RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE
Report for 20 July to 26 July 2008, CDC Week 30

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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.

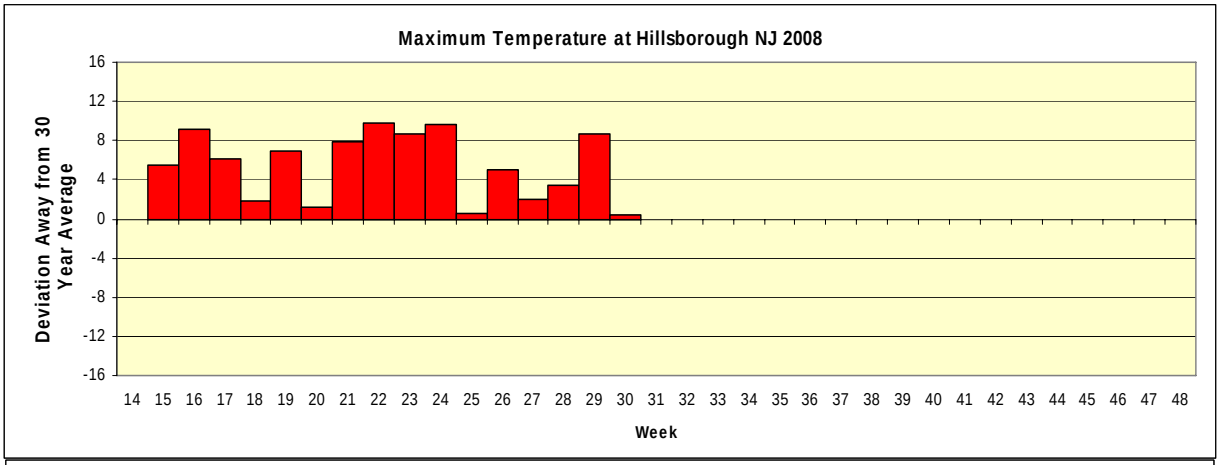
Summary table – Week 30

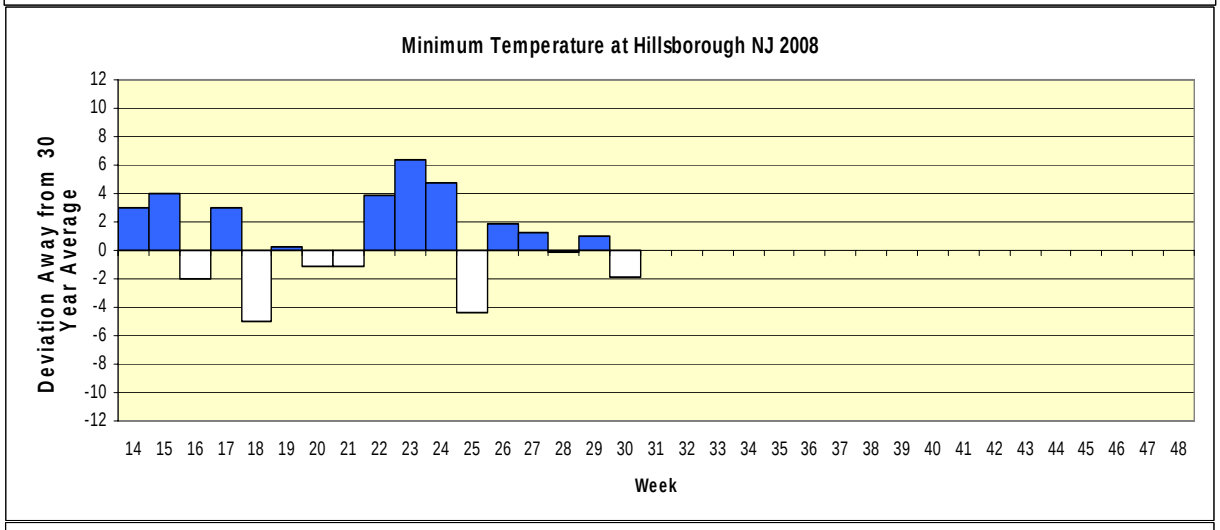
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.17**	**4.96**	**0**	**0.12**	**6.49**	**0**	**0.05**	**0.47**	**0**	**0.00**	**0.47**	**0**
Coastal	**0.84**	**4.84**	**0**	**1.51**	**5.54**	**0**	**0.33**	**1.17**	**0**	**5.13**	**33.23**	**0**
Delaware Bayshore	**0.86**	**0.81**	**1**	**0.86**	**24.71**	**0**	**1.21**	**2.69**	**0**	**5.93**	**22.97**	**0**
Delaware River Basin	**0.00**	**22.75**	**0**	**0.00**	**11.89**	**0**	**0.00**	**0.21**	**0**	**0.00**	**0.02**	**0**
New York Metro	**0.13**	**2.46**	**0**	**1.84**	**10.27**	**0**	**0.00**	**0.10**	**0**	**0.00**	**1.71**	**0**
North Central Rural	**0.02**	**0.43**	**0**	**0.02**	**1.06**	**0**	**0.00**	**0.18**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.51**	**4.87**	**0**	**0.60**	**8.06**	**0**	**0.31**	**0.22**	**1**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.83**	**11.18**	**0**	**0.55**	**5.39**	**0**	**0.11**	**0.34**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.71**	**1.74**	**0**	**0.53**	**4.94**	**0**	**0.14**	**1.47**	**0**	**0.05**	**0.19**	**0**
Suburban Corridor	**0.62**	**6.83**	**0**	**0.78**	**3.57**	**0**	**0.00**	**1.33**	**0**	**0.00**	**0.02**	**0**

