NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 16 June to 22 June 2013, CDC Week 25

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Center for Vector Biology

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funding from the NJ State Mosquito Control Commission and with the participation of the 21 county mosquito control agencies of New Jersey.

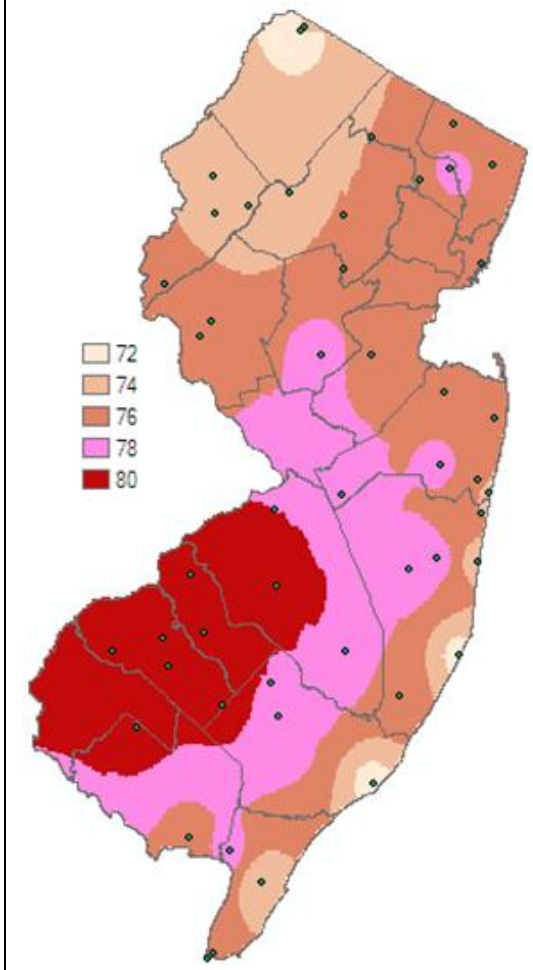
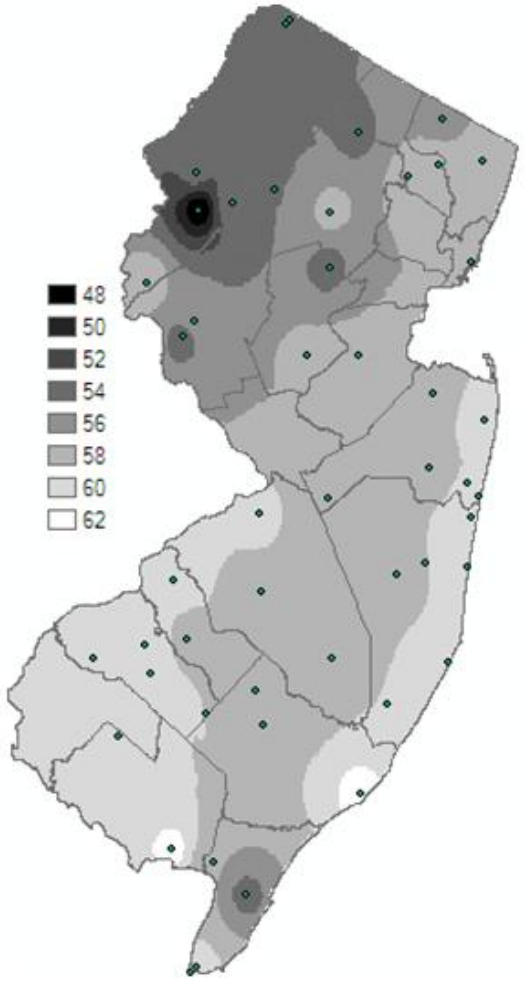
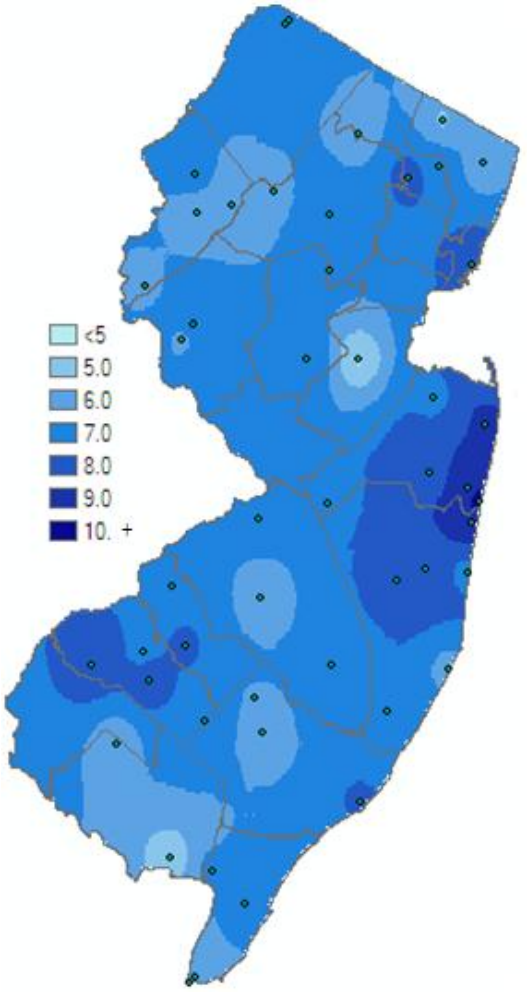
Summary Table – Week 25

	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	**0.71**	**2.53**	**0**	**0.40**	**3.01**	**0**	**0.12**	**0.54**	**0**	**0.12**	**0.05**	**3**
Coastal	**0.02**	**9.71**	**0**	**0.55**	**15.03**	**0**	**0.00**	**1.25**	**0**	**0.00**	**9.52**	**0**
Delaware Bayshore	**nd**	**4.08**	**0**	**nd**	**21.32**	**0**	**nd**	**3.85**	**0**	**nd**	**8.20**	**0**
Delaware River Basin	**21.29**	**5.74**	**4**	**1.14**	**3.07**	**0**	**0.00**	**0.44**	**0**	**0.00**	**0.04**	**0**
New York Metro	**2.53**	**5.03**	**0**	**6.47**	**11.14**	**0**	**0.00**	**0.54**	**0**	**0.13**	**0.57**	**0**
North Central Rural	**nd**	**0.30**	**0**	**nd**	**1.17**	**0**	**nd**	**0.03**	**0**	**nd**	**0.00**	**0**
Northwest Rural	**0.34**	**6.07**	**0**	**0.06**	**4.93**	**0**	**0.00**	**0.89**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**nd**	**9.01**	**0**	**nd**	**7.61**	**0**	**nd**	**1.42**	**0**	**nd**	**0.00**	**0**
Pinelands	**0.05**	**2.19**	**0**	**0.14**	**3.17**	**0**	**0.01**	**1.19**	**0**	**0.00**	**0.15**	**0**
Suburban Corridor	**0.38**	**3.13**	**0**	**1.35**	**3.97**	**0**	**0.00**	**1.19**	**0**	**0.00**	**0.03**	**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: Additional rain continues for New Jersey. The effects of this rainfall is beginning to show up with higher than expected populations of floodwater species, such as *Aedes vexans* in the Delaware River Basin and *Aedes sollicitans* in the Agricultural regions. But *Culex* species and *Coquillettidia perturbans* show current activity at lower than historical values. These lower values may change as data becomes current.

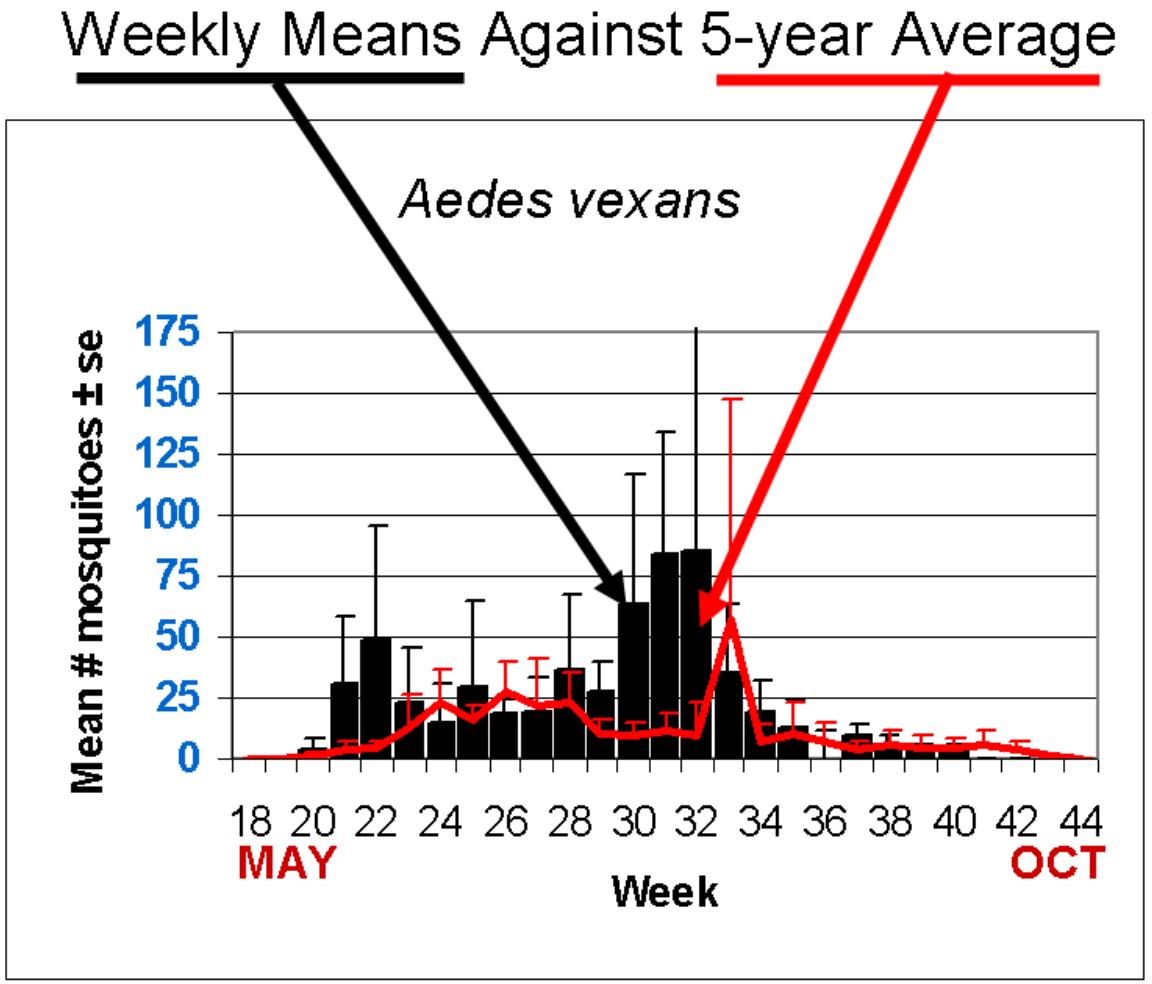
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum and minimum temperature and total precipitation from 1 June to 20 June, 2013 in New Jersey. Data points are from about 50 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

