

The Authors

Tom Platt
Area Extension Agent, Lincoln, Adams, and Spokane
Counties
509-725-4171, plattom@wsu.edu

Carol Ramsay
Pesticide Education Specialist
509-335-9222, ramsay@wsu.edu

For More Information

State Agencies and Organizations

WSU <http://www.wnv.wsu.edu>

Health 866-788-4787

<http://www.doh.wa.gov/ehp/ts/Zoo/WNV/WNV.html>

Agriculture

Pesticides 877-301-4555

<http://agr.wa.gov/PestFert/default.htm>

Veterinarian 360-902-1878

<http://agr.wa.gov/FoodAnimal/default.htm>

Ecology 800-633-6193

http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/mosquito/mosquito_index.html

Fish & Wildlife 360 902-2200

<http://www.wa.gov/wdfw/>

NW Mosquito and Vector Control Association
406-454-6920

<http://www.nwmvca.org/>

National Organizations

Center for Disease Control 888-246-2675

<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

Cornell University

<http://environmentalrisk.cornell.edu/WNV/>

Visit us on the WEB

<http://wnv.wsu.edu>

revised
July 26, 2004

Pesticide regulations on use of mosquito larvicides

Introduction. Pesticide use in Washington State is regulated at the federal level by the Environmental Protection Agency (EPA) and at the state level by Washington State Department of Agriculture (WSDA). In addition, Washington State Department of Ecology (DOE, not to be confused with U.S. Department of Energy) issues special permits for use of aquatic pesticides, including mosquito larvicides. All private, public, and commercial use of pesticides must comply with federal and state regulations.

Mosquito abatement is best accomplished by Integrated Pest Management (IPM) designed to disrupt mosquitoes' life cycles through various practices including monitoring, habitat reduction, and predation combined with biological, chemical, and physical control methods. Targeting adult mosquitoes, as part of IPM and based on surveillance, is an important tool when mosquito breeding sites are inaccessible because of jurisdiction or geography. However, directing mosquito abatement toward mosquito larvae is often more effective and results in less harm to non-target species. It is the preferred approach, but it is not without environmental risk. Consequently, the following discussion focuses on regulations, designed to protect the environment, regarding the appropriate use of mosquito larvicides.

Applicator certification and aquatic permits. Because mosquito larvae live in water, use of mosquito larvicides is considered an aquatic pesticide application and is regulated by WSDA and specially permitted by DOE. An exemption for home and garden use mosquito larvicides is discussed later.

Washington State regulations (Washington Administrative Code) WAC 16-228-1231(1)(d) restricts aquatic pesticide use to WSDA certified applicators. WSDA requires that all applicators be certified with either the Public Health Pest Control or Aquatic Pest Control endorsement in order to apply larvicides to water. This endorsement requirement includes certified private applicators when they apply to water that flows from their property. However, if water does not flow from their agricultural property, private applicators are not required to have the additional endorsement.

Applicator certification is only half the process. In addition, application of mosquito larvicides, other than those labeled and intended only for home and garden use, requires a permit issued by DOE. The permit is called a National Pollutant Discharge Elimination System (NPDES) permit. The U.S. Ninth Circuit Court of Appeals (Headwaters, Inc. v. Talent Irrigation District, March, 2001) found that application of aquatic pesticides, even when done in compliance with the product's label, does not exempt applicators from federal permitting requirements of NPDES, because aquatic pesticides are considered pollutants under the federal Clean Water Act. The U.S. Environmental Protection Agency delegated its authority to issue NPDES permits in Washington State to DOE. Furthermore, Washington State law (RCW 90.48.020) considers application of aquatic pesticides as pollution, defined as "contamination or other adulteration....of any waters of the state....as will or is likely

to....render such waters harmful, detrimental or injurious to....aquatic life."

Consequently, DOE requires NPDES permits for aquatic pesticide applications. To facilitate permitting, DOE holds an Aquatic Mosquito Control NPDES general permit covering mosquito control activities that discharge insecticides directly into surface waters of the state of Washington. Washington Department of Health (DOH) joined DOE's permit on a statewide basis. Entities wishing to conduct mosquito larvae control (mosquito control districts, municipalities, school districts, counties, public agencies, home owner associations, private firms, farms, etc.) may apply for coverage under DOH's permit. Once approved for coverage under DOH's permit, entities are responsible for meeting all requirements of Integrated Pest Management (IPM) and Best Management Practices (BMP) defined in DOE's general permit. Among other things, these include mosquito habitat reduction, monitoring, record keeping, and judicious use of pesticides. Individuals and entities operating under the NPDES general permit's conditions are protected from third party lawsuits filed under the federal Clean Water Act. Entities seeking coverage under the DOH permit may do so online at <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Permit.html>

Larvicide ingredients. In Washington State, mosquito larvicides registered by WSDA and permitted by DOE contain several active ingredients: methoprene, an insect growth regulator; bacterial preparations of *Bacillus thuringiensis*; monomolecular surface films; surface oils, and, under special circumstances (public health emergency or pesticide resistance), organophosphates malathion and temephos. Although these ingredients have relatively low toxicity to mammals, they have

varying degrees of greater toxicity to fish and other aquatic life.