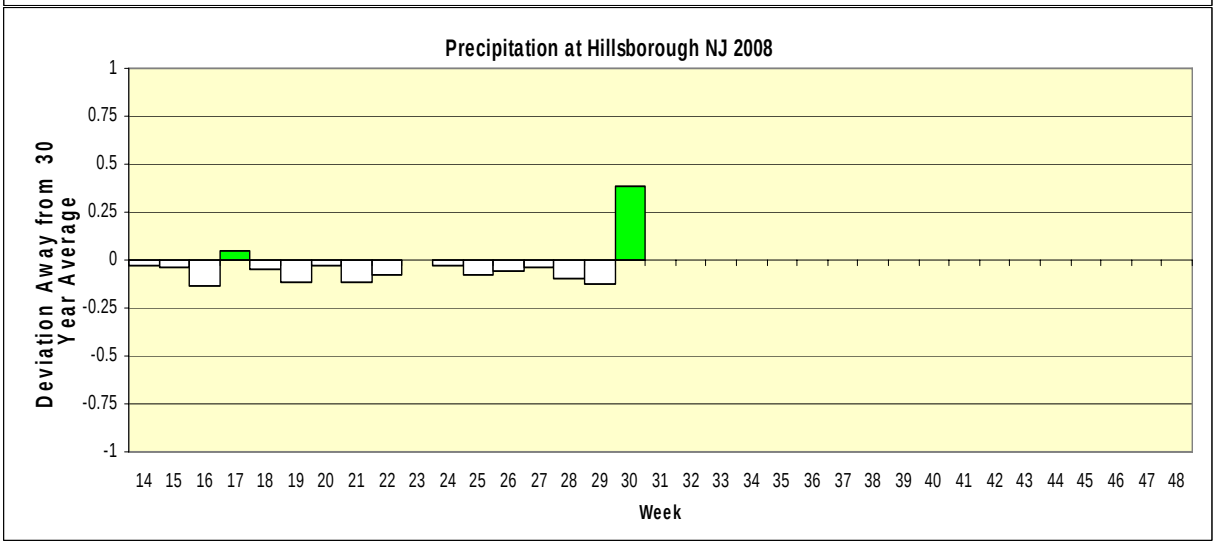
Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference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

State Summary: Although *Aedes vexans* populations in the Delaware Bayshore and Coquillettidia perturbans in the Northwest Rural regions appear slightly higher than historical trends, these differences are not significant.

Climate Deviations

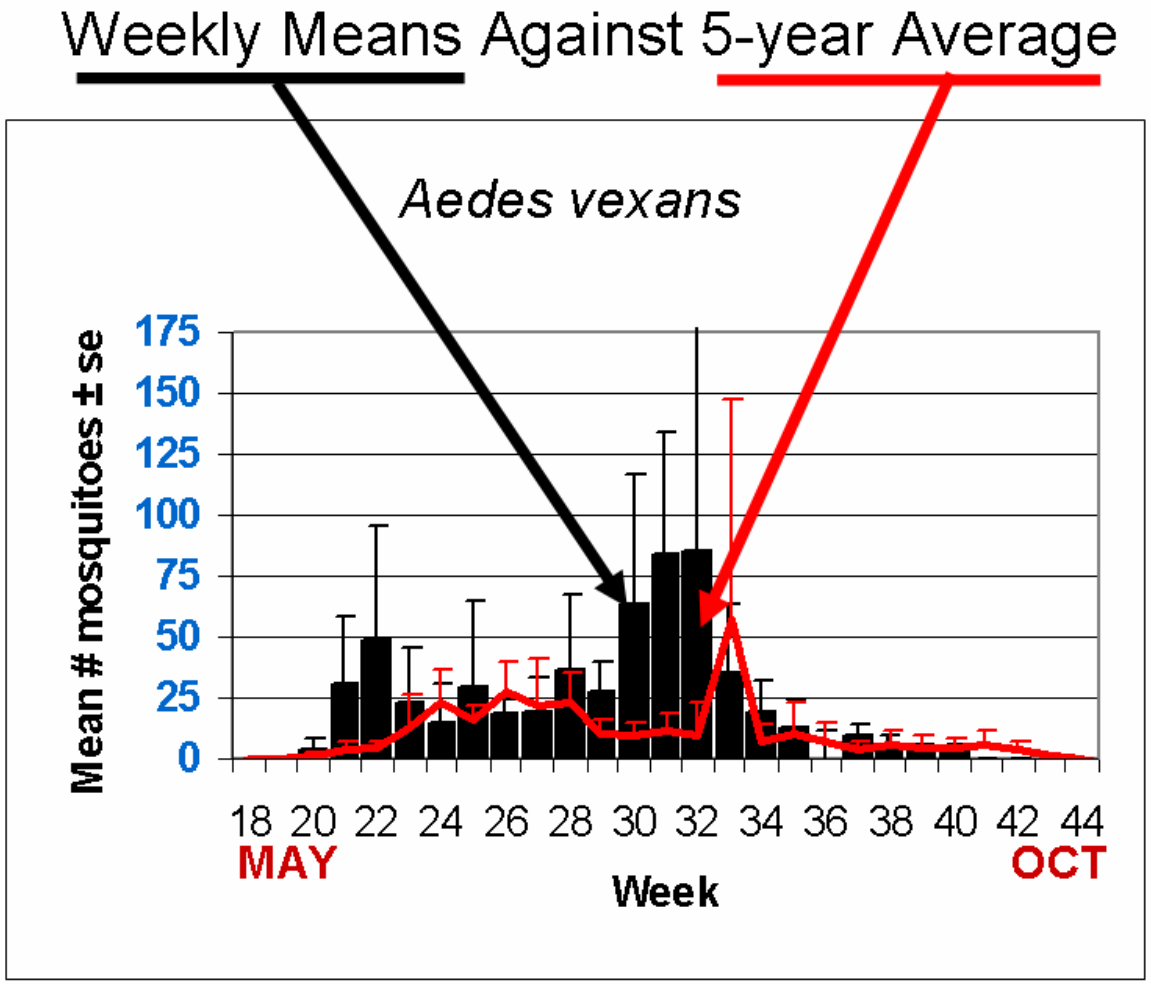






The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data is from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) while historical data was from the New Brunswick weather station. Color bars above the zero line indicate warmer maximum or minimum temperatures and wetter conditions while white bars indicate cooler temperatures and dryer conditions.

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 Atlantic, Camden, Cape May, Essex, Hudson, Middlesex, Morris, Ocean, Sussex, and Warren counties. Note: County data is sent in at a variety of times during the week.