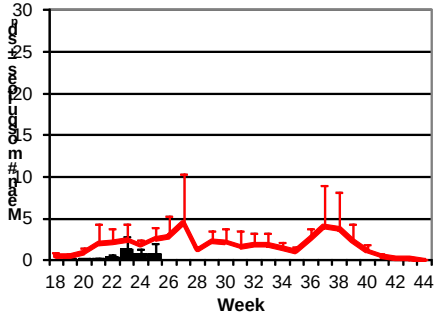
NJ Weather & Climate Network ONJSC at Rutgers University

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 Essex, Monmouth, Ocean, Salem, Union and Warren counties. Data for the previous week(s) are from Atlantic, Bergen, Camden, Cape May, Essex, Hudson, Monmouth, Morris, Ocean, Salem, Somerset, Union and Warren counties.

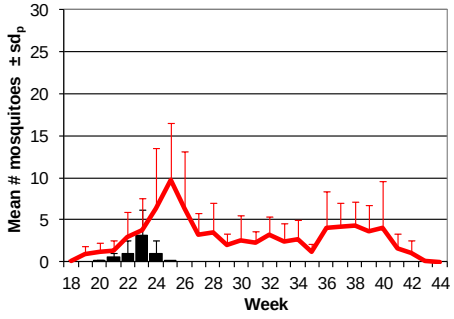


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

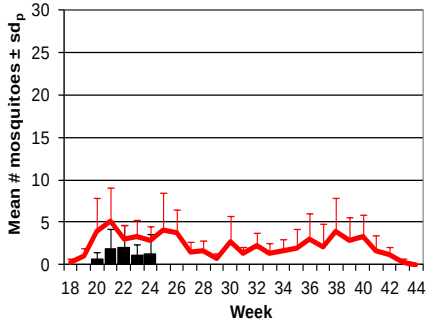
Agricultural



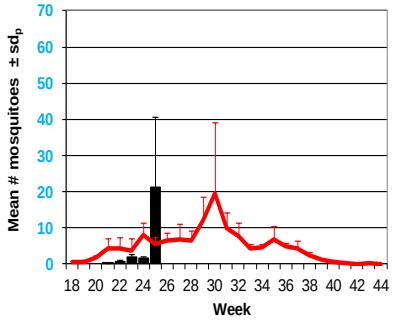
Coastal



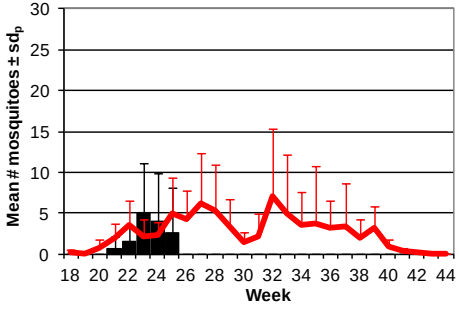
Delaware Bayshore



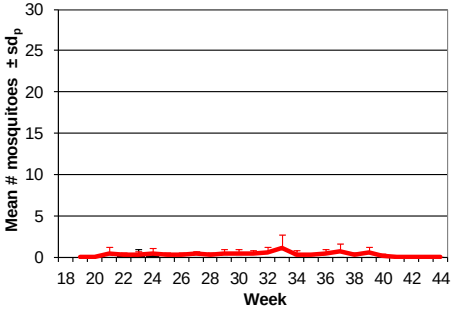
Delaware River Basin



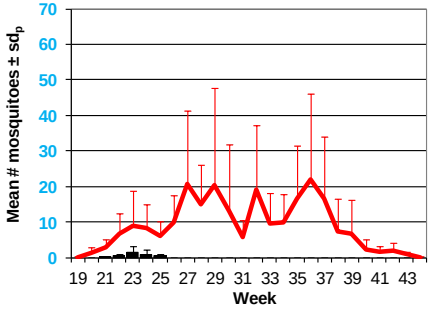
New York Metro



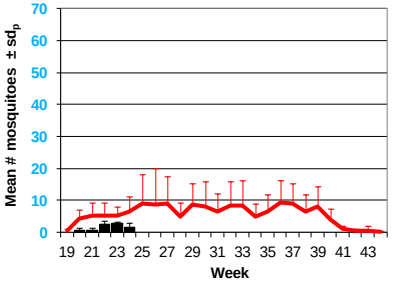
North Central Rural



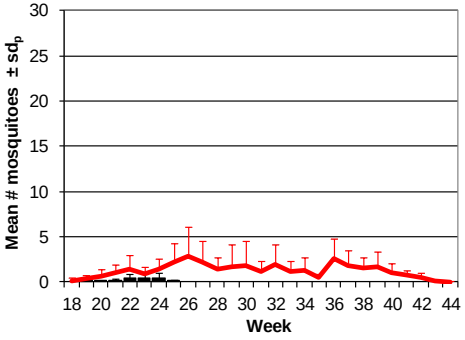
Northwestern Rural



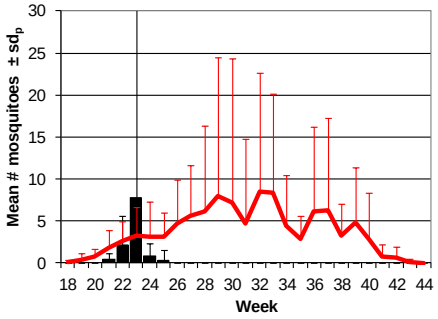
Philadelphia Metro



Pinelands



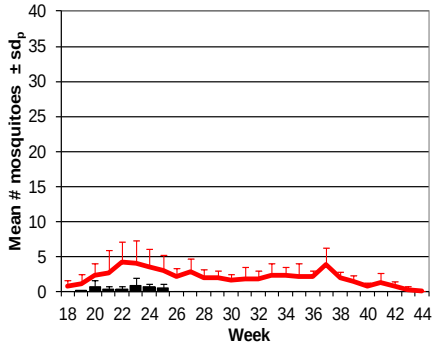
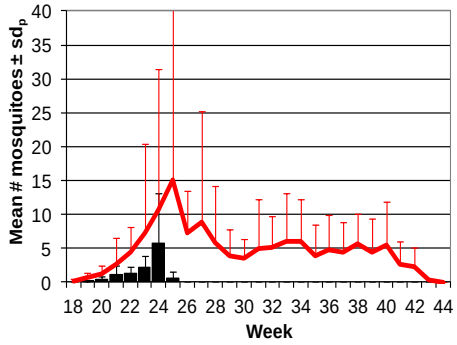
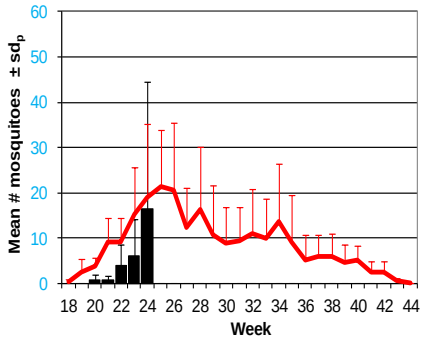
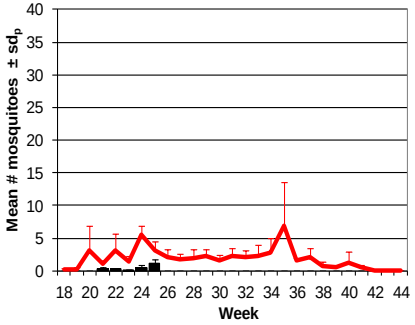
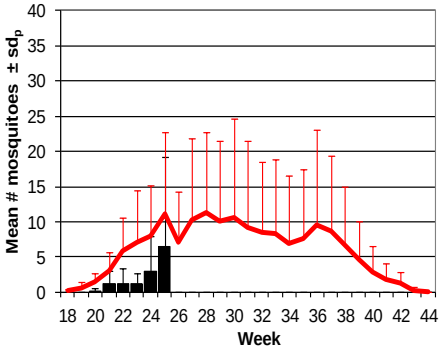
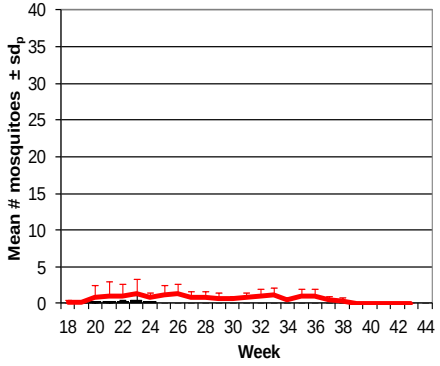
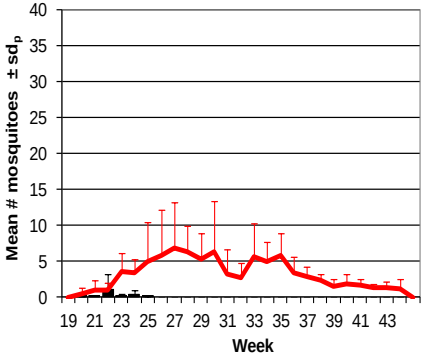
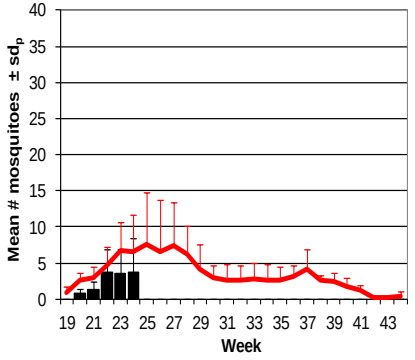
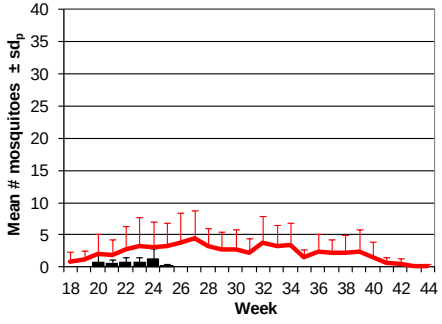
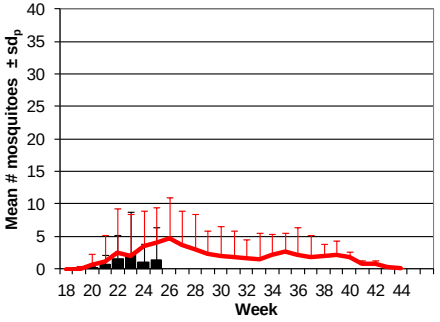
Suburban Corridor



