NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for Start – 31 May 2013, CDC Week 20-22

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Center for Vector Biology

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds,
funding from the NJ State Mosquito Control Commission and with the participation of the 21 county mosquito control agencies of New Jersey.

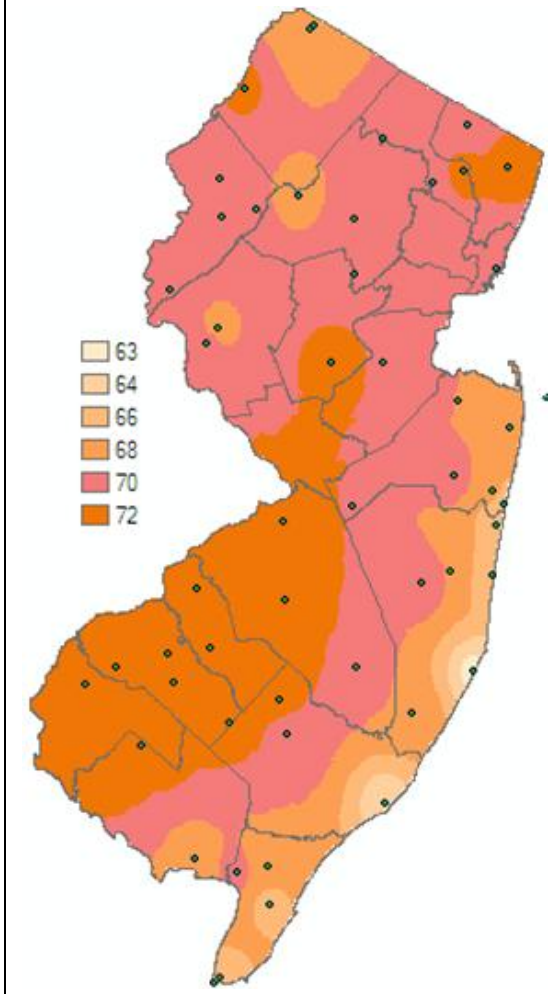
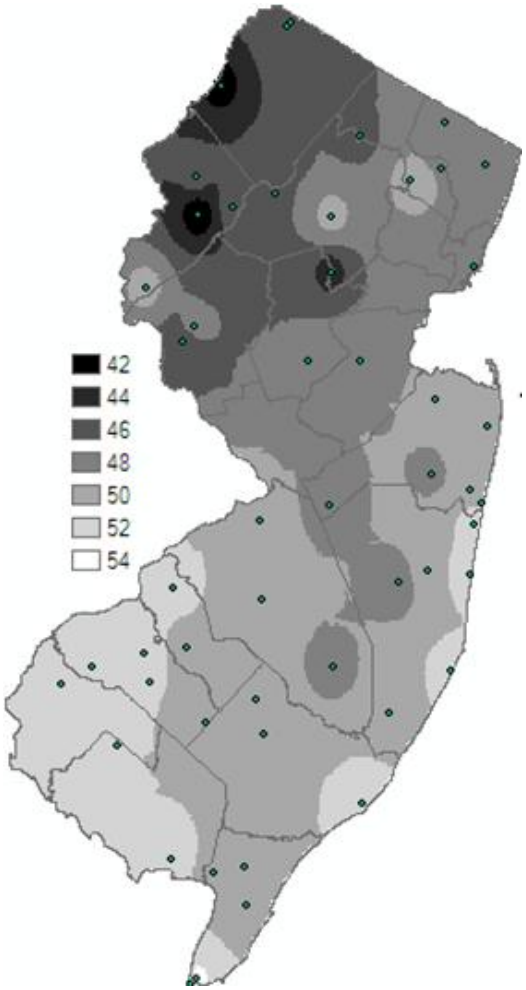
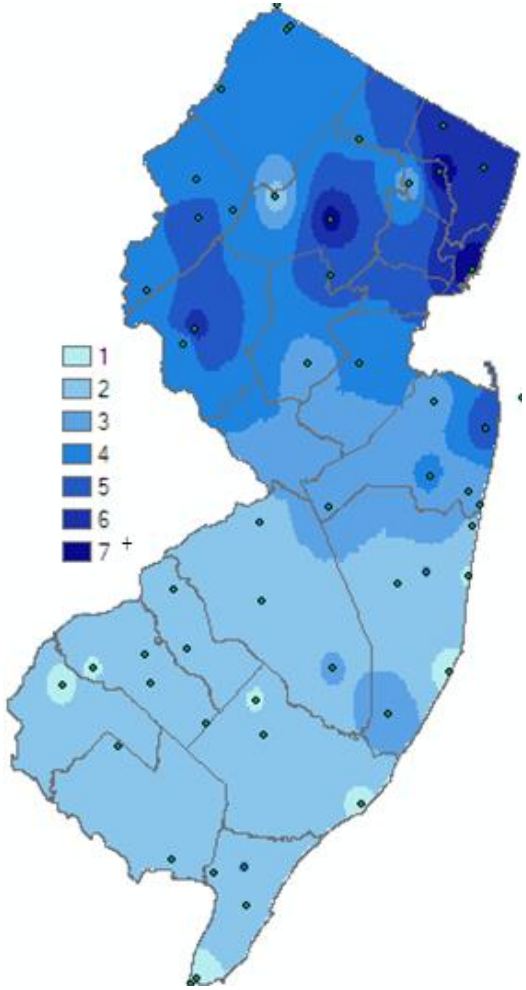
Summary Table – Week 22

	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.07**	**2.15**	**0**	**0.12**	**4.16**	**0**	**0.00**	**0.34**	**0**	**0.00**	**0.10**	**0**
Coastal	**0.02**	**2.90**	**0**	**0.09**	**4.48**	**0**	**0.00**	**0.30**	**0**	**0.00**	**4.41**	**0**
Delaware Bayshore	**0.00**	**2.95**	**0**	**0.00**	**9.25**	**0**	**0.00**	**2.19**	**0**	**0.00**	**8.43**	**0**
Delaware River Basin	**0.00**	**4.50**	**0**	**0.00**	**3.09**	**0**	**0.00**	**0.08**	**0**	**0.00**	**0.00**	**0**
New York Metro	**1.03**	**3.57**	**0**	**0.87**	**5.79**	**0**	**0.00**	**0.12**	**0**	**0.17**	**0.84**	**0**
North Central Rural	**0.00**	**0.24**	**0**	**0.00**	**1.08**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.00**	**6.72**	**0**	**0.09**	**1.04**	**0**	**0.00**	**0.02**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.64**	**5.35**	**0**	**2.07**	**4.69**	**0**	**0.04**	**0.71**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.00**	**1.40**	**0**	**0.03**	**2.80**	**0**	**0.00**	**0.25**	**0**	**0.00**	**0.04**	**0**
Suburban Corridor	**0.66**	**2.66**	**0**	**0.94**	**2.49**	**0**	**0.00**	**0.21**	**0**	**0.00**	**0.00**	**0**

*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference by 3 (orange) and greater than 150% increase by 4 (red). White cells in the increase column denote increases from an historic zero and thus no value can be appropriately given. nd=no data reported.

State Summary: After a warm April with some early-season species on the wing, May had cooler temperatures, slowing down emergence. Recent weather has been much warmer and populations are expected to respond. For the four groups of pestiferous species, no significant populations are currently noted. *Coquillettidia perturbans* has begun to emerge in the Philadelphia Metropolitan region.

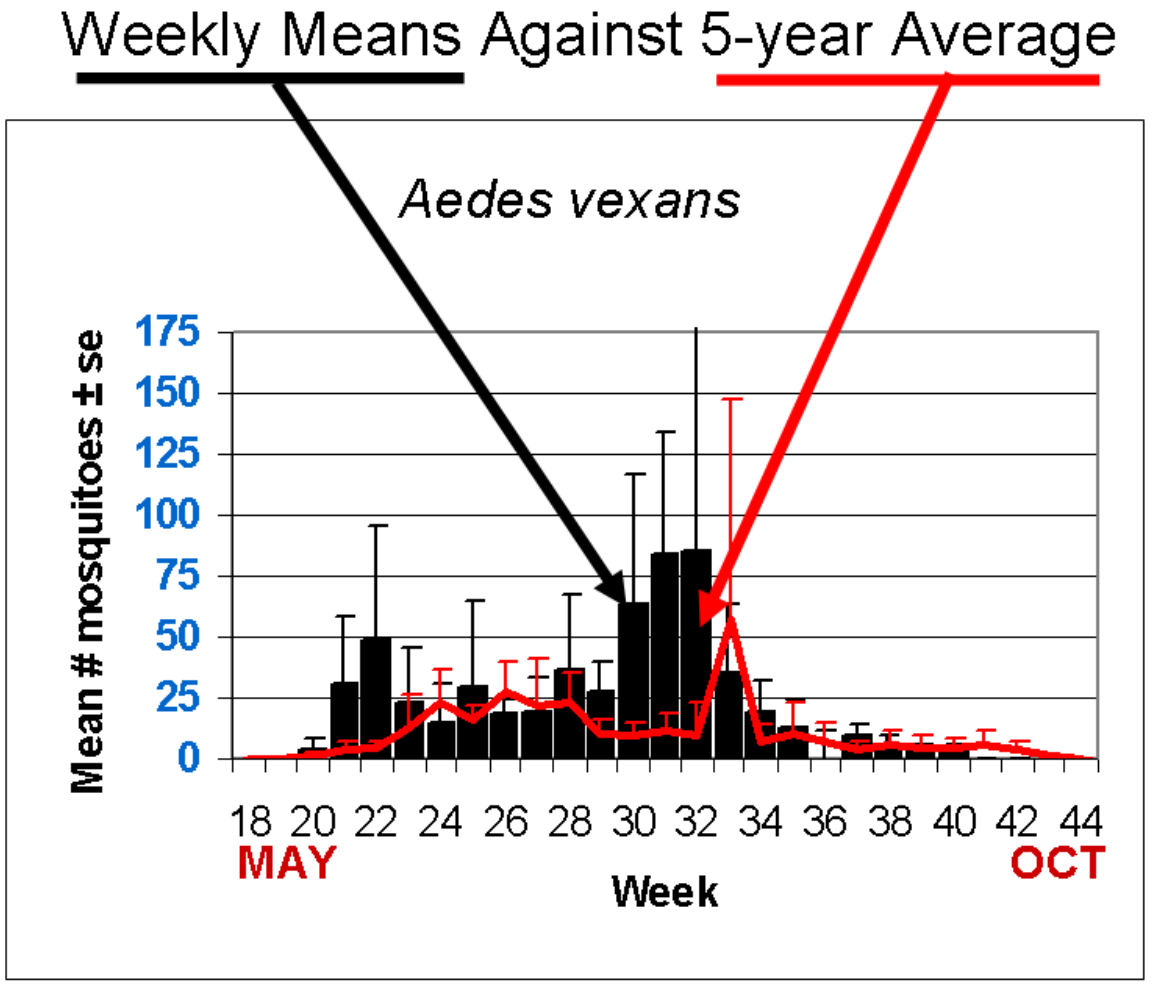
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum and minimum temperature and total precipitation for May, 2013 in New Jersey. Data points are from about 52 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