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

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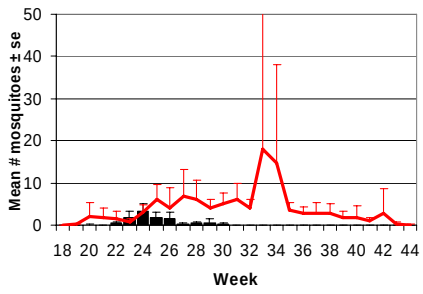
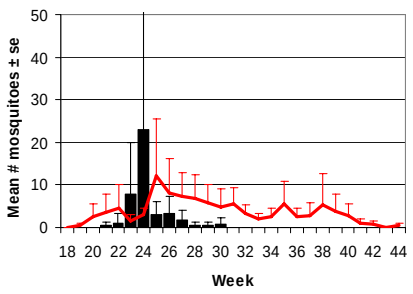
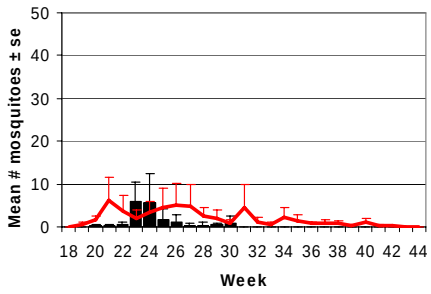
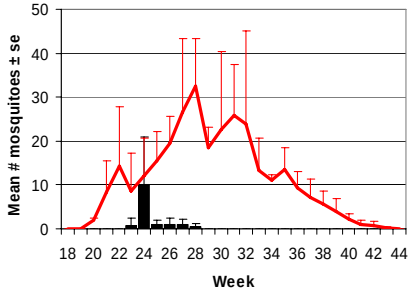
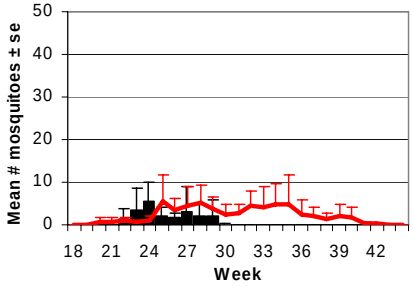
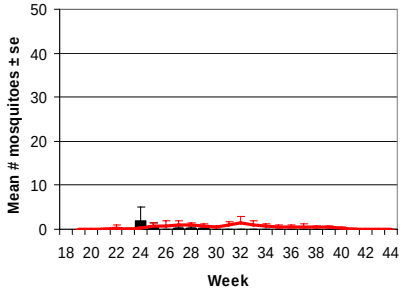
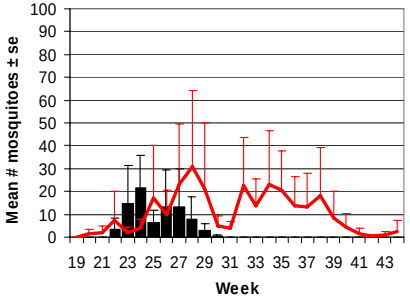
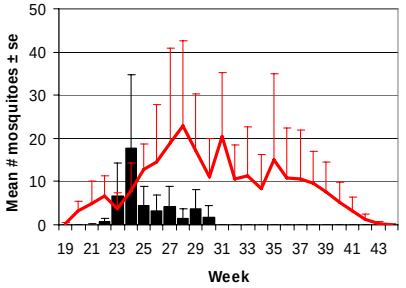
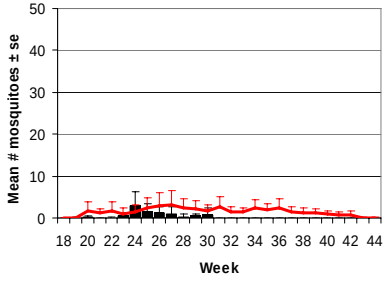
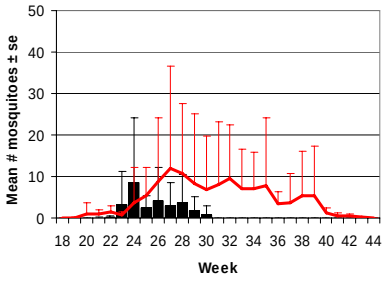
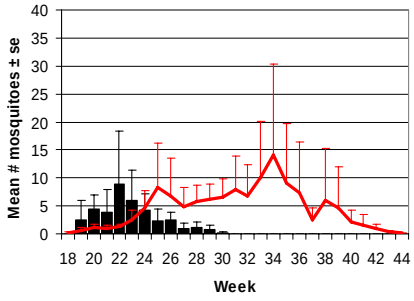
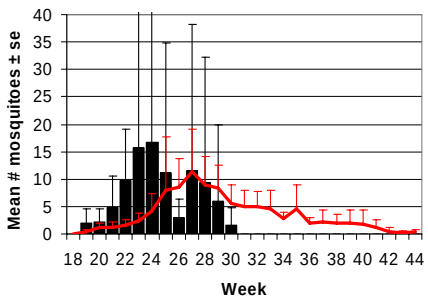
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		The western half of New Jersey received significant amount of precipitation from heavy storm systems dumping up to 4 inches of rain, and recharging generally dry habitats that would have normally been producing floodwater mosquitoes. Temperatures have dropped, potentially delaying the development of mosquitoes in eggs now covered with water. But warmer weather predicted for the later half of this week should be high enough for species exploiting ephemeral resources to develop quickly before any potential dry down.	