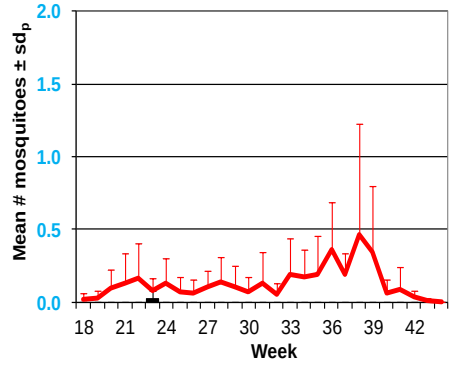
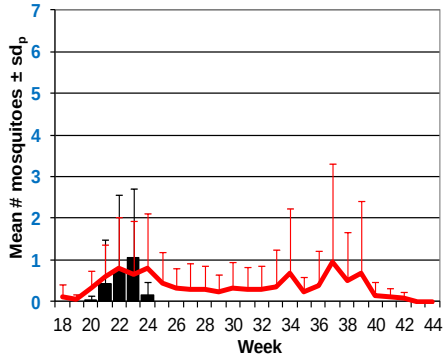
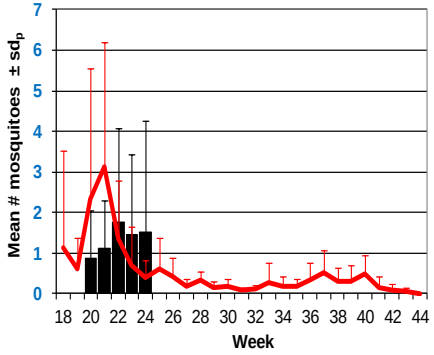
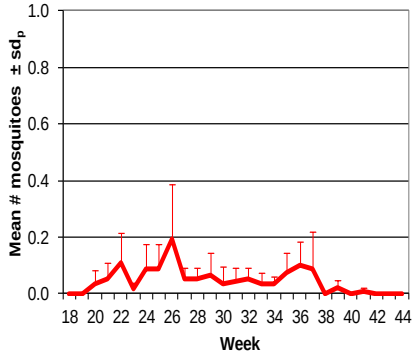
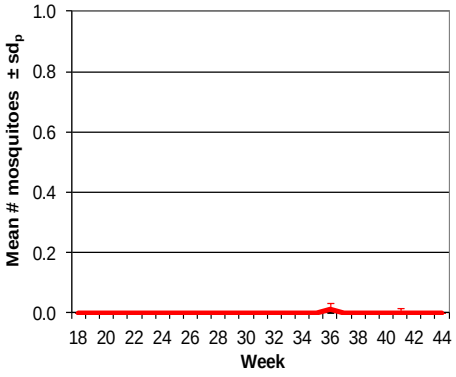
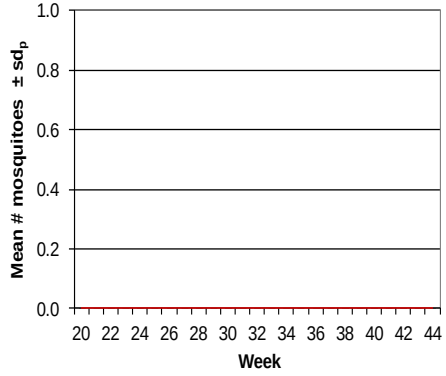
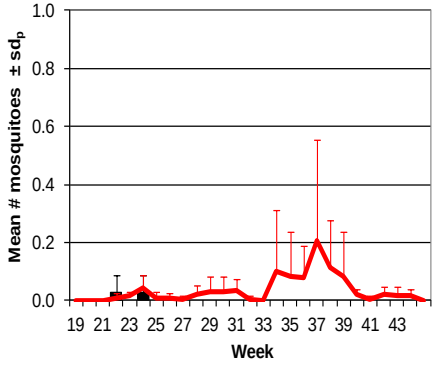
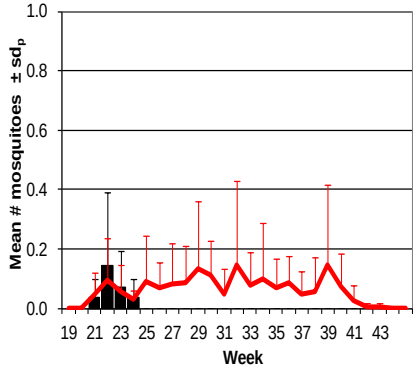
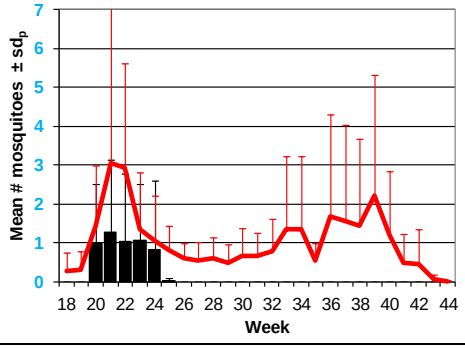
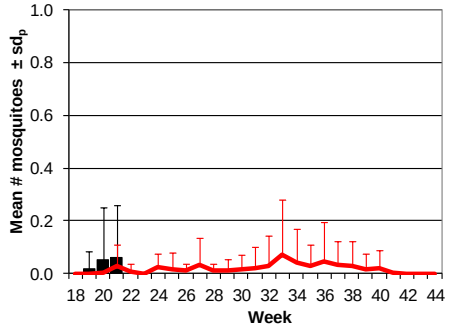
Comments

Aedes vexans populations took a significant jump in the Delaware River Basin this week. This region supports contained areas that take on dredge spoils from the Delaware River, and that habitat is conducive to producing sometimes tremendous populations. Other regions have also shown locally abundant floodwater species numbers that have become evident after data has been submitted to this program.