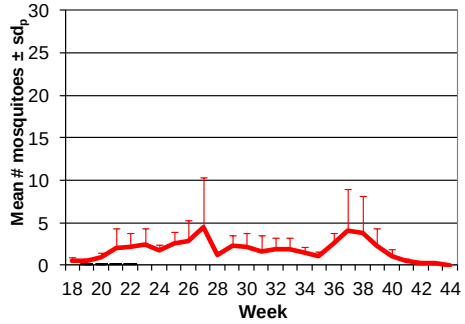
NJ Weather & Climate NETWORK ONJSC at Rutgers University

The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example of one graph from one species within one region. The bar plot show the average number of mosquitoes per trap within the region (weekly means) and line plots show the historical trend as the average number of mosquitoes from the previous 5 years (5-year average). In general, historical data are running means from the previous 5 years, but on occasion, will include data from fewer years. Adjustments are made to account for year discrepancies. Data for this week are from Camden, Essex, Monmouth, Salem, Union and Warren counties. Data for the previous week(s) are from Bergen, Burlington, Camden, Cape May, Essex, Monmouth, Morris, Ocean, Salem, Union and Warren counties. Counties are continuing to put out light traps for the season and be fully deployed by June.

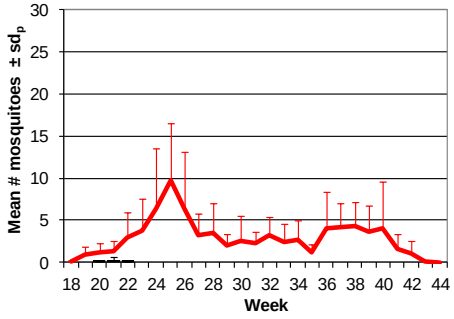


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

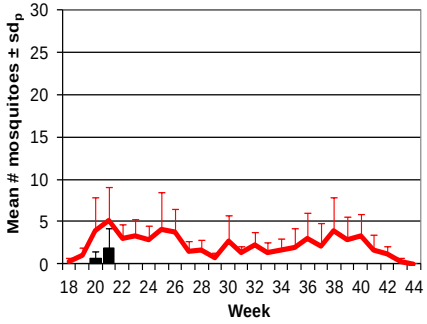
Agricultural



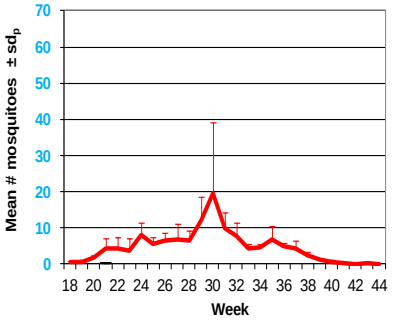
Coastal



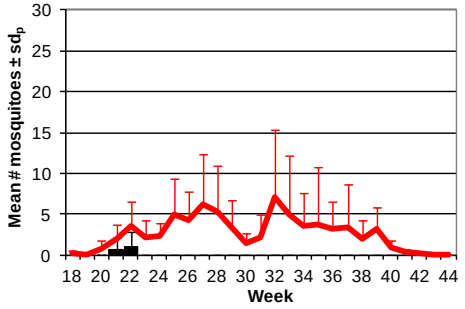
Delaware Bayshore



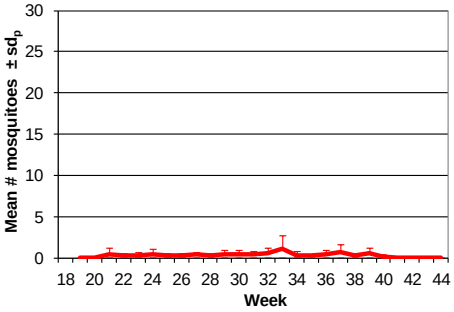
Delaware River Basin



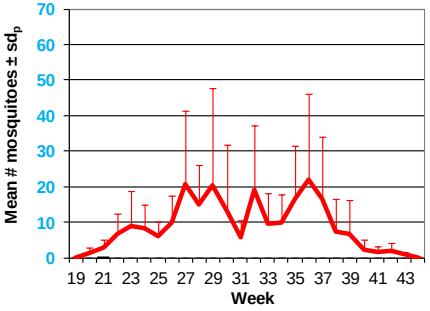
New York Metro



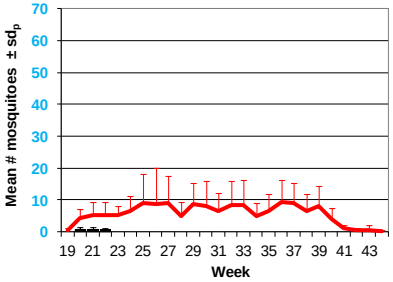
North Central Rural



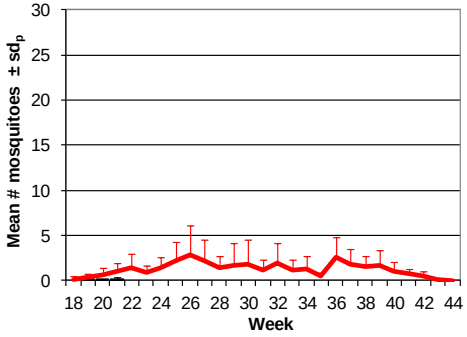
Northwestern Rural



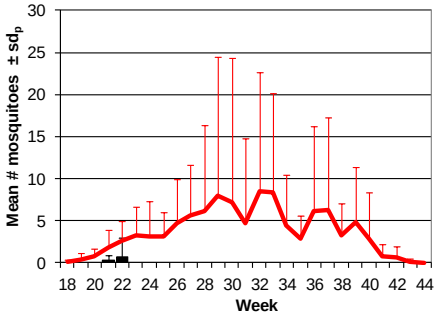
Philadelphia Metro



Pinelands



Suburban Corridor

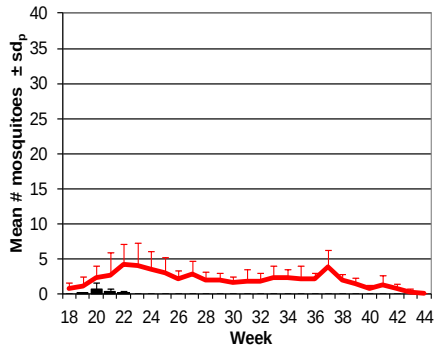


Comments

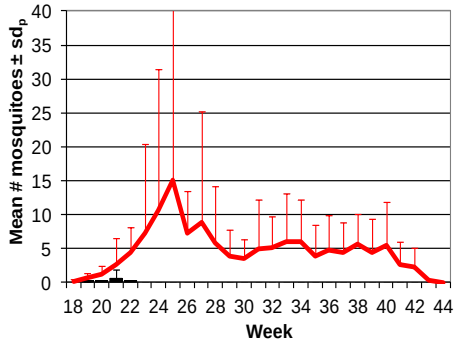
Aedes vexans populations have so far been reported below historical levels, as expected with cooler temperatures in recent weeks. However, not only have warmer temperatures started in the past week, but also significant rainfall. These two critical factors for floodwater species should result in a jump in local populations, particularly for those areas in the Northern half of New Jersey, where several inches of rainfall occurred. *Aedes vexans* is a vector of dog heartworm.

Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

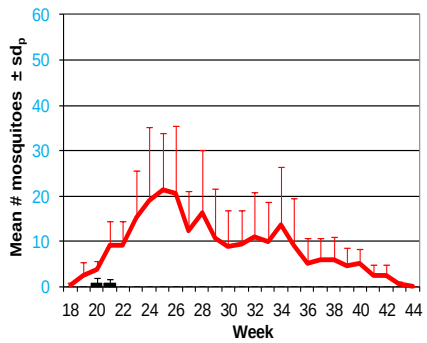
Agricultural



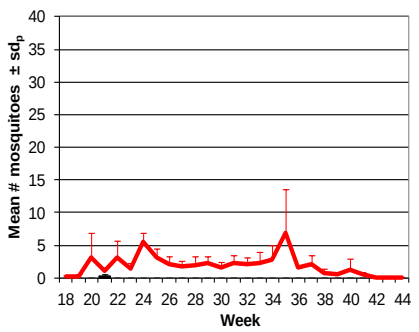
Coastal



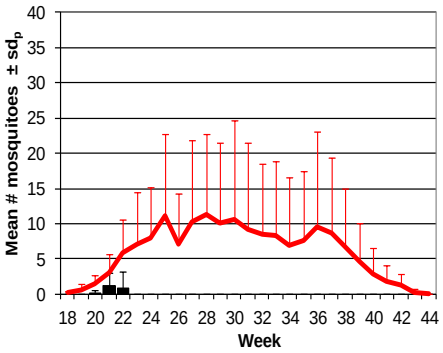
Delaware Bayshore



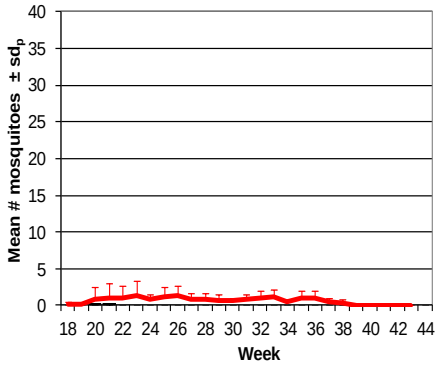
Delaware River Basin



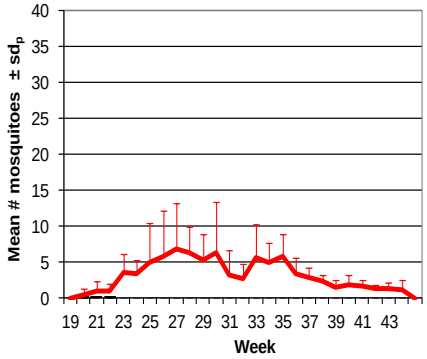
New York Metro



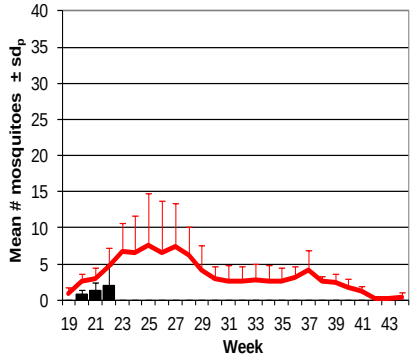
North Central Rural



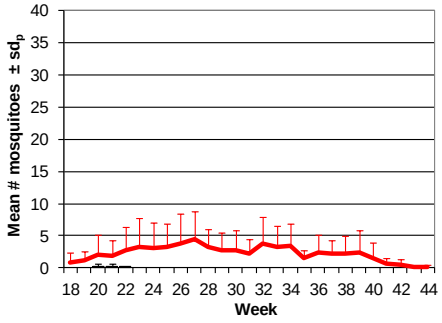
Northwestern Rural



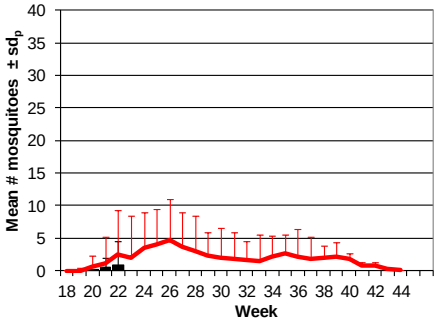
Philadelphia Metro



Pinelands



Suburban Corridor

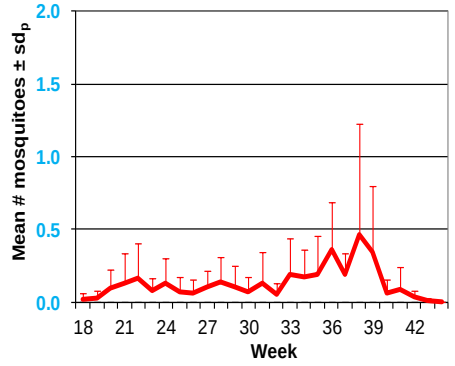


Comments

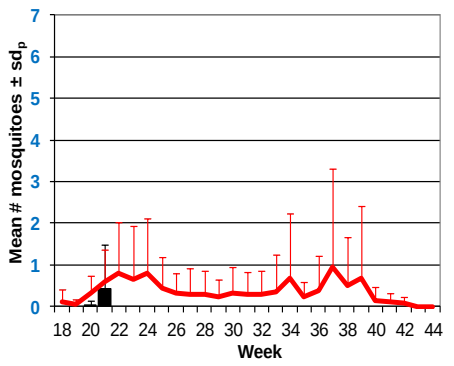
Culex Mix is composed of *Culex pipiens*, *Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. *Culex* populations are trending at levels currently below or near historical values. *Culex* species play significant roles in the amplification cycle of flaviviruses such as West Nile and St. Louis encephalitis and their presence can be a driving force for control agencies. They are also well-attracted to light traps and account for significant portions of the captured populations.

Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

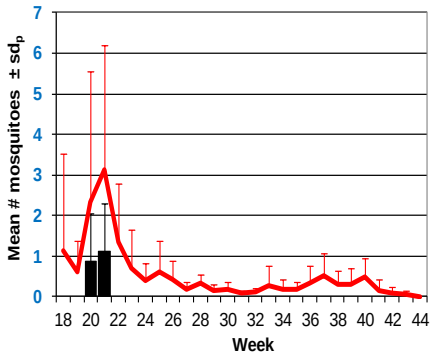
Agricultural



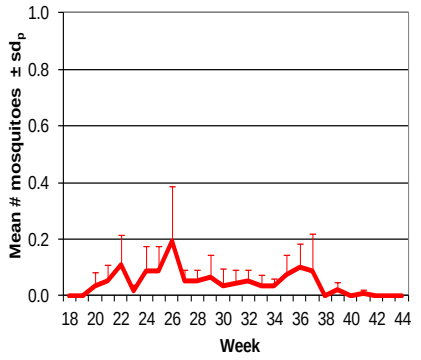
Coastal



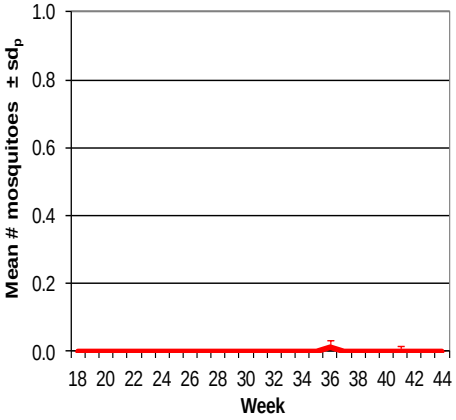
Delaware Bayshore



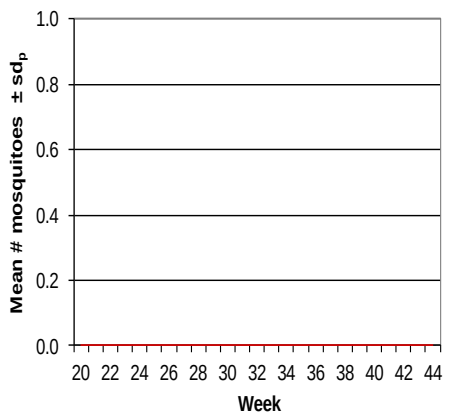
Delaware River Basin



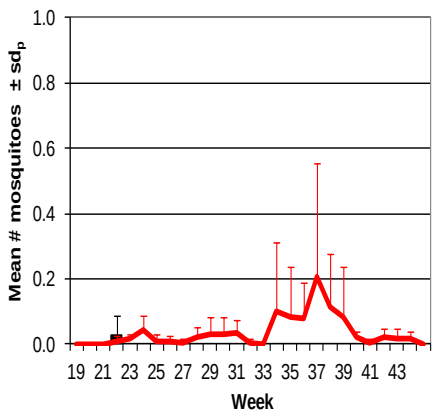
New York Metro



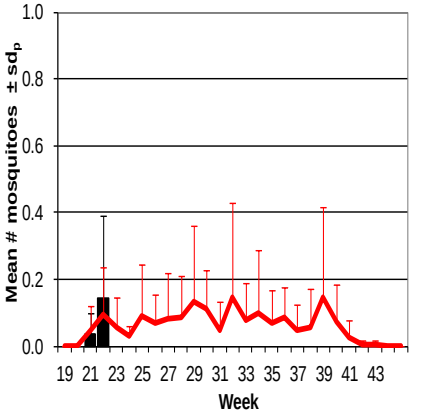
North Central Rural



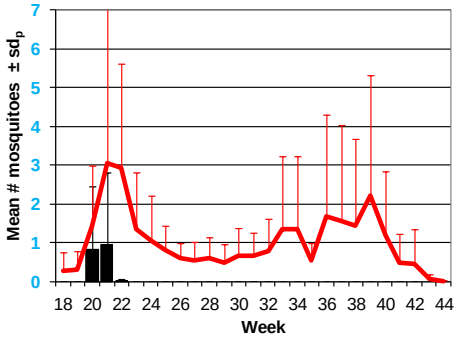
Northwestern Rural



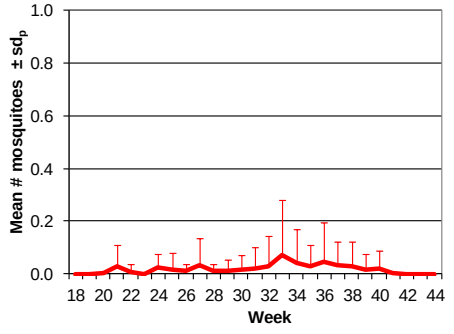
Philadelphia Metro



Pinelands



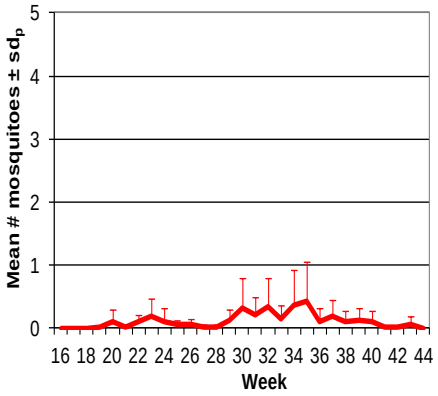
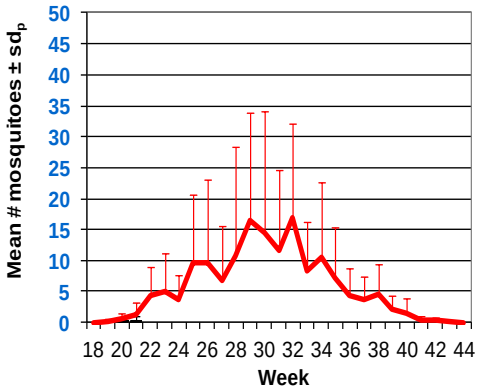
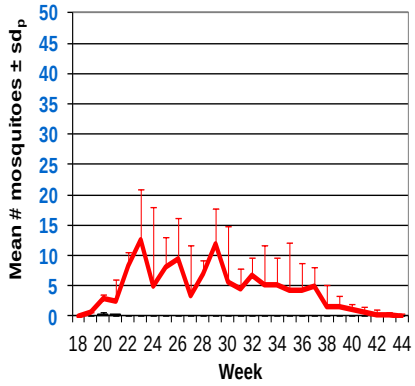
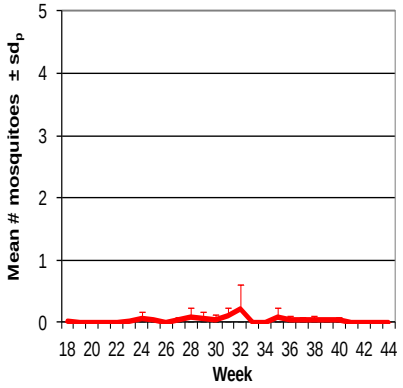
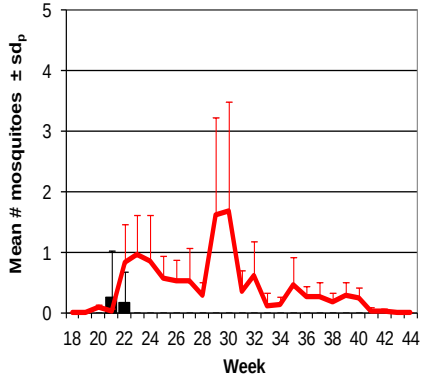
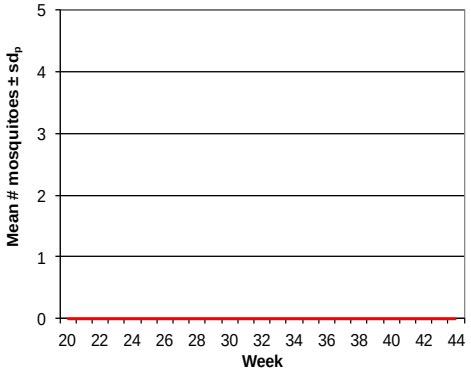
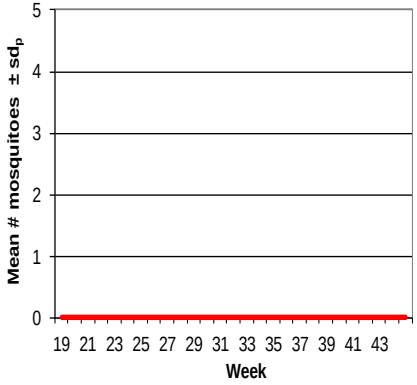
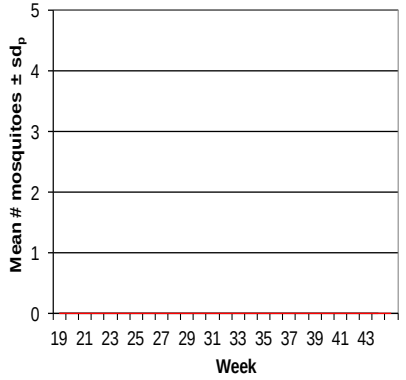
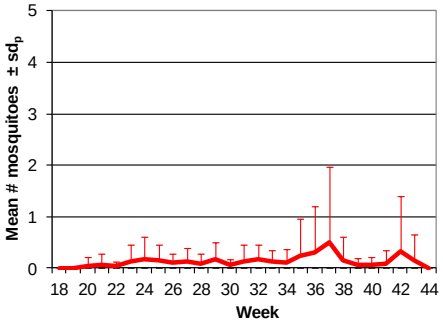
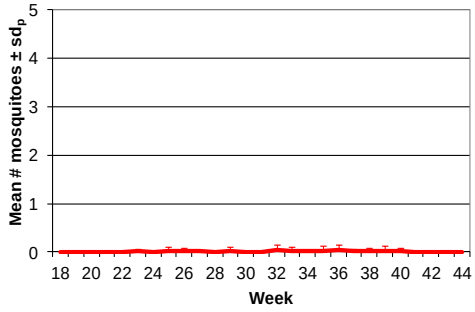
Suburban Corridor



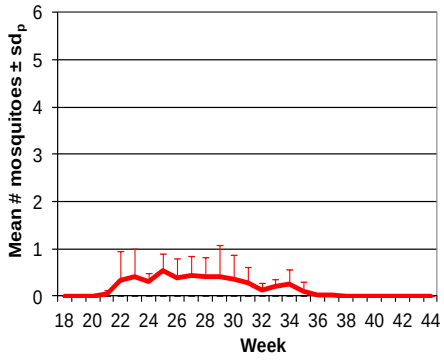
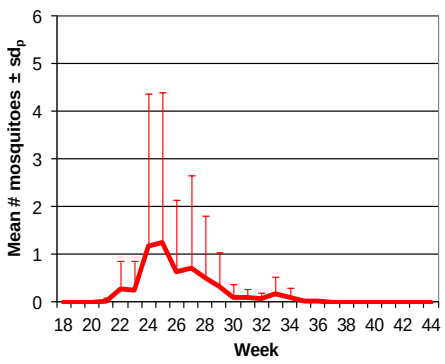
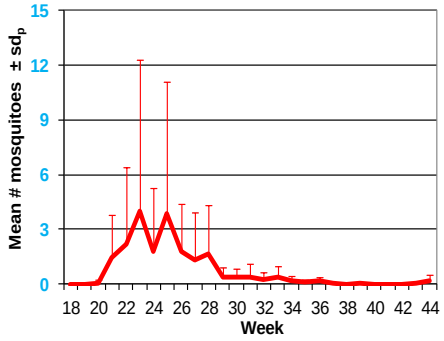
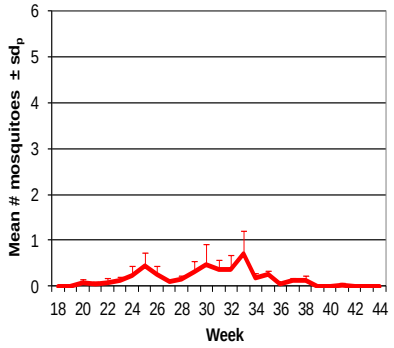
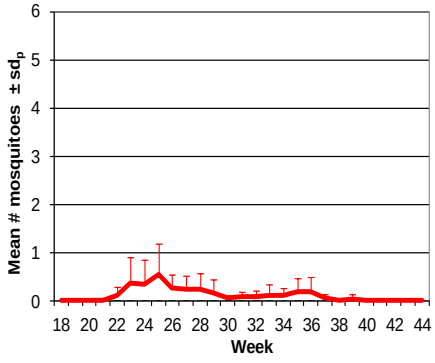
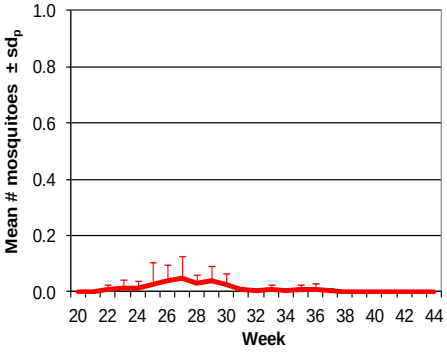
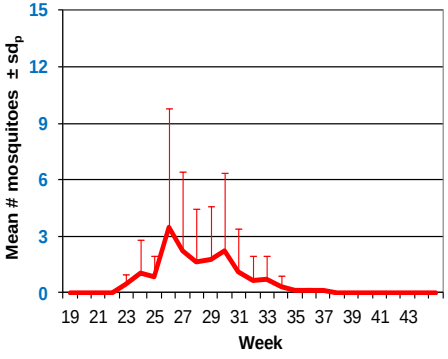
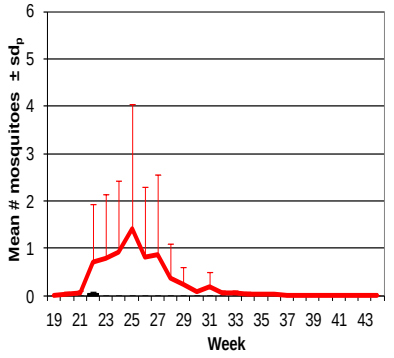
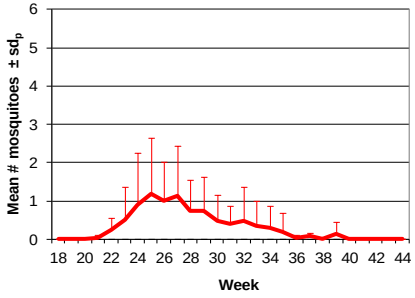
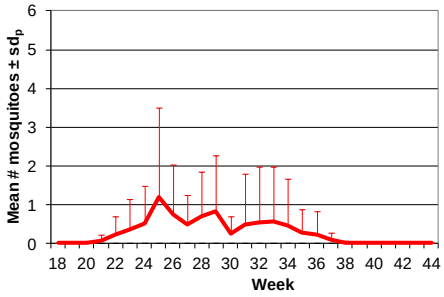
Comments

Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. This species overwinters as larvae and the initial overwintering population levels and survival will contribute to the number of adults that emerge in the spring. Last year's populations in light traps ended with elevated number in the Delaware Bayshore region and levels about at historical values in the Pinelands, both areas of significant habitat. Resting box populations, however, were far lower than light trap populations. In both regions, currently populations appear to be either within or at lower levels of historical values (given sd ranges).

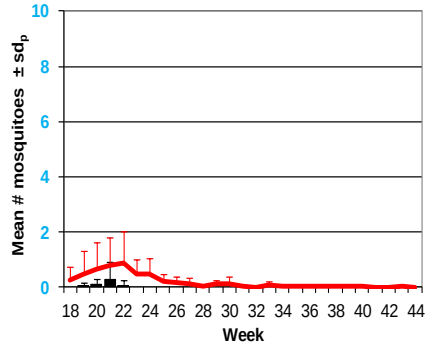
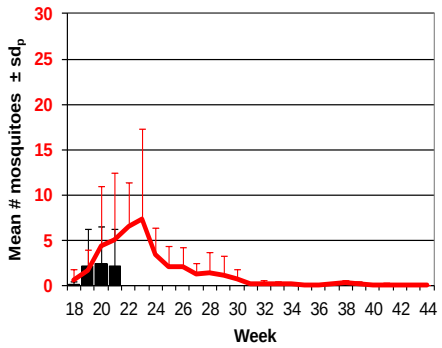
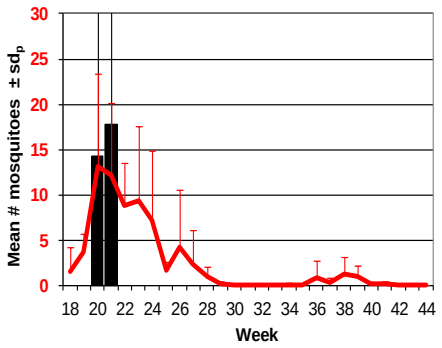
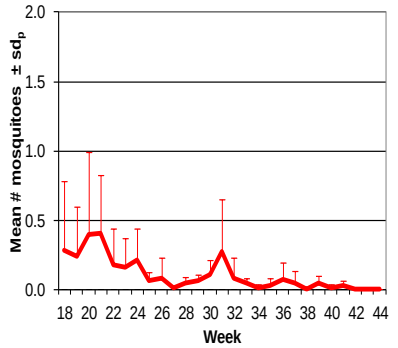
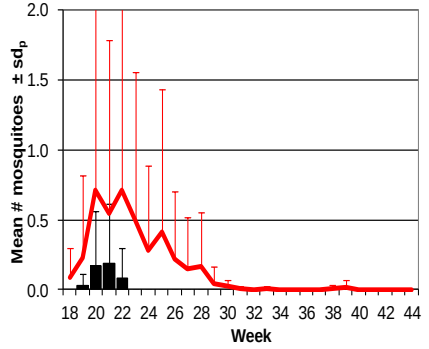
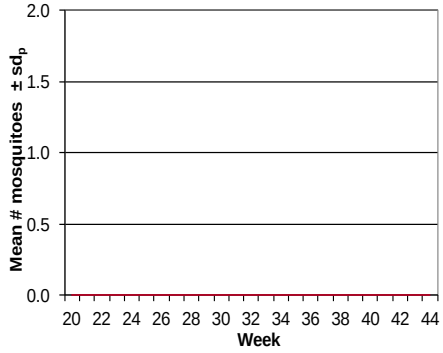
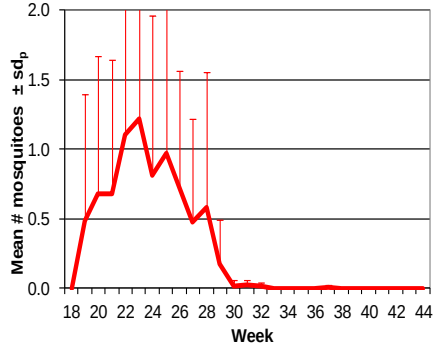
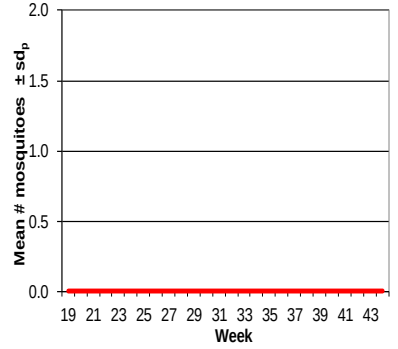
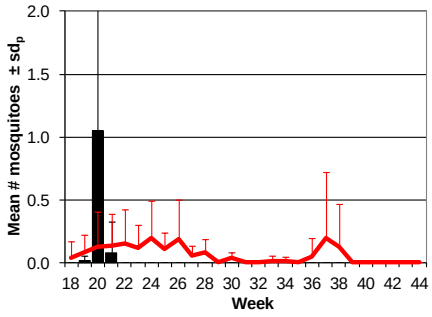
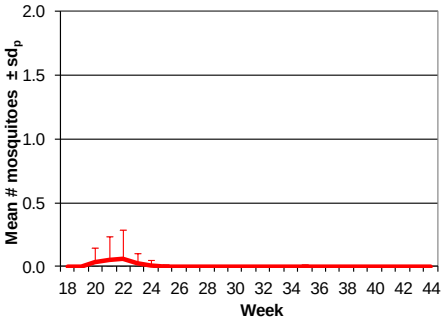
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. Emergence has begun at Coastal, Delaware Bayshore and the New York Metropolitan regions. These populations have been significant in past years and were the driving force for the establishment of mosquito control in New Jersey 100 years ago. Today, application of open marsh water management for the past several decades has resulted in decreased populations in several areas such that individual cohort emergences are often discernible. This species has been implicated in the coastal cases of eastern equine encephalitis.	

Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation. This species has been implicated in inland cases of eastern equine encephalitis. Currently, only the Philadelphia Metropolitan region is reporting *Coq. perturbans*, although it is still early for this mid-season species.	

