

Facts about Stormwater Control Structures and Mosquitoes



The Public Health/Mosquito Problem

- Stormwater control structures are designed to hold or convey water in a manner that is prone to creating stagnant water for a period of time. Mosquito larvae depend on stagnant water; their eggs may hatch within 4 days of being deposited. Biting mosquitoes have been found to transmit such diseases as West Nile Virus, Eastern Equine Encephalitis, and Zika. If mosquito populations are large enough and close to people, they can also create nuisance issues.

Who's Responsible?

- The owners of the property that construct the structure or the municipality that approves it is responsible for maintenance of the structure and the prevention of mosquito breeding. Refer to the conditions of the stormwater permit for the entity responsible.

Pro-active Design of Structures

- Conscientious planning that employs both mosquito habitat reduction (or elimination) and maintenance plans can prevent mosquito production. This can save manpower, reduce pesticide use and thus save money in the long term.

Monitoring and Maintenance

- Routine and timely maintenance of structures is crucial for preventing mosquito breeding. If neglected, even structures designed to prevent mosquitoes may become significant breeding sites.

Types of Stormwater Control Structures and Mosquito Control:

Dry Retention Basins

- Design basins that hold stagnant water less than 72 hours.
- Use hydraulic grades and gravity that allow water to flow through structures.
- Monitor discharge ports to prevent clogging by sediment and debris.

Wet Ponds

- Design ponds to hold water 6-8 feet deep. Deep ponds promote aquatic predators of mosquito larvae.
- Steep banks should be incorporated to help prevent shoreline vegetation, such as cattails, which provide habitat for mosquito larvae.
- Maintain deep pools by dredging.
- Physically remove shoreline vegetation regularly.

Constructed Wetlands

- Design and maintain wetlands with water depth greater than 4 feet to limit the spread of cattails and promote mosquito predators.
- Maintain a variety of vegetation within wetland.

Below-ground catch basins and vaults

- Design basins that hold water less than 72 hours or have flowing water.
- Cover basins/vaults with tight sealing permeable material that prevents mosquitoes from laying eggs.
- Maintain basins and vaults routinely by removing debris and maintaining covers.
- Do not allow grass clippings to enter basins (provides nutrients for larvae.)

Larval Mosquito Control

- If mosquito larvae are found in a structure, pesticides such as naturally occurring *Bacillus thuringiensis israeliensis* (Bti) may be applied by a PA licensed pesticide applicator (regulated by PA Dept. of Agriculture.)

Regulations and Responsibilities

For additional information see:

PA Code Title 25 Environmental Protection, Chapter 243. Nuisances

- Section 243.12 Stagnant Water states: *A person may not maintain or permit to be maintained, a pond, privy vault, cesspool, well, cistern, rain barrel or other receptacle containing water unless the receptacle is constructed or maintained in a manner to prevent the breeding of mosquitoes.*

<http://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/025/cha/pter243/s243.12.html&d=reduce>

-EPA now requires an NPDES permit for pesticides used in mosquito control:

<https://www.epa.gov/npdes/pesticide-permitting>

Resources/Websites

- PA DEP Website (with county contacts): <http://www.depgis.state.pa.us/WNV/index.html>
- <https://www.cdc.gov/nceh/ehs/docs/factsheets/stormwater-factsheet.pdf>
- <https://www.epa.gov/npdes/stormwater-maintenance#mosquito>



Antonio Alvarado, MS

Lancaster-Lebanon Mosquito-borne Disease Control Program Coordinator

717-277-5275 x 112

antonio.alvarado@ccd.org

<https://www.lccd.org/mosquito-borne-disease-program>