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

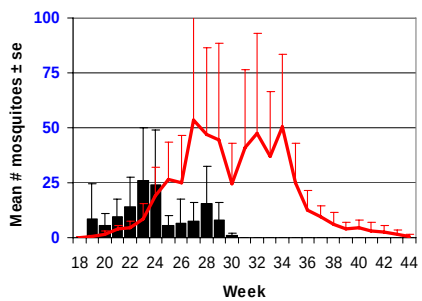
Agricultural



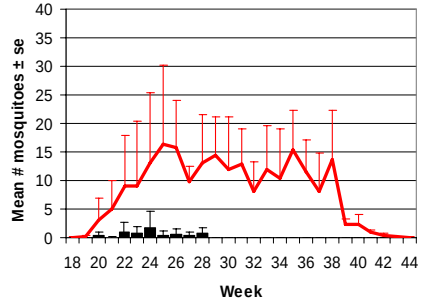
Coastal



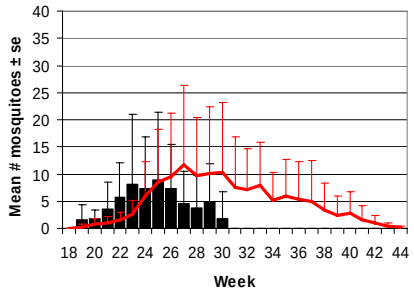
Delaware Bayshore



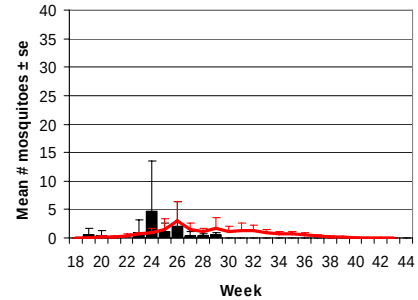
Delaware River Basin



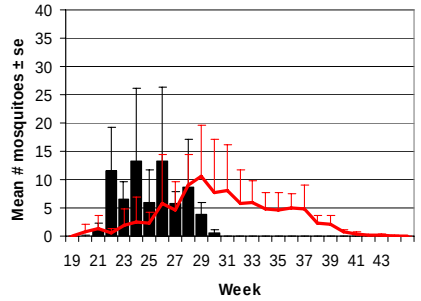
New York Metro



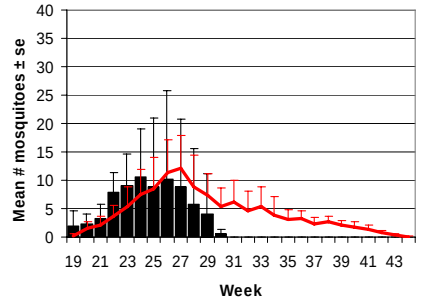
North Central Rural



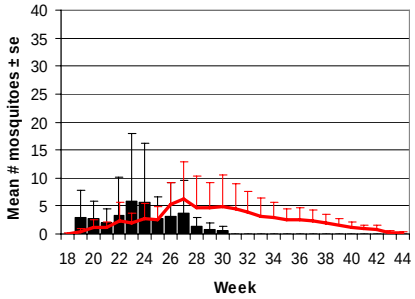
Northwestern Rural



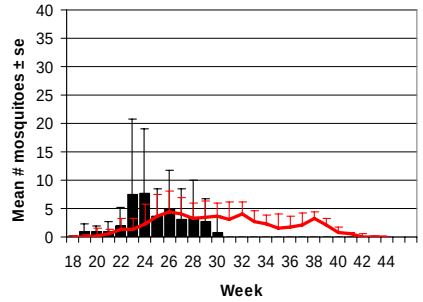
Philadelphia Metro



Pinelands



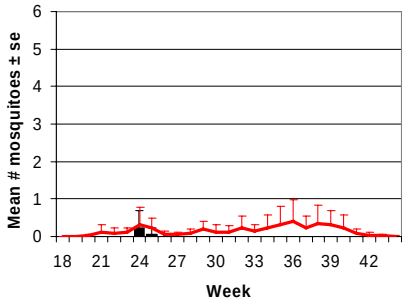
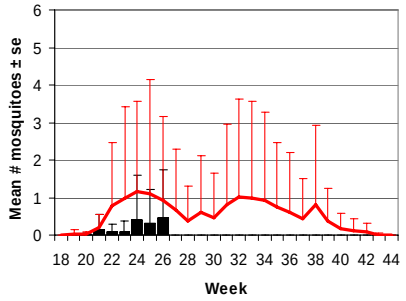
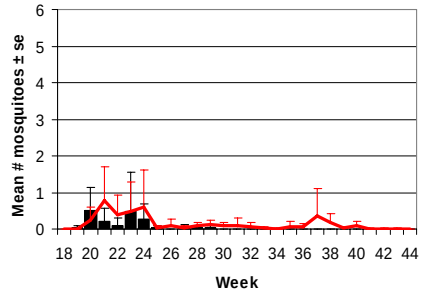
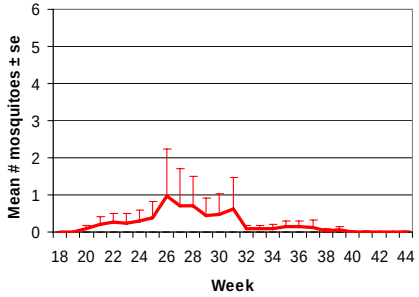
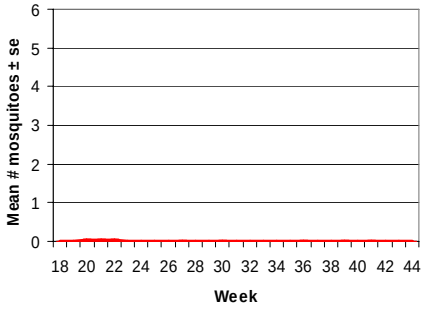
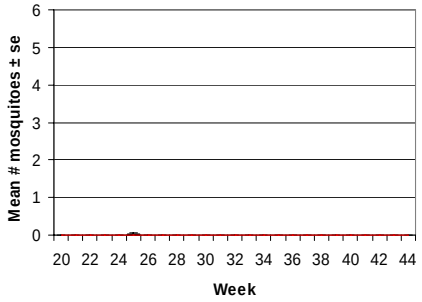
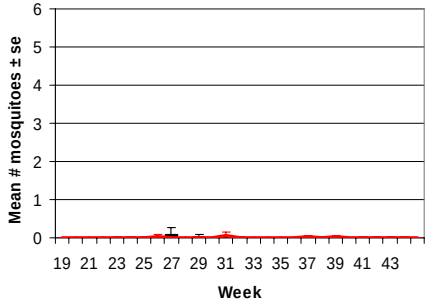
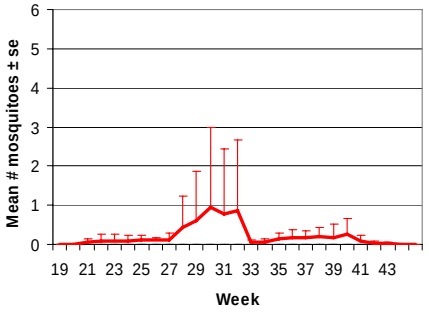
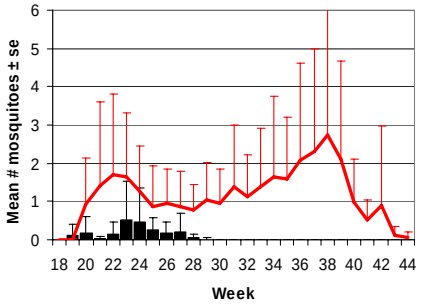
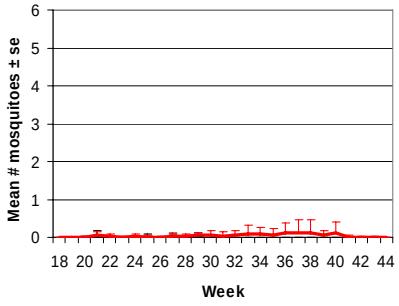
Suburban Corridor