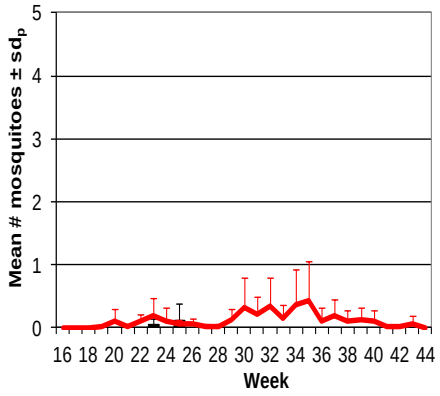
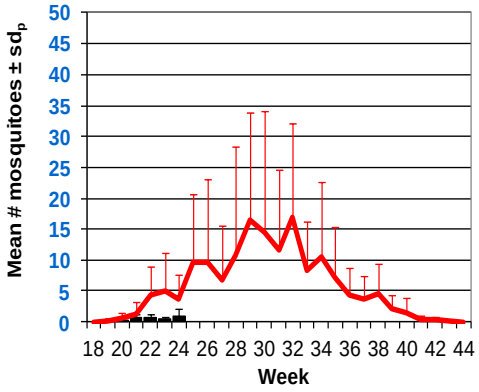
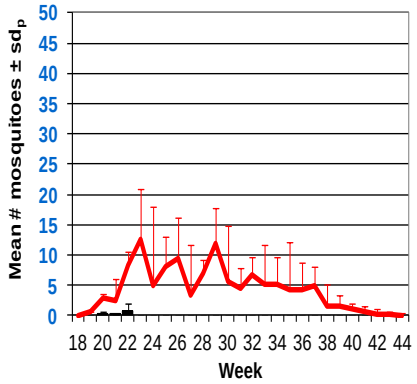
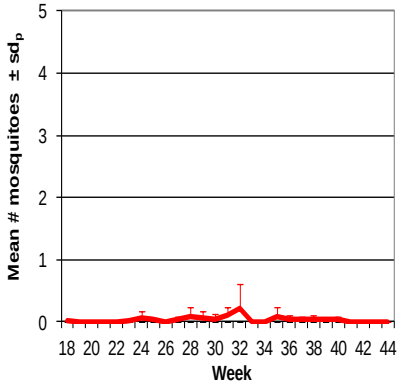
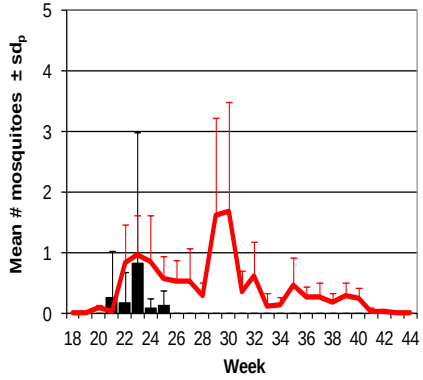
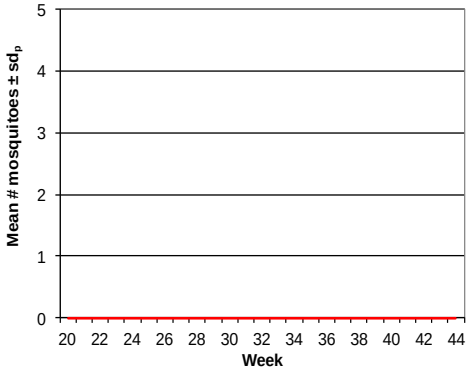
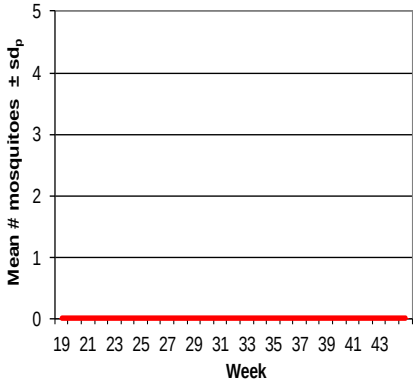
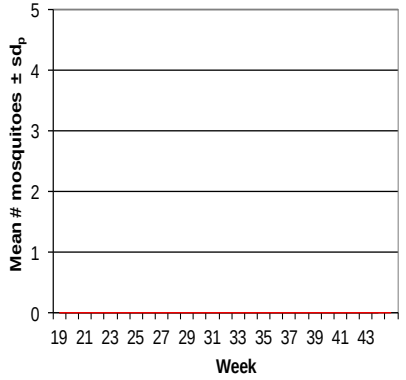
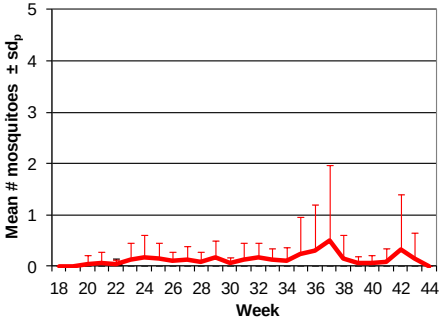
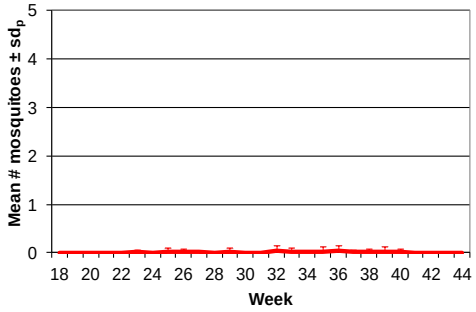
Culex Mix – Permanent Water Species
Multivoltine *Culex/Anopheles* (*Cx. pipiens* Type)

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 continue to be at levels below or near historical values, but appear to also be tracking historical patterns. Populations along coastal and Delaware Bayshore are often significant in their *Cx. salinarius* numbers, contributing to larger overall *Culex* spp values in those regions.	

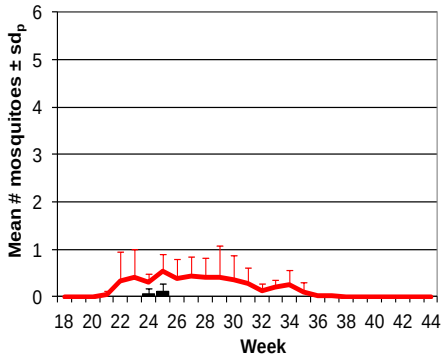
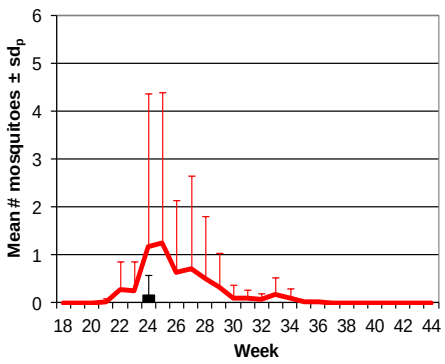
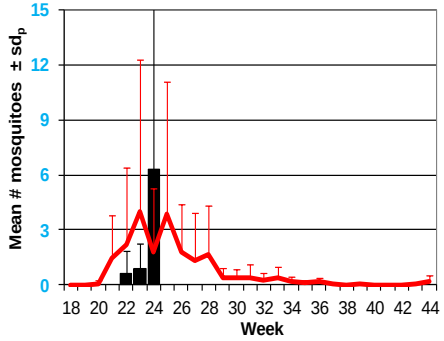
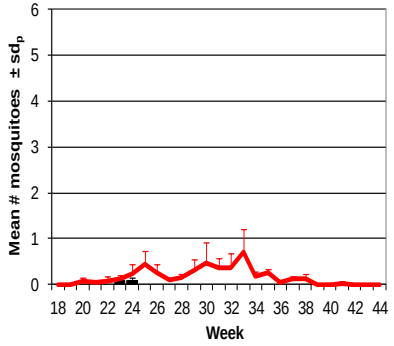
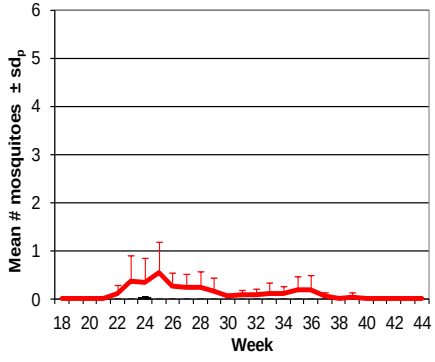
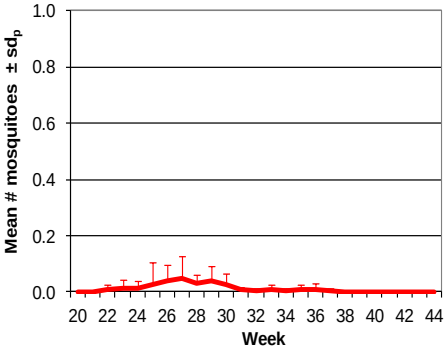
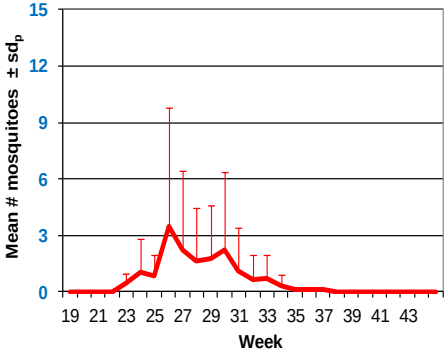
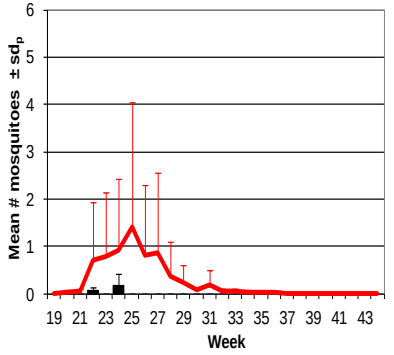
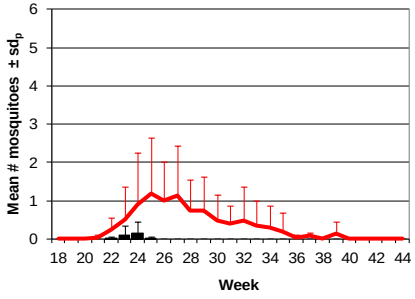
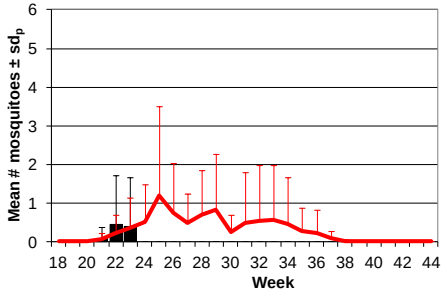
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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. Local populations in the Delaware Bayshore regions were elevated compared to historical values while other regions are either at or below historical trends. Currently, there has been no EEE activity detected in the Vector Surveillance program.	

