

DELAWARE MOSQUITO CONTROL SECTION

FAQ #12 -- Describe the Mosquito Control Section. Where are you housed? How many people work for you? Where do you work? What do you do in the winter? Who do you work with as your partners? What's your budget? Essentially, just who are you people?

The Mosquito Control Section is part of DNREC's **Division of Fish and Wildlife**, and has a staff of **21 people working year-around** to deal with Delaware's mosquito problems; additionally, we hire **about 15 seasonal employees** each year to meet our increased seasonal workloads, usually for the period from April into October, with peak need from May through September. Our year-around staff of 21 consists of a Section administrator, 2 program managers, 3 administrative support professionals, 6 environmental scientists, a field crew supervisor, 5 heavy equipment operators, an automotive/equipment mechanic, and 2 long-term biological aides. Our 15 summer seasonals are primarily used as field inspectors, mosquito trap collectors, or members of our virus surveillance teams. One of our seasonals works as the Section's taxonomist/counter for sorting and identifying light trap collections, stationed at the University of Delaware's Department of Entomology and Wildlife Ecology on the Newark campus. [Sidebar note – during the early days of organized mosquito control in Delaware going back to the 1930's, the Civilian Conservation Corps employed hundreds of young men in mosquito control work, to dig by hand and primitive machinery the State's parallel-grid-ditch network, the remnants of which are still quite visible over tens of thousands of acres of our tidal wetlands.]

Aerial spraying of insecticides, whether done by fixed-wing aircraft or helicopter, is all contractually performed by **private professional aerial applicators**, who throughout our control season are available on short-term standby basis to meet our spraying needs. When and where to perform aerial spraying and what products/rates to use are solely the calls of our Mosquito Control staff, and as such we do each spraying's technical planning and follow-up for quality control checks, as well as provide general oversight throughout each spray operation. While these private aerial applicators are not actually part of our Section staff, by the nature of what we must do, we have very close working relationships and interactions with our contractors at all times. All truck-mounted spraying (ground "fogging") is directly performed by Mosquito Control staff.

The Section has three facilities from which we conduct our statewide program. There is an **administrative H.Q. office in Dover** at DNREC's headquarters (739-9917); a **field operations center for New Castle County and northwestern Kent County in Glasgow** (836-2555); and a **field operations center for the remainder Kent County and all of Sussex County in Milford** (422-1512).

Mosquito Control Section personnel have **statewide responsibilities** for controlling mosquitoes wherever they present problems to people, in urban, suburban or rural settings. Our staff work up-and-down the state from Wilmington to Odessa to

Smyrna to Dover to Milford to Georgetown to Selbyville; and across-the-state from New Castle to Hockessin, Delaware City to Newark, Port Penn to Middletown, Kitts Hummock to Hartly, Bowers Beach to Felton, Slaughter Beach to Harrington, Lewes to Greenwood, Rehoboth Beach to Bridgeville, Bethany Beach to Seaford, and Fenwick Island to Laurel. Because of the millions of summer vacationers, visitors and tourists coming to Delaware's beach resort communities, coupled with lots of nearby prime salt marsh breeding habitats, the **coastal strip from Lewes to Fenwick Island** and **areas around the Inland Bays** are given special attention, but this doesn't come at undue expense for meeting the statewide control needs of our many other constituents too. Special attention is also given to mosquito control on **Delaware's two National Wildlife Refuges**, with mosquitoes produced from **Bombay Hook National Wildlife Refuge** capable of causing problems for people all along the eastern side of the Greater Dover-Smyrna area; and mosquitoes produced from **Prime Hook National Wildlife Refuge** capable of doing the same for people in the Milford-Milton-Lewes area, including the bayfront communities from Slaughter Beach to Broadkill Beach. [Indeed, it is only by our having excellent working relationships and cooperation with the **U.S. Fish and Wildlife Service** that the Section is able control Refuge-produced mosquitoes while the skeeters are still on-Refuge (at least for the most part), much to the relief of residents and visitors up to several miles away from a Refuge's borders.] Overall, our "Mosquito Control District" encompasses about **2000 square miles**, providing control services to about **850,000 residents** and **millions of summer visitors**.