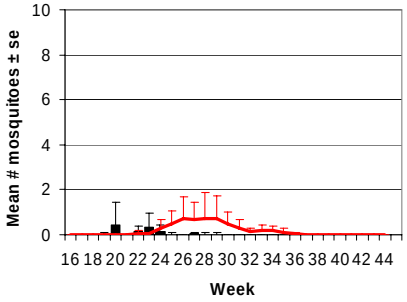
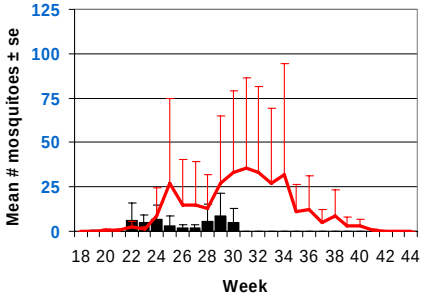
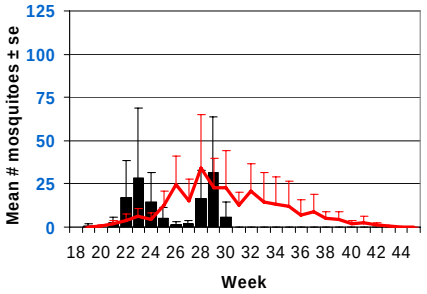
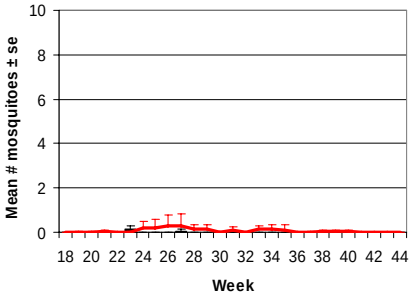
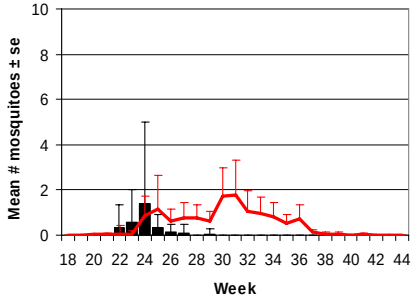
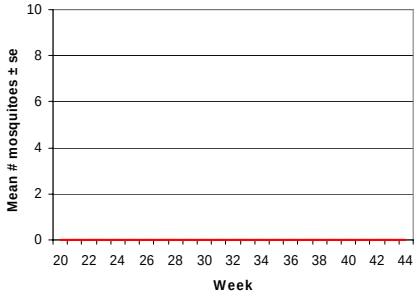
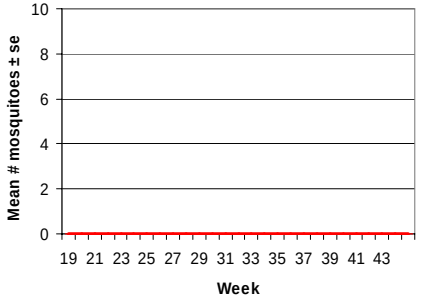
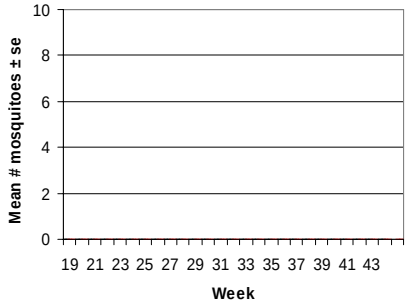
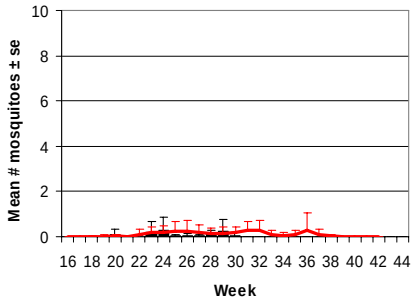
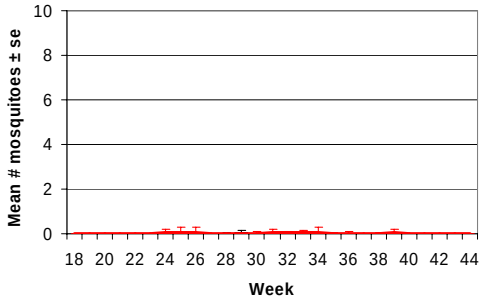
Comments

Culex Mixed species (*Cx. pipiens, restuans* and *salinarius*) in the Agricultural, Delaware Bayshore and the Delaware River Basin appear to be experiencing lower population numbers, particularly after an apparent vigorous start of the season for the former two regions. Population decreases in *Culex* reflect initial mortalities and later exodus to hibernaculae. In the Delaware River Basin, a decrease of permanent water habitat during dredge spoil repairs may explain lower *Culex* numbers.