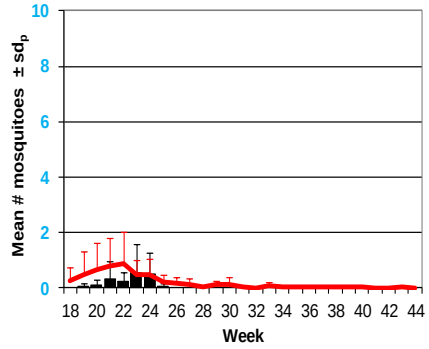
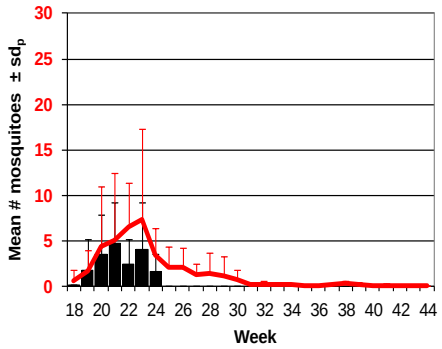
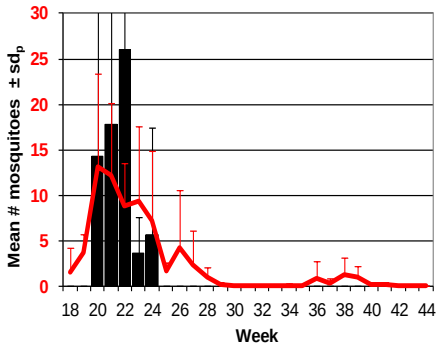
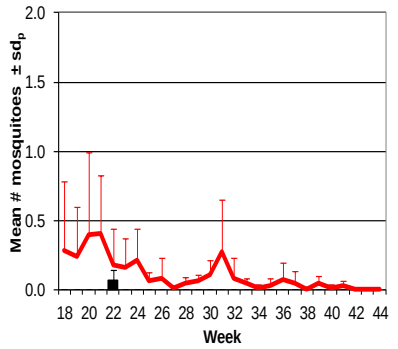
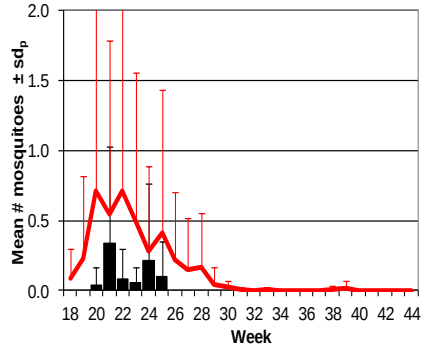
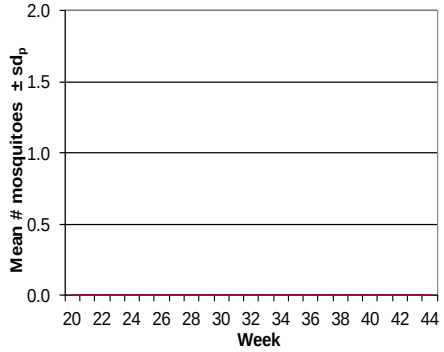
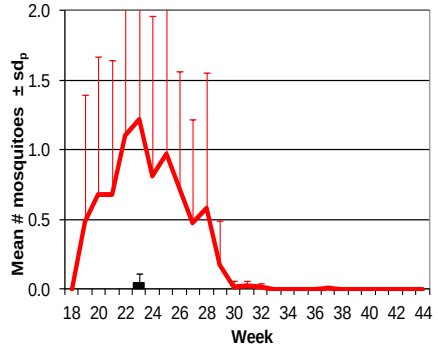
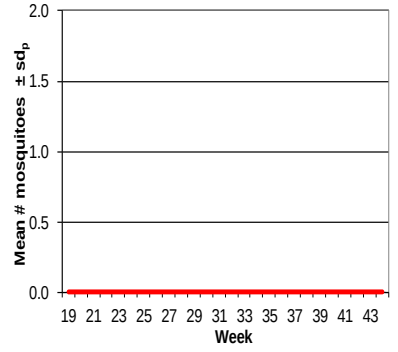
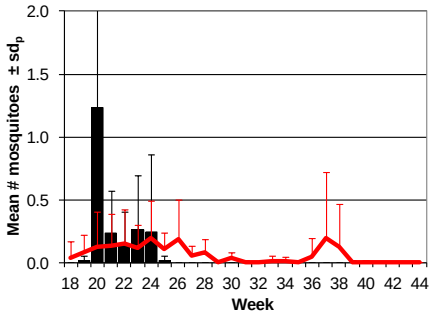
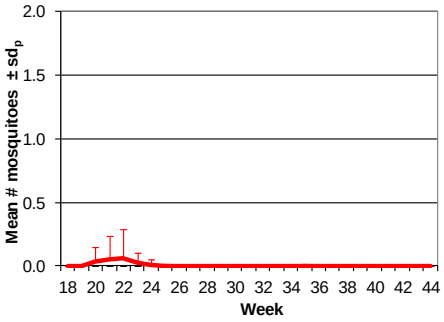
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

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. Apart from an elevated population in the Agricultural region as well as past week numbers in the New York Metropolitan region, numbers for this species has been remarkably low this year in both the Coastal and Delaware Bayshore regions. Next lunar full moon is June 23rd.	

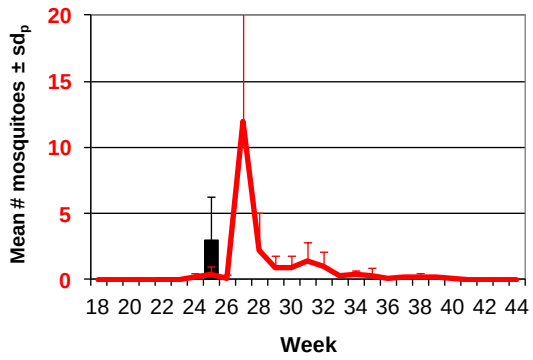
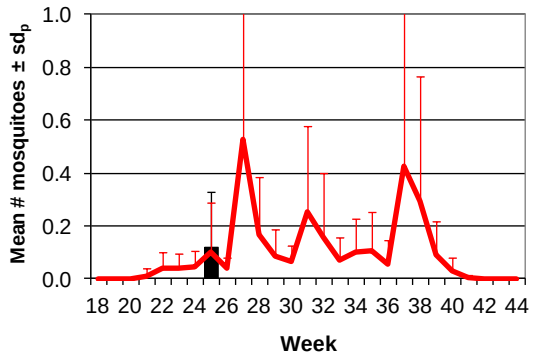
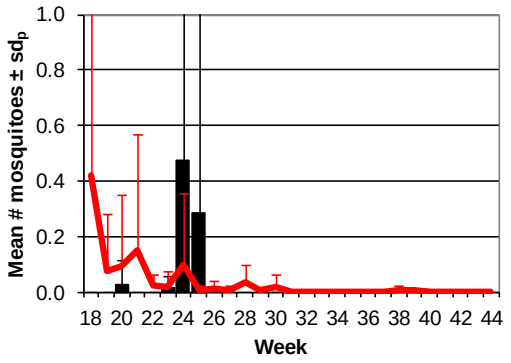
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

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. Emergence of this species continues in most regions, but population levels mostly remain well below historical values.	

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*. Numbers throughout its range in New Jersey appear to be on the decline, particularly in areas of higher abundance.	

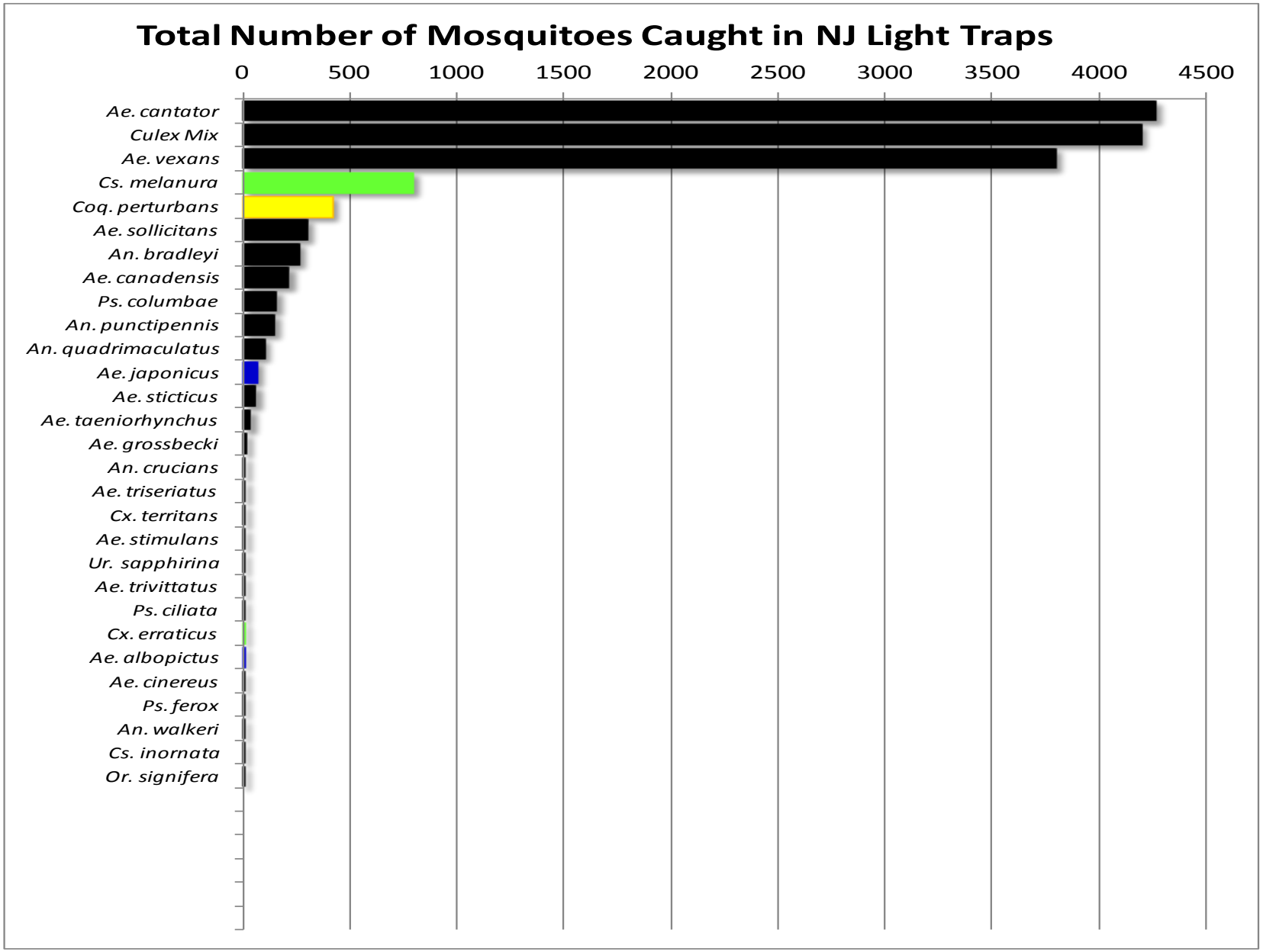
Noteworthy population changes:

	*Psorophora columbiae* in the Agricultural Region A psorophoran that has come out in significant number such that it currently leads in the Top Ten list for the Agricultural region. Populations may be so large that it can affect the health of livestock in those areas unfortunate to experience huge populations. This smaller psorophoran, along with other mosquitoes, can be a meal to larger psorophorans, such as *Ps, ciliata*.
	*Psorophora ciliata* in the Agricultural Region This large, hairy (hence the species name) has been in the news in Florida. This is a native species that can deliver a noticeable bite.
	*Aedes sticticus* in the New York Region This floodplain species can emerge in significant numbers (as it has here) from both woodland and open area pools associated with river systems. Depending on flooding activity, multiple emergences may occur giving the appearance of a multivoltine species, but this is a univoltine mosquito. They are persistent biters that are vectors for dog heartworm.