Home and garden use. One exception to the requirement that mosquito larvicide applicators be certified by WSDA {WAC 16-228-1231(2)(I)} is for application of

pesticides not restricted by EPA and labeled and intended only for home and garden control (as opposed to commercial, public, or agricultural control) of mosquito larvae. The table below lists several products that currently qualify for this exemption.

Home and Gardens Products Exempted from Certified Applicator Requirement				
Product Name	EPA Reg. No.	Active Ingredient	Manufacturer	Physical
Mosquito Bits Quick Kill	6218-73	Bacillus thuringiensis subsp. israelensis	Summit Chemical	Granular
Mosquito Dunks	6218-47	Bacillus thuringiensis subsp. israelensis	Summit Chemical	Float
Zodiac Preventative Mosquito Control	2724-451	methoprene	Wellmark International	Granular
Pre-Strike	2724-451	methoprene	Wellmark International	Granular
Vet-Kem Mosquito Larvicide Granules Siphotrol	2724-451	methoprene	Wellmark International	Granular
Bayer Advanced Garden Mosquito Preventer Ready-to-Use Granules	62637-3-72155	methoprene	Bayer Advanced LLC	Granular

Product labels can be found at <http://www.kellysolutions.com/wa/pesticideindex.htm> .

More information. DOE's Aquatic Mosquito Control NPDES general permit is available on their web site or by calling one of DOE's regional offices: http://www.ecy.wa.gov/programs/wq/pesticides/final_pesticide_permits/mosquito/mosquito_index.html .

DOH WNV web site is located at <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/WNV.html> . Follow the link to [Permit For Aquatic Mosquito Control](#) .

Listing of local health districts can be found at <http://www.doh.wa.gov/LHJMap/LHJMap.htm> .

WSDA pesticide applicator certification information is available at 1-877-301-4555 and on their web site:

<http://agr.wa.gov/PestFert/LicensingEd/Licensing.htm>

WSU's pesticide education and applicator training program is available at county WSU Cooperative Extension Offices and at the WSU Pesticide Education Program web site: <http://pep.wsu.edu/> . For courses on certification in Public Health Pest Control or Aquatic Pest Control (license categories for applying mosquito larvicides) contact Carol Ramsay: ramsay@wsu.edu .

The bottom line. Except for application of the home and garden products specified above, all other mosquito control larvicides

require applicators to be certified by WSDA and permitted by Department of Ecology (via Department of Health) under federal NPDES. DOE holds a NPDES general permit for Aquatic Mosquito Control. DOH joined that permit, and individuals or entities within Washington State may apply to join the DOH coverage. Because of the complexity of Best Management Practices and Integrated Pest Management required as conditions of the NPDES general permit, application of mosquito larvicides, other than those labeled and intended only for home and garden use, is best done by mosquito control professionals.

Mosquito Control Districts are authorized by Washington State Law under RCW 17.28. They are the best-equipped public entity to meet IPM and BMP conditions of DOE's Aquatic Mosquito Control NPDES general permit. They employ mosquito control professionals. Mosquito Control Districts are organized by and within counties. They must be approved by a vote of the county's residents falling within the proposed district's boundaries, which can be county-wide or smaller. Their operation is paid for through a special property tax levy. They have the right of "chemical trespass," meaning they can apply larvicides to private as well as public property in order to abate mosquitoes. It can take up to two years to form a mosquito control district, so counties are unlikely to create a new one for this coming mosquito season. Information on creating mosquito control districts is available at

<http://www.mrsc.org/subjects/governance/spd/mosquito.aspx>

Alternatives to mosquito control districts for public entities. If West Nile Virus commands enough public concern that public entities need to respond to public demand for mosquito control, two alternatives to mosquito control districts exist. The public entity can join the DOH/DOE general permit and begin mosquito abatement (assuming it has trained and licensed employees), or the public entity can engage a private pest control firm to undertake mosquito abatement. That firm must be permitted under the DOH/DOE NPDES permit. Unlike mosquito control districts, however, other public and private entities do not have the right of "chemical trespass," so they may only use larvicides on land they own or manage.

Adulticides. There are many pesticides registered for use on adult mosquitoes, although their use is not the preferred first line of approach to mosquito abatement. Nevertheless, use of adulticides does not require DOE permitting, because adulticides are not labeled or intended for aquatic use. Products are available for home, agricultural, and professional use. For applications of restricted use adulticides, WSDA pesticide applicator certification is required.