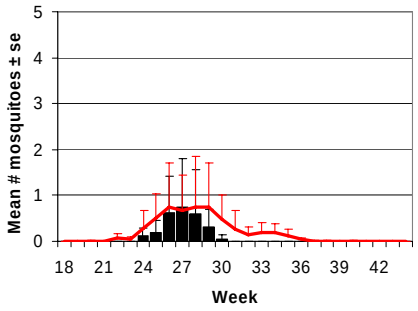
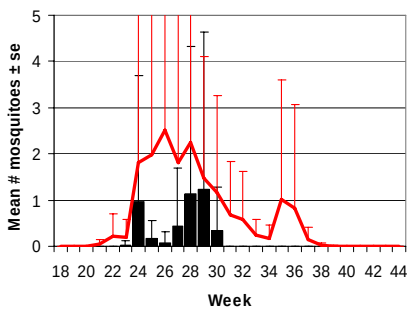
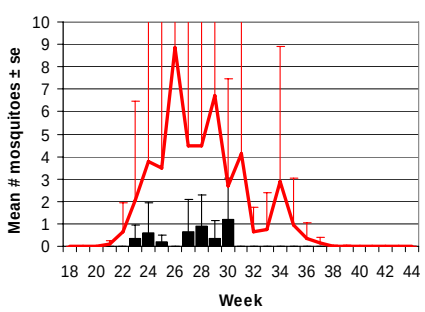
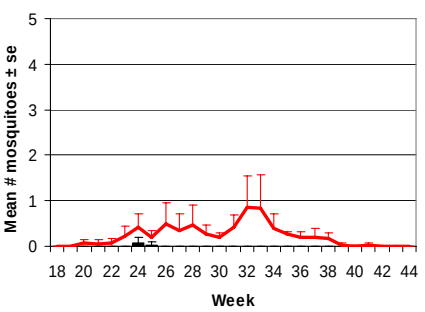
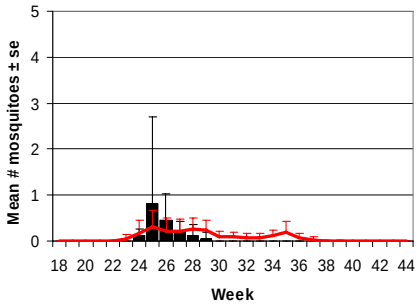
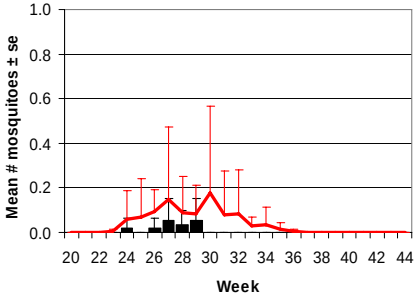
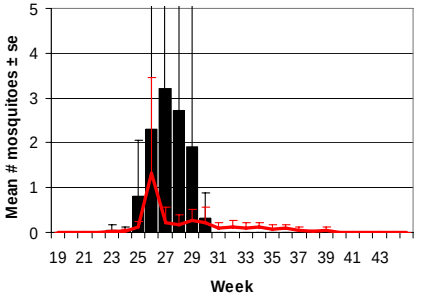
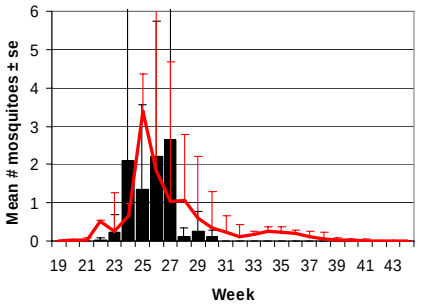
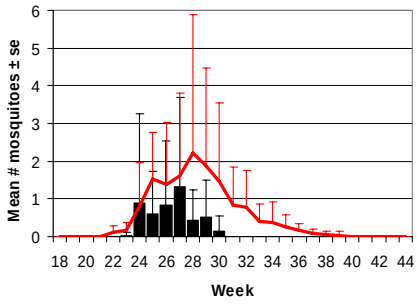
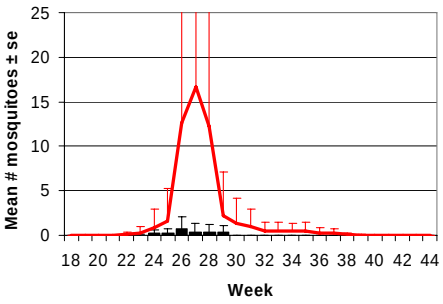
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Few individuals of the primary enzootic vector *Culiseta melanura* are showing up in either the county light traps involved in this report or at the resting box monitoring sites used for the Vector Surveillance program. An examination of the historical data in the vector program suggests that factors affecting statewide abundance levels modulate population numbers toward low numbers more often than not. Interestingly, despite the lower levels observed this year, both the North Central Rural and Northwestern Rural regions have caught *Cs. melanura* in light traps when they normally show little (if any) activity.	

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**	
		The second brood emergence of *Aedes sollicitans* is declining. Last full moon, which produces lunar tides high enough to cover eggs deposited in saltmeadow cordgrass (*Spartina patens*), occurred on the 18th of July. Populations should begin to increase for the third brood. Emergence can also be influenced by precipitation.	

Coquillettidia perturbans- Monotypic Species
(*Cq. perturbans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		The mid-season *Coquillettidia perturbans* are expected to decline in most regions, although most regions can also expect to find low numbers late in the season. Later emergences represent younger instars that overwintered together, and not a second generation (this species takes one year to develop).	

A temporal shift in populations?

This winter and spring have been variable in temperature. Warm temperatures were seen, ranging from a very mild winter to the ninth warmest April and fourth warmest June since 1895 (114 years). The State Climatologist noted how warm this June was by stating that "37 Julys since 1895 have been cooler than this past June." However, it was not uniformly warm as the month of May was also the 29th coolest of the past 114 years. Have some mosquitoes responded with early activity or is there something else going on?