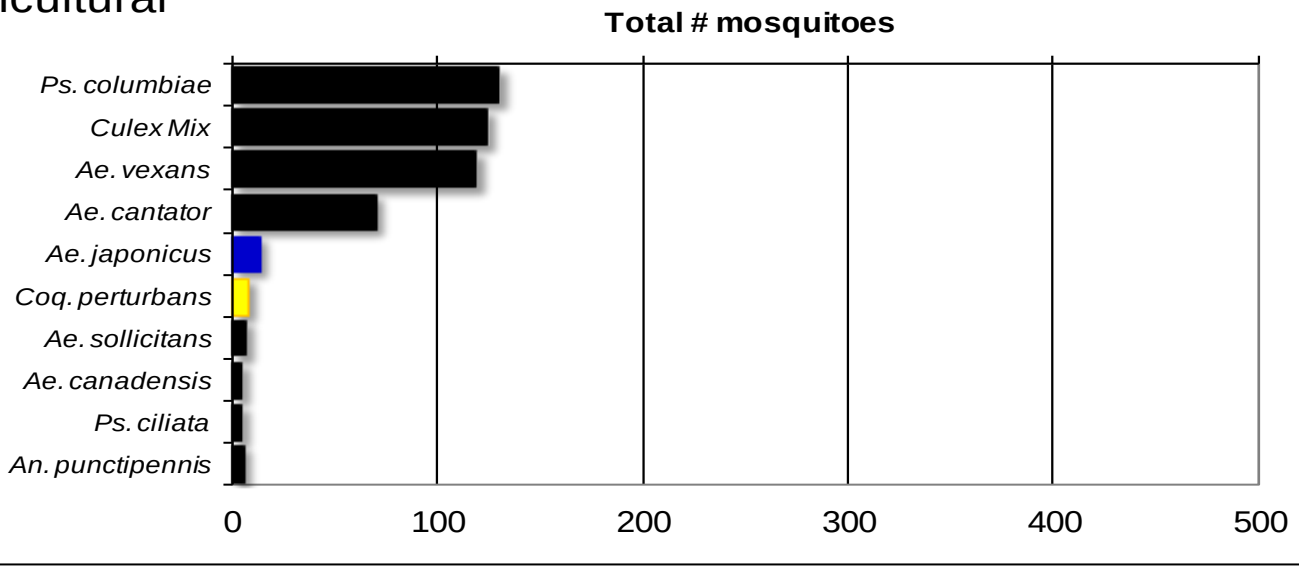
WNV *EEE*

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

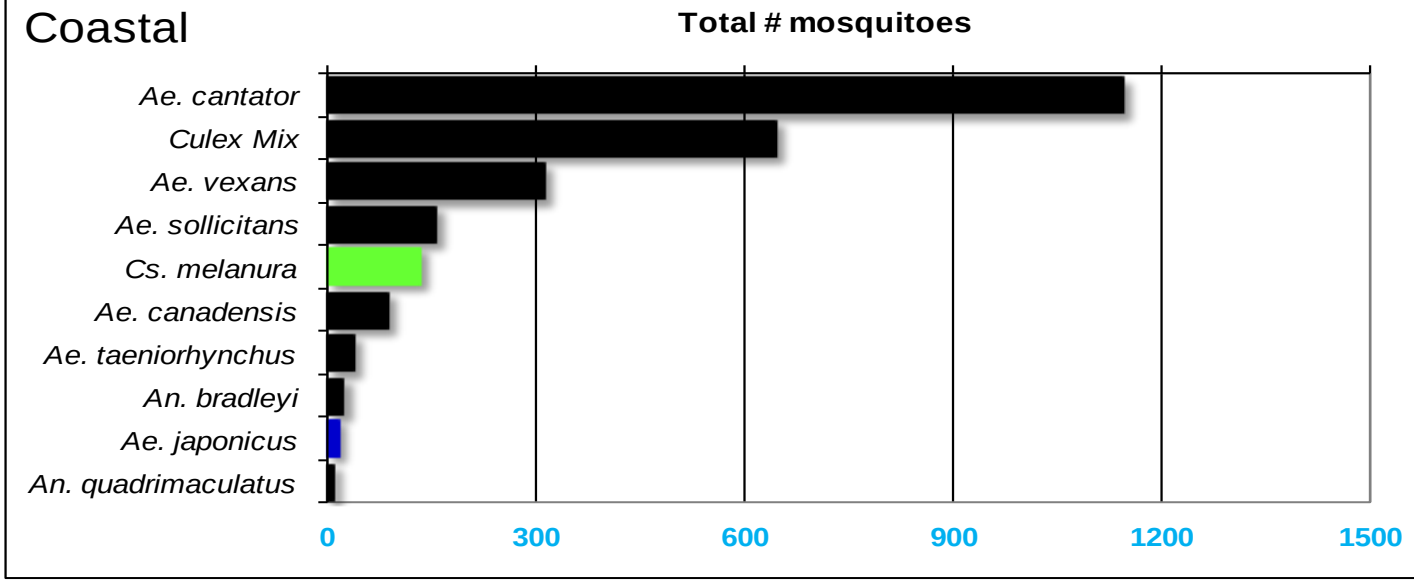
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