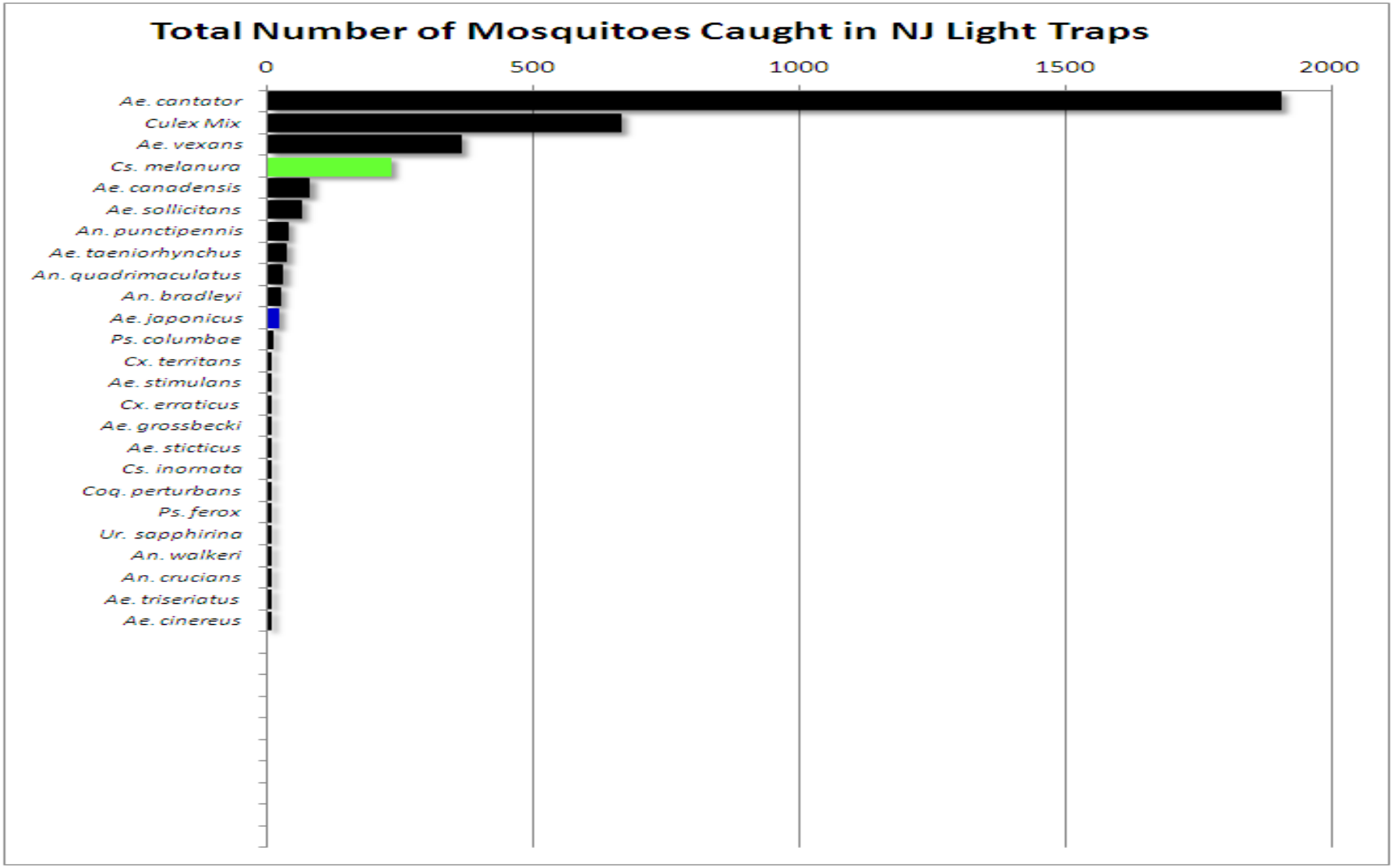
Aedes cantator
Multivoltine Aedine (*Ae. sollicitans* Type)

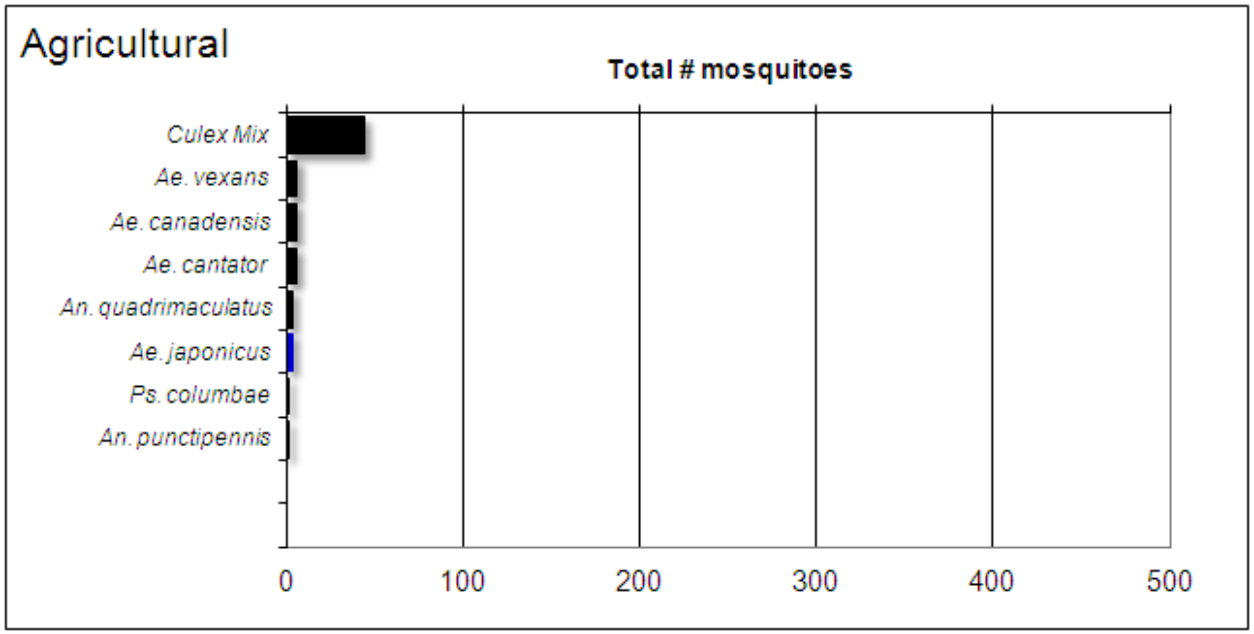
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes cantator* is a salt floodwater species. Occupying similar habitat, *Ae. cantator* finds its niche by emerging earlier than *Ae. sollicitans*. Significant populations have been seen earlier this year in the Pinelands region while populations elsewhere are either at historical values (Coastal, Delaware Bayshore) or trending lower than historical values (New York Metropolitan). As a facultative halophile, this species is associated with salt and brackish water of coastal regions but can be endure various amounts of salinity. It is also found in a selected area of the Northwestern Rural region, where saline ponds of a textile factory provide suitable habitat.	

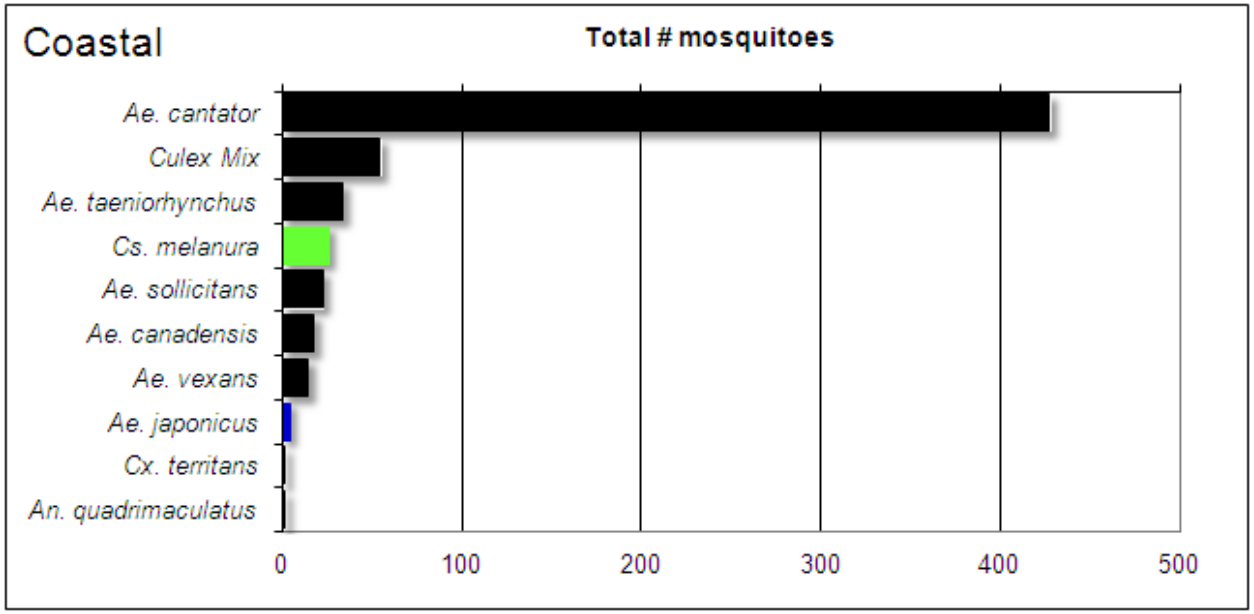
WNV *EEE*

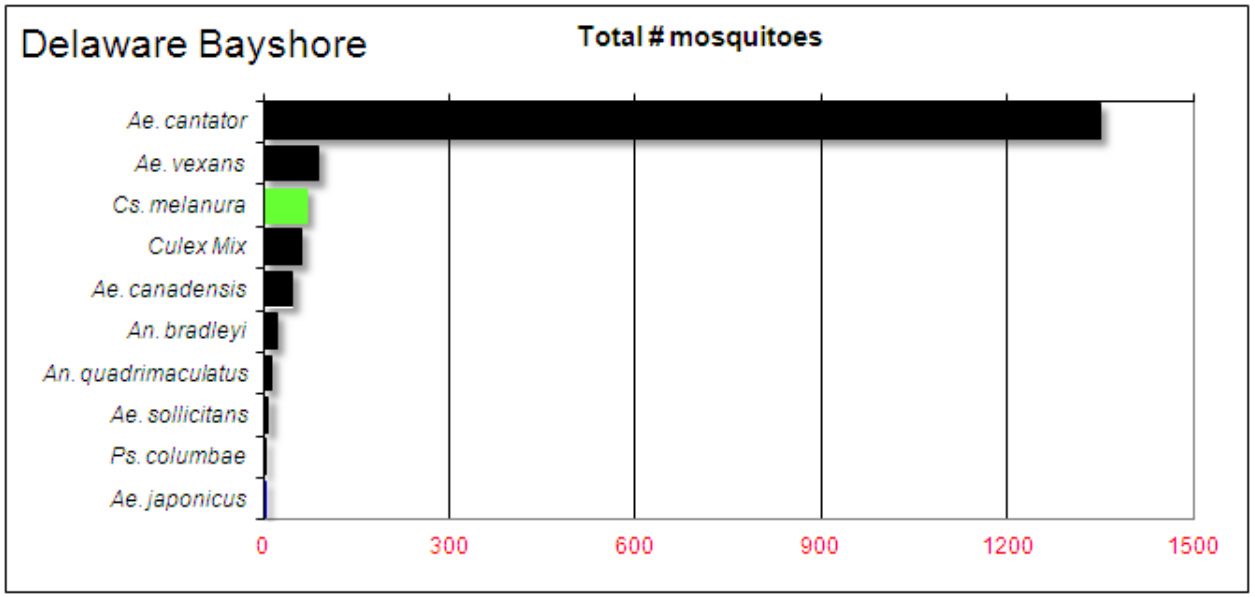
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