<table>
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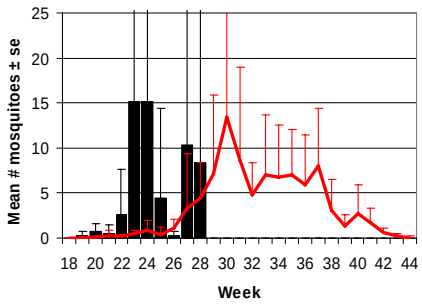
<td> 
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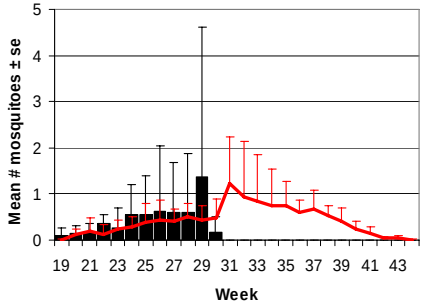
<td> 
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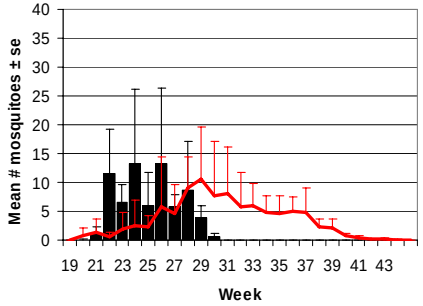
<td> 
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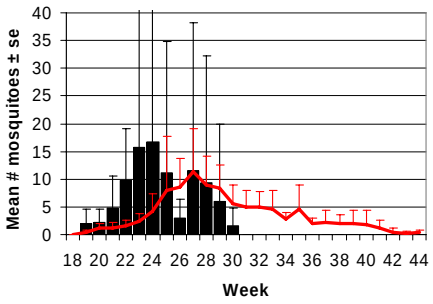
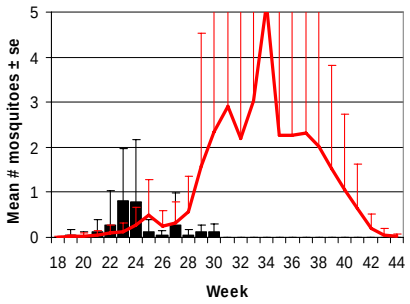
<td> 
</td>
</tr>
<tr>
<td>Anopheles quadrimaculatus in the Delaware Bayshore region.</td>
<td>Anopheles punctipennis in the Philadelphia Metro region.</td>
<td>Culex Mix in the Northwestern Rural region.</td>
<td>Culex Mix in the Coastal Region.</td>
</tr>
<tr>
<td> 
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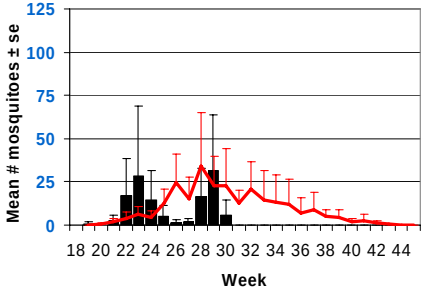
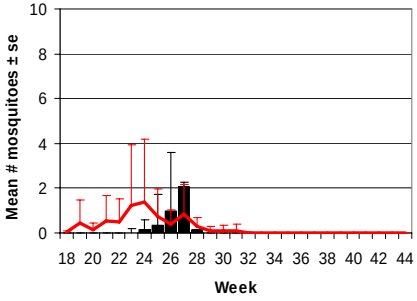
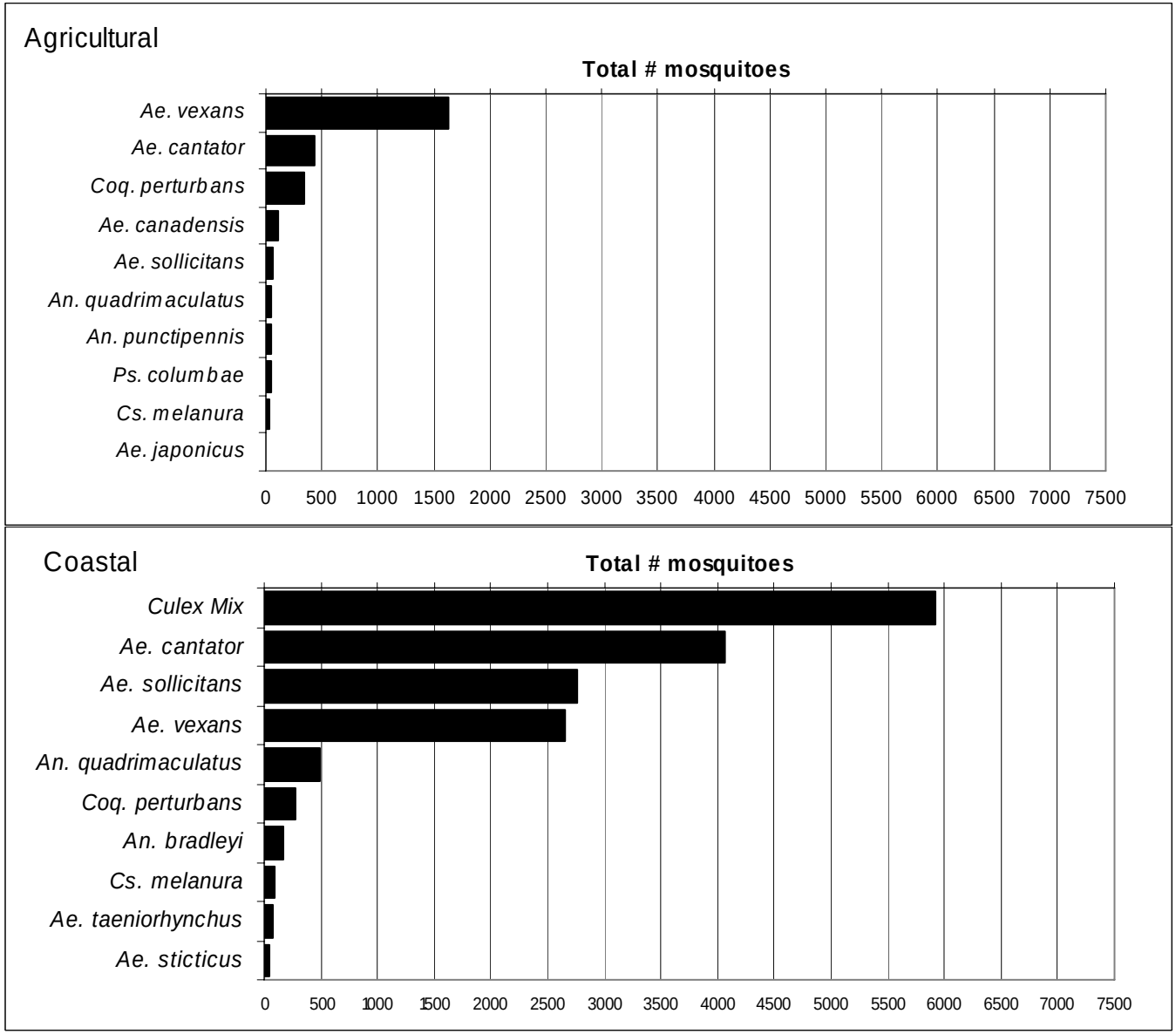
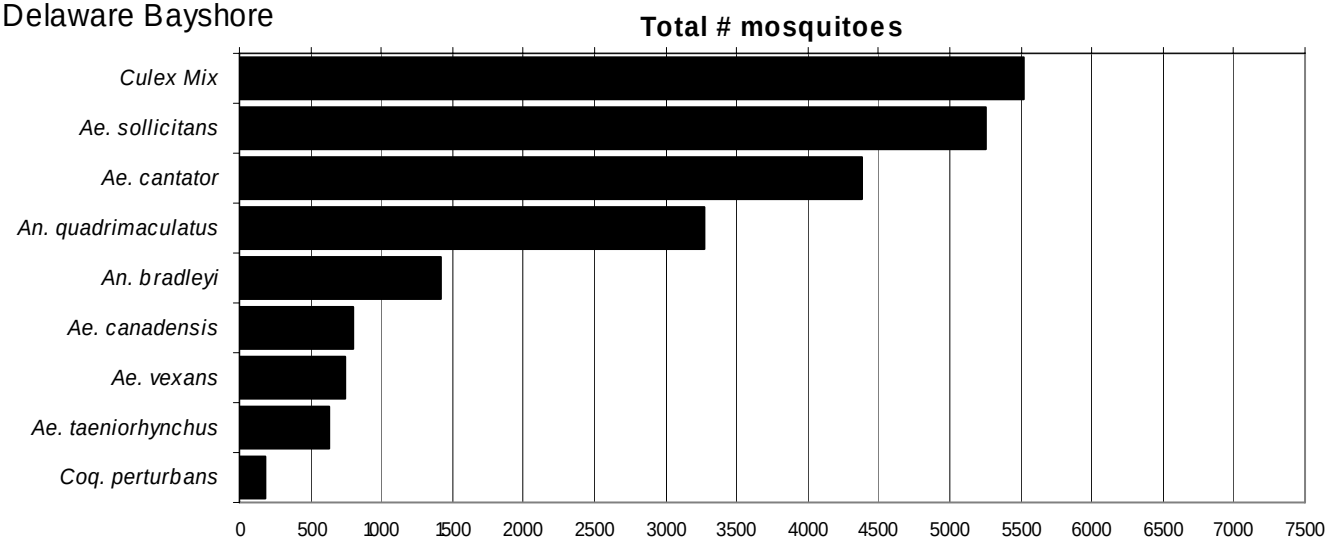
<td> 
</td>
<td rowspan="2">Early activity is suggested by Anopheles quadrimaculatus and the normally consistent Culex Mix group. Both would appear to peak earlier than historical records. But at the same time Aedes cantator in the NW Rural region appears later than might be expected. An. punctipennis in the Philadelphia Metro region shows large error bars as well as it likely is too soon to suggest a peak. The latter is also true for An. bradleyi in the coastal region. Temperature, rainfall, pesticide history and subsequent changes are likely factors in the temporal distribution of any species.</td>
<td> 
</td>
</tr>
<tr>
<td>Anopheles bradleyi in the Coastal region</td>
<td>Aedes sollicitans in the Delaware Bayshore region.</td>
<td>A late start…Aedes cantator in the Northwestern Rural region.</td>
</tr>
</table>

