas for larvicide treatments. <http://www.massnrc.org/ncmcp/ControlStPr/AerialMaps.htm>

2010, thus far, has been warmer and wetter with heavy spring rains (shattering precipitation records) and above normal temperatures (in some cases 12 degrees above the first 9 days of April) making it necessary to conduct aerial larvicide operations somewhat earlier than in previous years.

Key to the aerial larvicide operation's success is timing and weather to insure that the product of choice is applied when immature mosquitoes are in the correct stage of growth and feeding. If the larvicide is not applied at the proper time, the annoyance caused by these day and night-time biting mosquitoes would be quite unbearable. Larviciding in this manner is an ideal approach to control mosquitoes since the target pest is confined and localized; that is, they have not yet taken to the wing and dispersed throughout the local communities. The benefits of larvicide this time of year include, but are not limited to, reducing the abundance of certain kinds of 'spring hatch' mosquitoes that are particularly aggressive as adults. If allowed to emerge as adults, other control measures would be increasingly required to reduce the burden they would impose on our community residents.

Norfolk County Mosquito Control reports that, in addition to the traditional areas inundated by recent flooding, river flood plains remain high.

The aerial larvicide operation is a larger scale strategy using helicopters to target wetland areas, especially along the margins or edges where surveys confirmed mosquito larvae in high densities. As part of the planning and preparation, landing zones (LZs) were secured and approved in several regions across the county, and product was purchased, shipped, stored, and transported to the LZs.

Each helicopter has two hoppers, one on each side of the aircraft that can hold up to 6 bags of product (40 lbs per bag) making up a load of 240 lbs. The total load for each landing is 480 lbs, and this is applied at a rate of 5 lbs per acre. Approximately 96 acres can be treated with each load. Maps are carefully prepared and a briefing with the pilot takes place before each region is treated.

After fuel and product are loaded, the aircraft takes off and releases the product of choice. The product used is a granular formulation. This allows for the material to penetrate vegetation as the aircraft flies close to treetops that are just beginning to bud, and in some case producing leaves.

On this particularly beautiful early spring day, the sky was robin egg blue and wetland areas targeted for treatment were decked out magnificently as the bright sun exposed the beautiful crimson hue atop of maple trees against a background of dark evergreen in the upland areas. The uplifting view is tempered since these same areas are prime mosquito habitat for various spring species, such as *Ochleratatus abserratus*, *Ochleratatus excrucians*, *Ochleratatus fitchii*, *Ochleratatus canadensis*, and on flood plains, *Aedes cinereus*. Many of the spring brood species are usually univoltine (having one generation a year). The eggs need to be cold conditioned over the winter, and then when flooded, these hatch in the spring. Mosquito eggs are deposited the previous year in permanent and semi-permanent wet areas, bogs, cattail marshes, and open grassy ditches. The mosquito control project conduct larval surveys using a dipper (standard mosquito device or scoop on a long handle) to confirm the presence, species composition, and population densities in preferred aquatic habitat in member communities.

The preferred pesticide selected for the operation contains the active ingredient *Bacillus thuringiensis israelensis*, generally referred to as **Bti**. It is a microbial pesticide, referring to the fact that, it is an insecticidal bacterium which occurs naturally in the environment. The product is known as a biorational product since it affects primarily the target pests (immature mosquitoes) and poses little, if any, hazard to any other creature in the environment. The product trade name for this particular operation is VectoBac G. It is manufactured by Valent BioSciences and the EPA Registration # 73049-10.

Mosquito larvae that eat Bti will quickly die. Other 'non-target' creatures in these environments may feed upon the Bti, but will not be harmed by this material. The result is to reduce annoyance and enhance the quality of life for Massachusetts citizens in these areas. Ultimately, reduced annoyance leads to less anxiety and concern caused by mosquitoes.

Mosquito Control is a year round task. Aerial larviciding operations are only one of the activities of mosquito control projects such as Norfolk County Mosquito Control Project. During the upcoming months, the mosquito control projects will begin to set up light traps in many areas (equipment that catches mosquitoes). These tasks are essential to positive identification of mosquitoes and early detection of dangerous arboviruses such as West Nile virus (WNV) and Eastern Equine Encephalitis virus. (EEE).

The Board was happy to have a representative on site at the aerial larvicide operation and thanks the Norfolk County Mosquito Control Commission and Project Staff. The Board encourages the public to contact the appropriate mosquito control project that provides services to their area. The Board website provides links to find out if your town is covered by a regional control program or to if you need to contact a mosquito control project, click below:

<http://www.mass.gov/agr/mosquito/index.htm>

For more information about the Norfolk County Mosquito Control Project, click on link below.

<http://massnrc.org/ncmcp/>

The Board also invites the public to visit the state arbovirus website during the mosquito season for important updates and fact sheets regarding West Nile Virus (WNV) and Eastern Equine Encephalitis (EEE).

<http://westnile.ashtonweb.com/>

<http://www.mass.gov/dph/wnv>

Finally, a picture is worth a thousand words; please see photographs of the site visit.