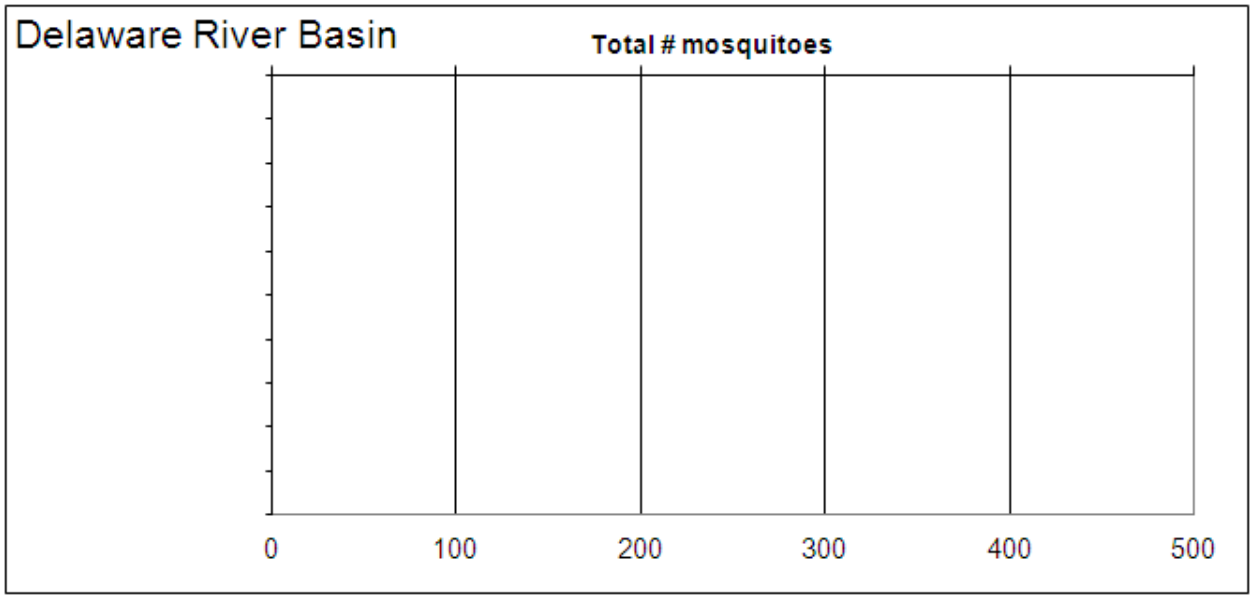
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

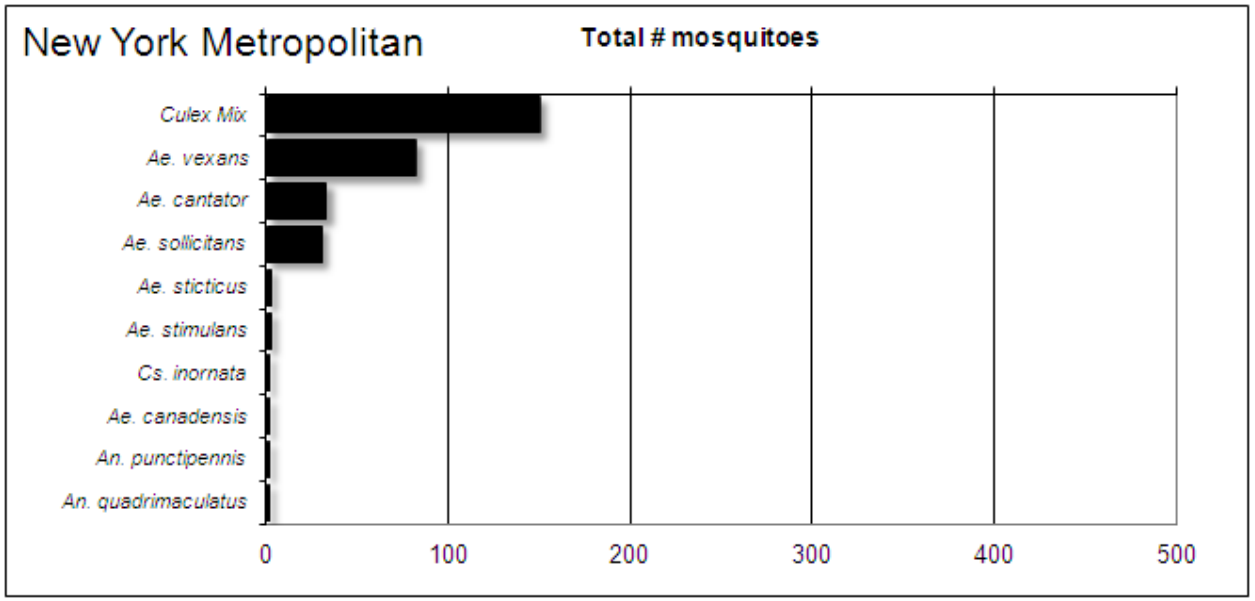


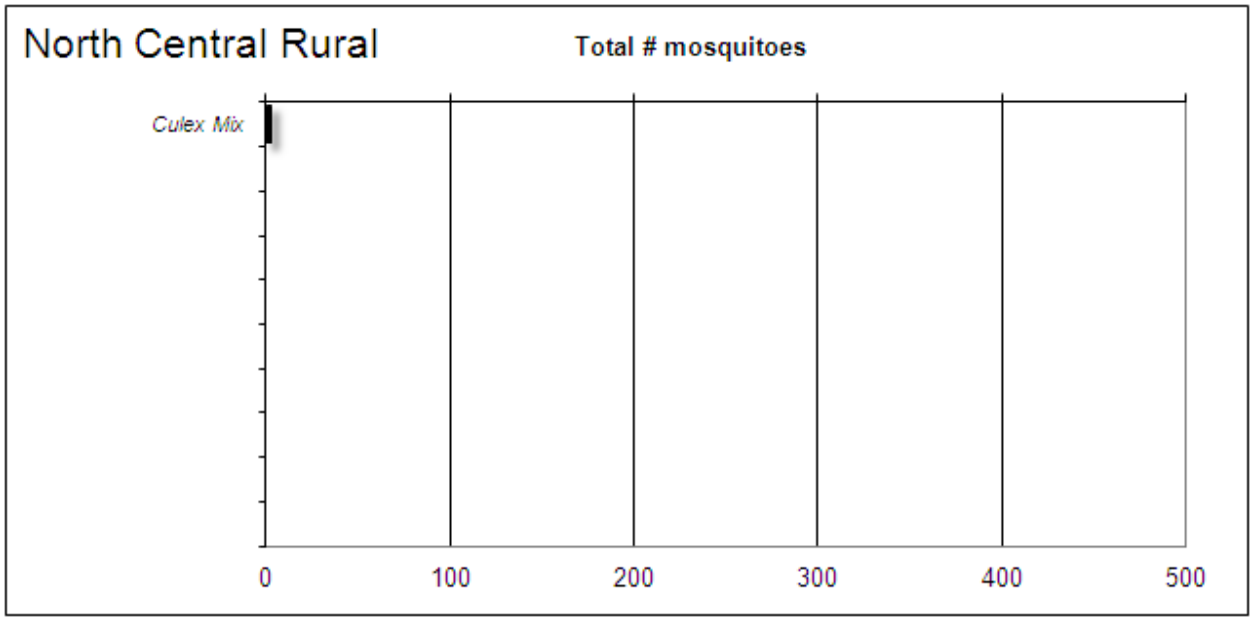

Agricultural
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. canadensis
Ae. cantator
An. quadrimaculatus
Ae. japonicus
Ps. columbae
An. punctipennis
0
100
200
300
400
500