While the Mosquito Control Section's active field surveillance/monitoring and insecticide treatment programs last for about 8 months, from around mid-March into mid-November, **the Section continues to work hard year-around** doing a variety of tasks. For example, source reduction work, such as Open Marsh Water Management (OMWM) and coastal impoundment management in particular (as described in FAQ #4), occurs all year long, weather permitting. **Wetland habitat restoration or enhancement projects**, often done in collaboration with our colleagues in the Division's **Wildlife** or **Fisheries Sections**, also occur throughout the year. The 4 "winter months" from mid-November through mid-March are also the time of year when the Section is able to accomplish a lot of tasks that we simply don't have the luxury to get done during the "heat" of our annual "skeeter wars" – e.g. this is time of year for short-term and long-term strategic planning, implementing facilities improvements or upgrades, taking inventories, making major machinery repairs, doing routine maintenance to insecticide spray gear or scientific equipment, performing research analyses, writing reports, tending to personnel matters, preparing permit applications, drafting contracts, attending scientific/technical meetings, making budget projections, etc. We often find that our spring woodland-pool control program, which kicks-off in mid-March, is all too soon upon us once again. There truly is no "downtime" for us throughout the year.

In carrying out our mosquito control activities, the Mosquito Control Section often comes in contact with, or has the opportunity to work with, many other programs within the Delaware Department of Natural Resources and Environmental Control (DNREC), not just within our own Division of Fish and Wildlife (DFW), but within all the other DNREC Divisions too. For instance, the Mosquito Control Section is the lead DNREC agency for

the Department's "**Northern Delaware Wetlands Rehabilitation Program**" (NDWRP), in which the Department has undertaken a long-term commitment to try to restore over 10,000 acres of degraded, urbanized coastal wetlands at over 30 sites along the lower Christina-Delaware River corridor. Besides working with our colleagues in the Division and throughout DNREC too in undertaking this NDWRP work, for many NDWRP project planning and construction tasks we also work closely with the **New Castle Conservation District**.

We are close partners with our Division's **Wildlife Section** in undertaking **Phragmites control** projects, and with our **Wildlife and Fisheries Sections** for **coastal impoundment management**. In going about our day-to-day business, we also routinely interact with our Division's **Natural Heritage Program** and our **Non-Game and Endangered Species Program**, to help ensure that our control activities do not adversely impact species or habitats of special concern, and wherever possible in our marsh management work that steps are taken to protect or enhance **biodiversity**.

In undertaking our wetlands management work, we interact with DNREC's **Division of Air and Waste Management (DAWM)** for marsh restoration projects in association with the Department's undertaking **Superfund site restoration projects**, to help the DAWM achieve resource compensation for third party-caused natural resource injuries. We also interact with the DAWM in regard to trying to regulate or better control problems that are caused by **scrap tire piles** – tire piles providing prolific mosquito-breeding habitat is but one of their several problems.

We interact with DNREC's **Division of Soil and Water Conservation (DSWC)** regarding the design and management of **stormwater management basins**, to try to lessen mosquito production problems while still retaining other good attributes of these desirable man-made water quality features. Mosquito Control also works collaboratively within the limit of our discretionary resources with the DSWC's floodwater relief/drainage program, to help the DSWC achieve for site-specific projects its **floodwater relief/drainage** objectives. Such work is often done without primarily or directly serving any mosquito control purposes, but rather we assist the DSWC due to the availability of our unique heavy marsh equipment and our equipment operator expertise. Nothing that we do in collaboration with the DSWC in regard to any floodwater relief/drainage projects is done without the DSWC first securing all necessary landowner permission/cooperation, plus acquiring any needed wetlands or subaqueous lands regulatory permits. We also interact with the DSWC's **Delaware Coastal Management Program** and its **Delaware National Estuarine Research Reserve** about a variety of coastal zone policy issues and operational practices.

Mosquito Control works closely with DNREC archaeologists in the **Division of Parks and Recreation (DPR)** to help ensure that our excavation activities don't jeopardize **historical or cultural resources**, and that anything we might find actually adds to our knowledge of this resource base.

The Mosquito Control Section also works closely with DNREC's **Division of Water Resources (DWR), Wetlands and Subaqueous Lands Section**, in regard to **wetlands permitting needs** and a host of associated wetlands regulatory issues (including wetlands protection initiatives), and in regard to **water quality** concerns.

For purposes of public information and education and media outreach, we work closely with DNREC's **Public Affairs Office**.

Besides interacting with our sister agencies within DNREC, we also have interactions with several other state agencies. For example, in regard to **pesticide use and state regulatory issues**, we interact with the **Delaware Department of Agriculture's Pesticide Compliance Section**. To help avoid any problems with our spray operations affecting **commercial beekeeping operations**, the Mosquito Control Section has developed a set of procedures and protocols with the **Delaware Department of Agriculture (State Apiarist)** and the **Delaware Beekeepers Association**, designed to prevent or alleviate potential problems.