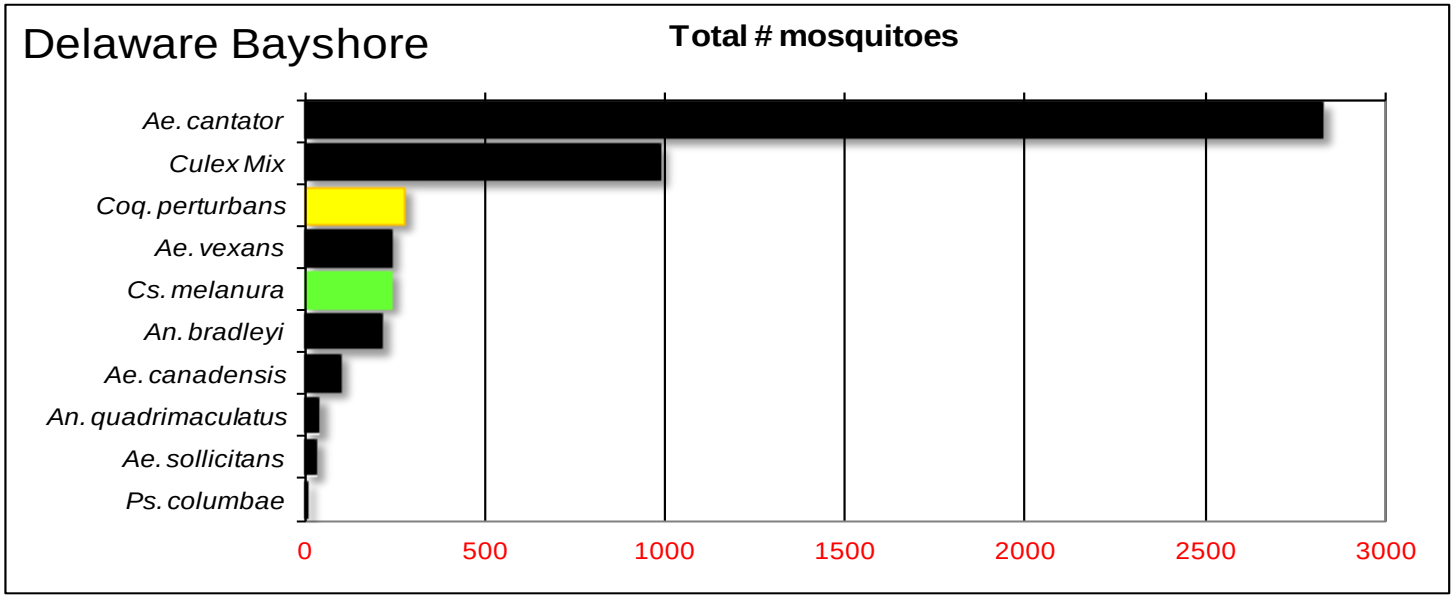


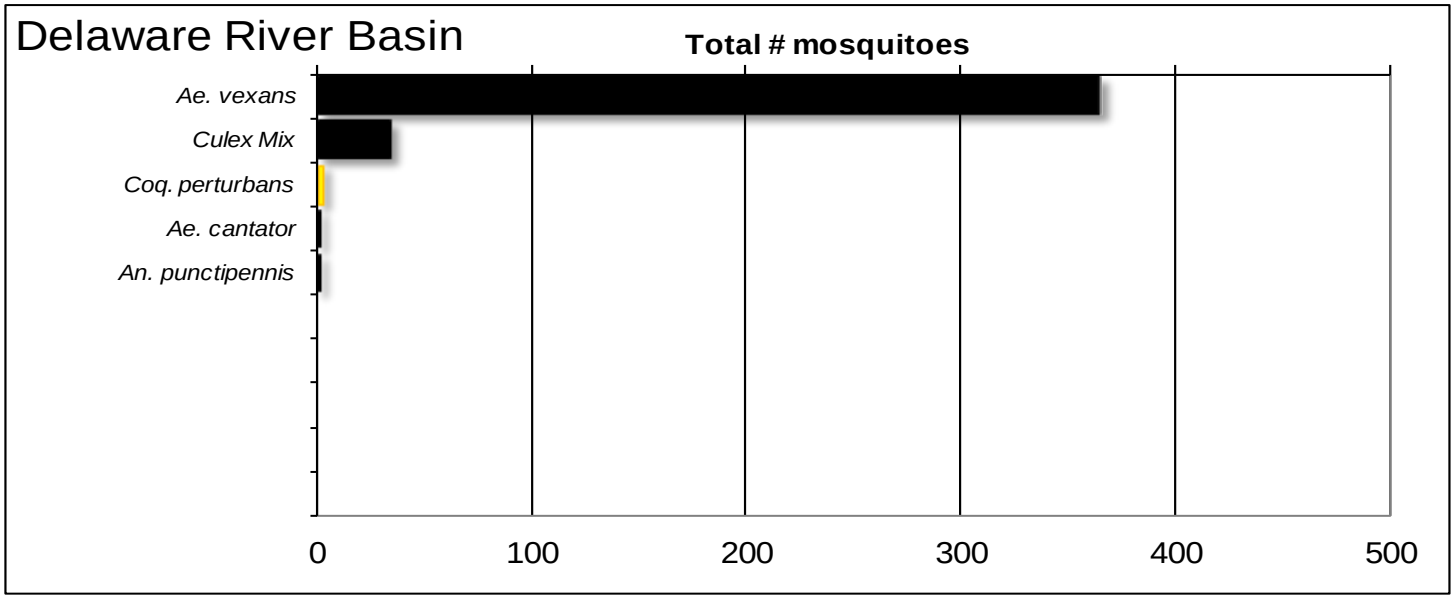
Agricultural

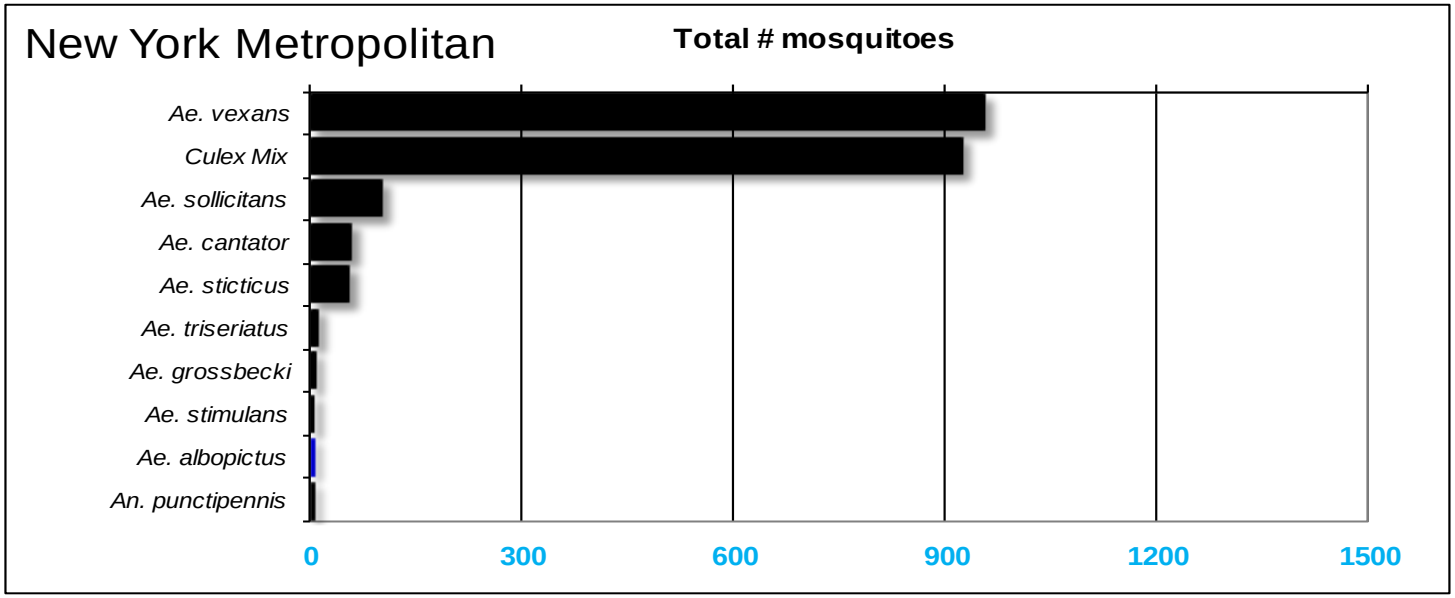


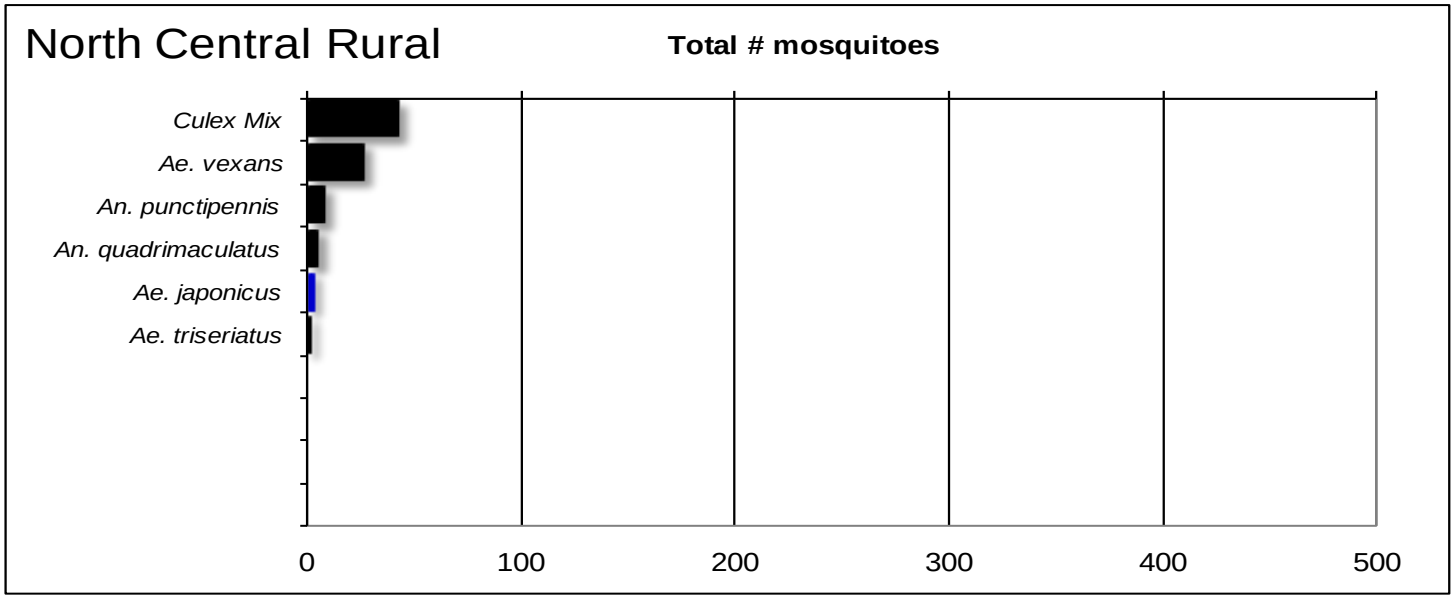
Coastal

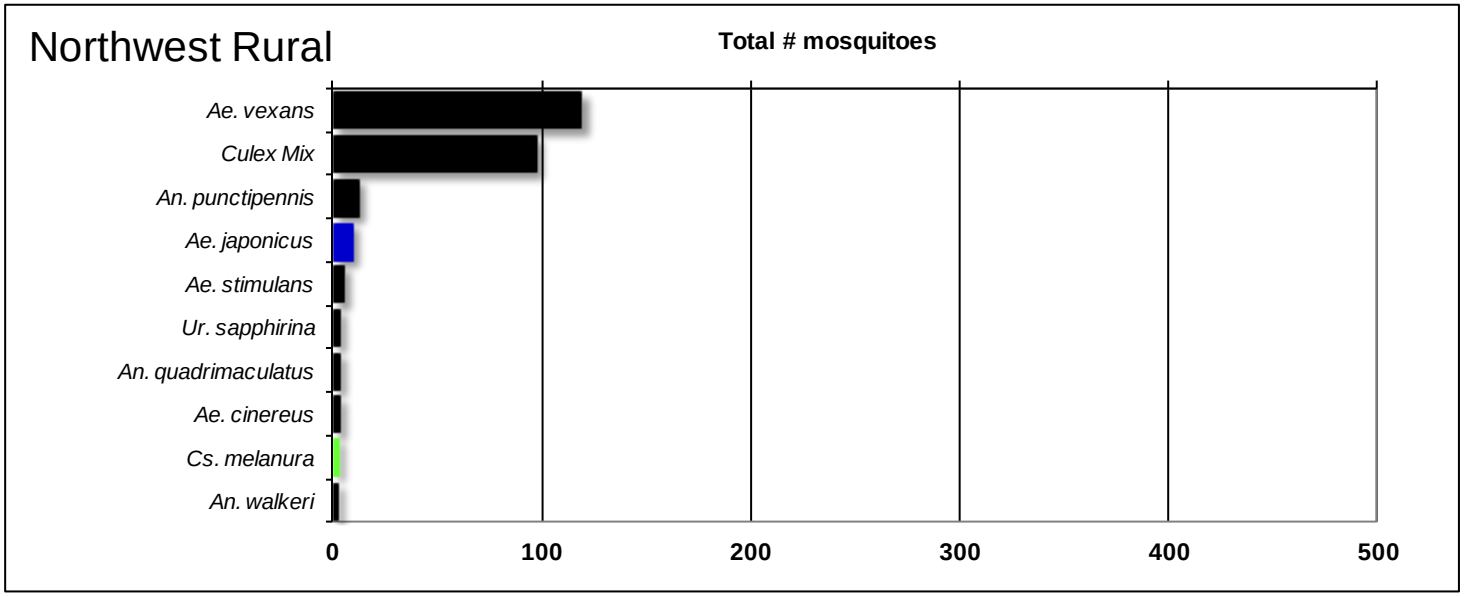


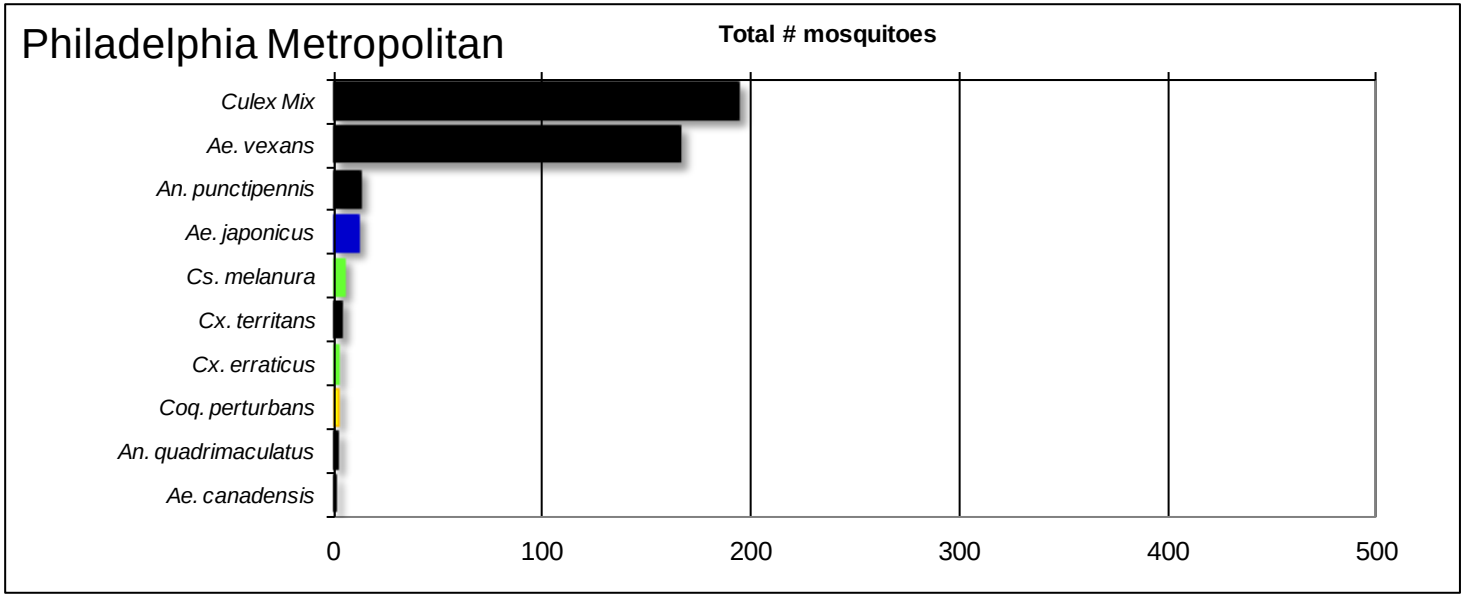

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Culex Mix
Coq. perturbans
Ae. vexans
Cs. melanura
An. bradleyi
Ae. canadensis
An. quadrimaculatus
Ae. sollicitans
Ps. columbae
0
500
1000
1500
2000
2500
3000

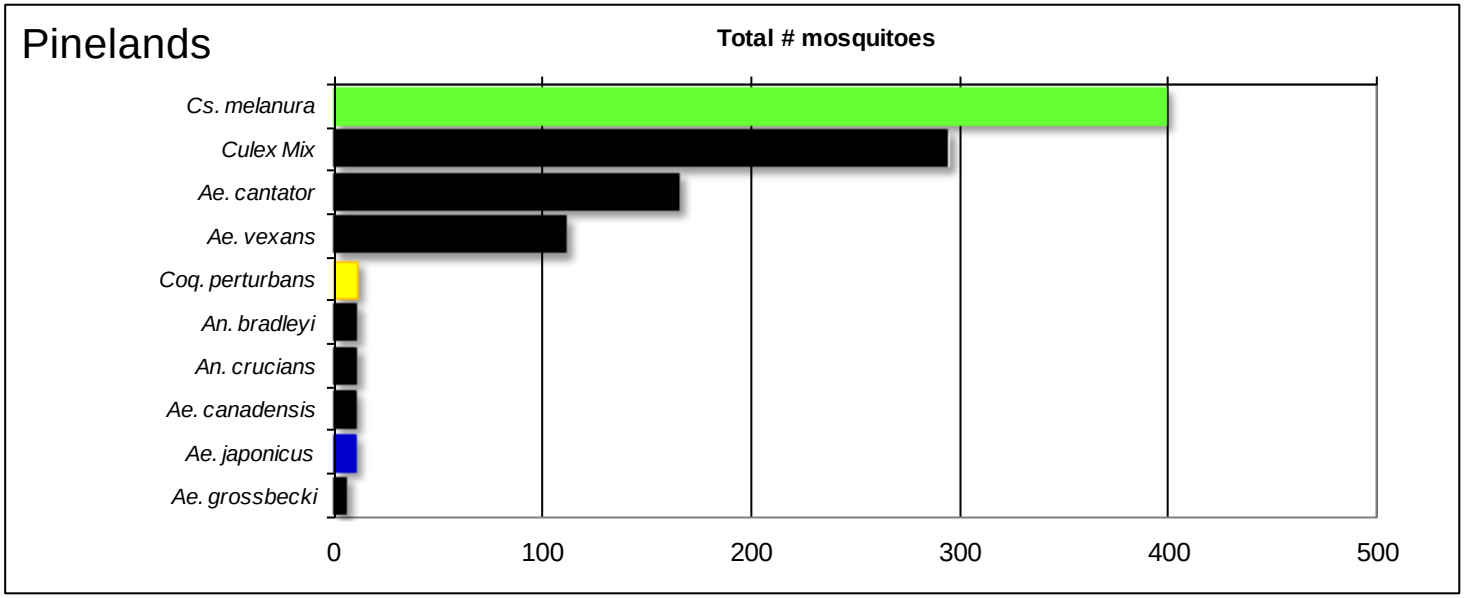

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
Ae. cantator
An. punctipennis
0
100
200
300
400
500

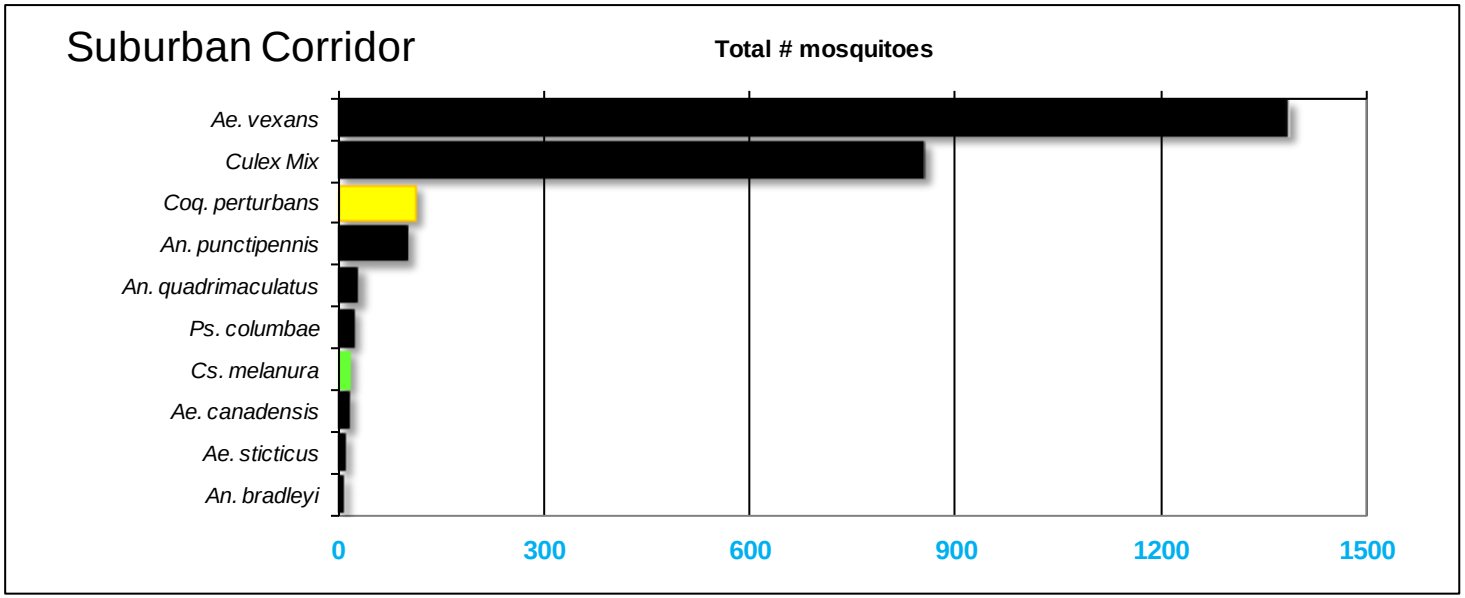

New York Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. sollicitans
Ae. cantator
Ae. sticticus
Ae. triseriatus
Ae. grossbecki
Ae. stimulans
Ae. albopictus
An. punctipennis
0
300
600
900
1200
1500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Ae. triseriatus
0
100
200
300
400
500


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


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


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Ae. cantator
Ae. vexans
Coq. perturbans
An. bradleyi
An. crucians
Ae. canadensis
Ae. japonicus
Ae. grossbecki
0
100
200
300
400
500


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ps. columbae
Cs. melanura
Ae. canadensis
Ae. sticticus
An. bradleyi
0
300
600
900
1200
1500