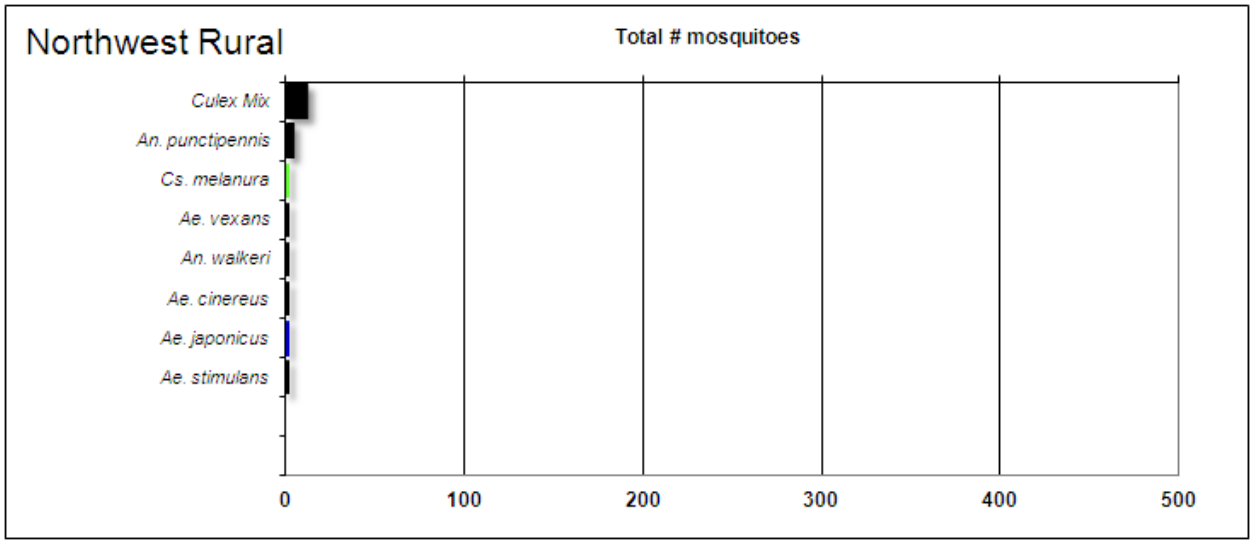

Coastal
Total # mosquitoes
Ae. cantator
Culex Mix
Ae. taeniorhynchus
Cs. melanura
Ae. sollicitans
Ae. canadensis
Ae. vexans
Ae. japonicus
Cx. territans
An. quadrimaculatus
0
100
200
300
400
500

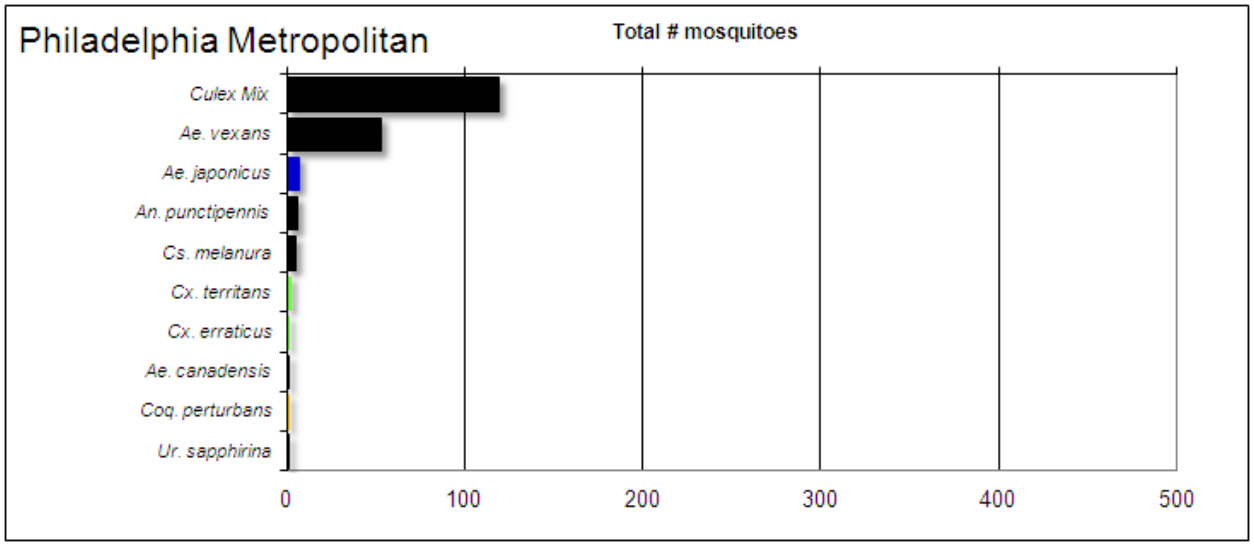

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Ae. vexans
Cs. melanura
Culex Mix
Ae. canadensis
An. bradleyi
An. quadrimaculatus
Ae. sollicitans
Ps. columbae
Ae. japonicus
0
300
600
900
1200
1500

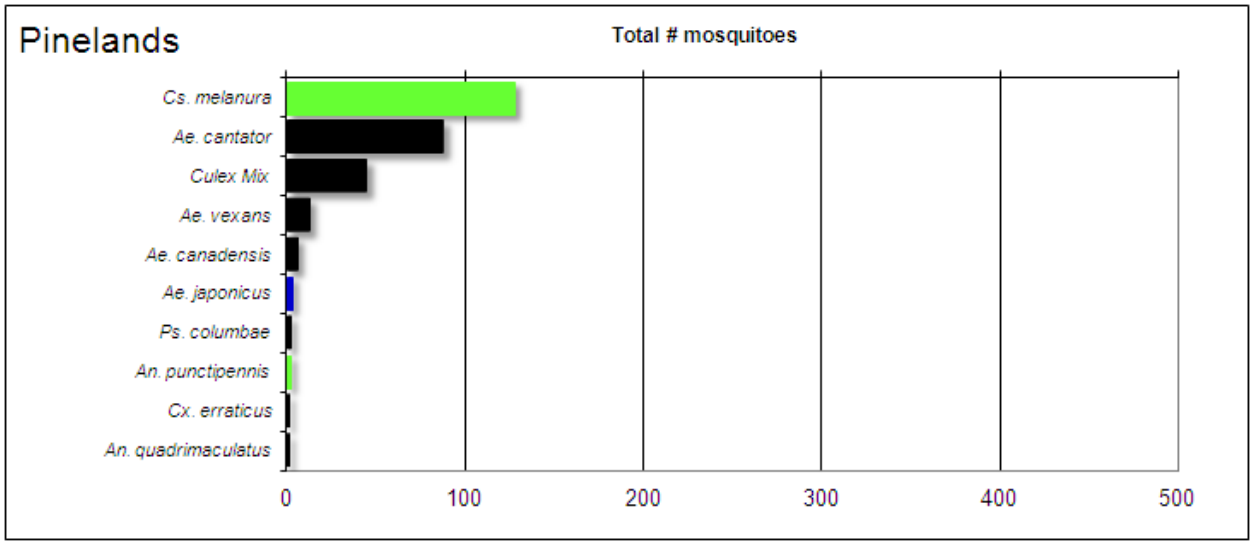

Delaware River Basin
Total # mosquitoes
0
100
200
300
400
500

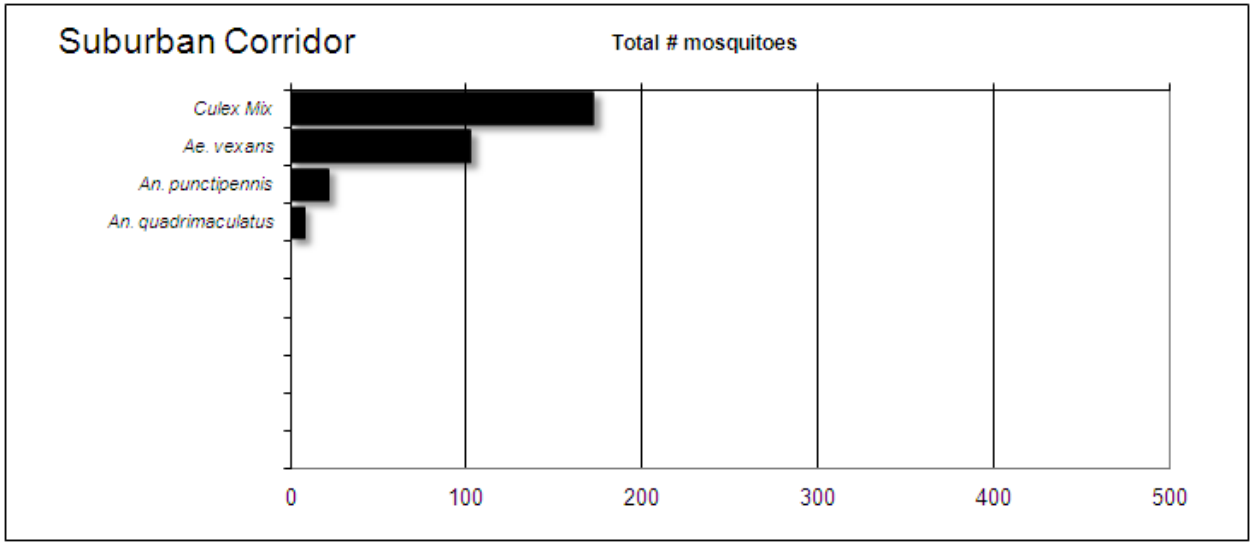

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Ae. sticticus
Ae. stimulans
Cs. inornata
Ae. canadensis
An. punctipennis
An. quadrimaculatus
0
100
200
300
400
500


North Central Rural
Total # mosquitoes
Culex Mix
0
100
200
300
400
500


Northwest Rural
Total # mosquitoes
Culex Mix
An. punctipennis
Cs. melanura
Ae. vexans
An. walkeri
Ae. cinereus
Ae. japonicus
Ae. stimulans
0
100
200
300
400
500


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. japonicus
An. punctipennis
Cs. melanura
Cx. territans
Cx. erraticus
Ae. canadensis
Coq. perturbans
Ur. sapphirina
0
100
200
300
400
500


Pinelands
Total # mosquitoes
Cs. melanura
Ae. cantator
Culex Mix
Ae. vexans
Ae. canadensis
Ae. japonicus
Ps. columbae
An. punctipennis
Cx. erraticus
An. quadrimaculatus
0
100
200
300
400
500


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
0
100
200
300
400
500