As part of the Mosquito Control Section's virus surveillance/monitoring program, the Section contracts and closely works with the **Delaware Division of Public Health Laboratory** for analyses of sentinel chicken blood samples and dead wild bird specimens that we collect and submit, plus for analyses of any mosquito collections ("pools") that we might collect and submit. To help the State get a better handle on dealing with West Nile virus problems and issues, the Mosquito Control Section is an active partner in the State's tri-Department "**West Nile Virus Work Group**," which besides DNREC also involves the **Department of Health and Social Services (Division of Public Health, Epidemiology Branch)** and the **Department of Agriculture (State Veterinarian)**. To help address concerns about any possible human health or environmental non-target impacts of our insecticide use, we work closely with the **Division of Public Health's Environmental Health Evaluation Branch**.

Concerns about potential impacts to historical or cultural resources in our undertaking OMWM or wetlands restoration work also cause us to interface with the **Division of Historical and Cultural Affairs' State Historic Preservation Office (SHPO)**.

On the federal side, in addition to our interactions with the **U.S. Fish and Wildlife Service** that we already mentioned above (regarding mosquito control needs on our two National Wildlife Refuges), we also interact with the **Army Corps of Engineers** regarding mosquito control problems occurring on the Corps' **dredge disposal sites**. As mentioned in FAQ #4, all of our **Open Marsh Water Management (OMWM)** wetland alterations are done under regulatory oversight by the **Delaware Mosquito Control Advisory Committee (DMCAC)**, consisting of four federal agencies (**Army Corps of Engineers, U.S. Environmental Protection, U.S. Fish and Wildlife Service, National Marine Fisheries Service**), four DNREC agencies (**Division of Fish and Wildlife's Natural Heritage Program, Division of Water Resources' Wetlands and Subaqueous Lands Section, Division of Soil and Water Conservation's Delaware Coastal**

Management Program, Division of Parks and Recreation's Cultural and Historical Resources Section), and the State Historic Preservation Office (SHPO).

The Mosquito Control Section is a very active participant in the **American Mosquito Control Association (AMCA)**, which is a scientific/management organization of over 1600 professionals from hundreds of mosquito control programs around the country and world (from over 50 countries), academia, government, and industry. Through active participation in the AMCA, the Section has the opportunity for input and influence regarding national or regional issues with several federal agencies – e.g. **U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Department of Health and Human Services (Centers for Disease Control), and Department of Agriculture**. In regard to legislative issues, our participation in the AMCA also provides us with additional avenues of communication with Congress (primarily through AMCA-coordinated actions with our two Senators, our Representative, and their legislative aides), along with of course the access we have through the **Governor's Washington Office**. Besides interacting at the national level via the AMCA, the Mosquito Control Section is also a member program in the **Mid-Atlantic Mosquito Control Association (MAMCA)**, and we also interact with our colleagues in the **New Jersey Mosquito Control Association (NJMCA)**. Our professional staff are also members of other scientific organizations such as the **Society for Vector Ecology, the Estuarine Research Federation, and the Society of Wetland Scientists**.

In undertaking our control work, the Mosquito Control Section also has considerable interactions with the **private sector**, in that indeed this is our primary constituency (i.e. the public). Our Open Marsh Water Management (OMWM) projects are undertaken only after first having the permission and cooperation from the private landowners who own much of Delaware's coastal wetlands. In doing these OMWM projects, we have cooperatively worked on lands owned by **The Nature Conservancy** or by **Delaware Wildlands, Inc.**; and we have partnered with **Ducks Unlimited** for the support of other OMWM work and impoundment management projects too. Partnerships for some of our private lands restoration work have also been formed through auspices of the **U.S. Fish and Wildlife Service's Partners for Wildlife** program.

Depending upon available funding, the Mosquito Control Section also helps to plan, coordinate and participate in applied mosquito biology or mosquito control research projects with faculty or research associates of the **University of Delaware's Department of Entomology and Wildlife Ecology**. We also interact with faculty or research associates of the **University of Delaware's College of Marine and Earth Studies** for conducting applied research regarding wetlands ecology or management.

The Mosquito Control Section operates on an **annual General Fund budget** of about **\$2.0 million dollars per year**. For the past several years, we have also received about **\$100,000 per year in federal funds from the Centers for Disease Control** to help with WNV surveillance/monitoring, laboratory testing, and applied research. These federal funds have come to us via the **Division of Public Health's Epidemiology and Laboratory Capacity** annual grants that the DPH receives each year from the CDC. In

comparison to mosquito control programs in many other areas around the country, whether the comparison is done on a per capita basis or an areal basis, Delaware's statewide mosquito control program is one of the least expensive, and as such is apparently done quite frugally -- we feel that our approach delivers a very good return-on-investment for our citizens, while being accomplished in very effective and environmentally-compatible manner.

If you have further questions about the Mosquito Control Section, please call our **administrative headquarters in Dover** at **739-9917**.