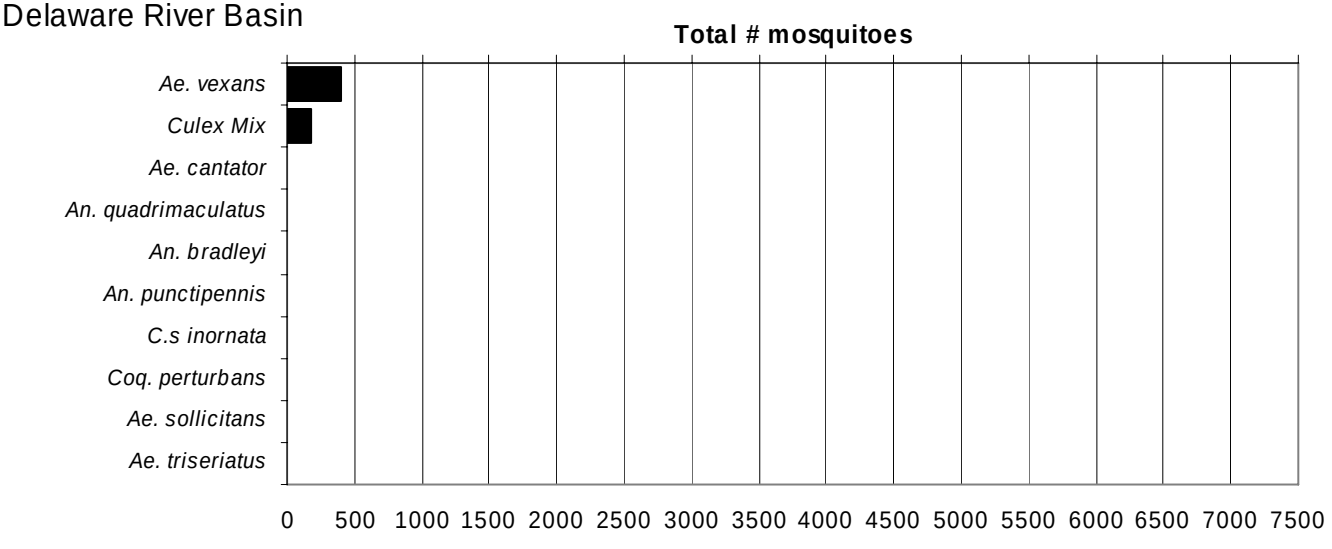
Top Ten Mosquito Species/Region

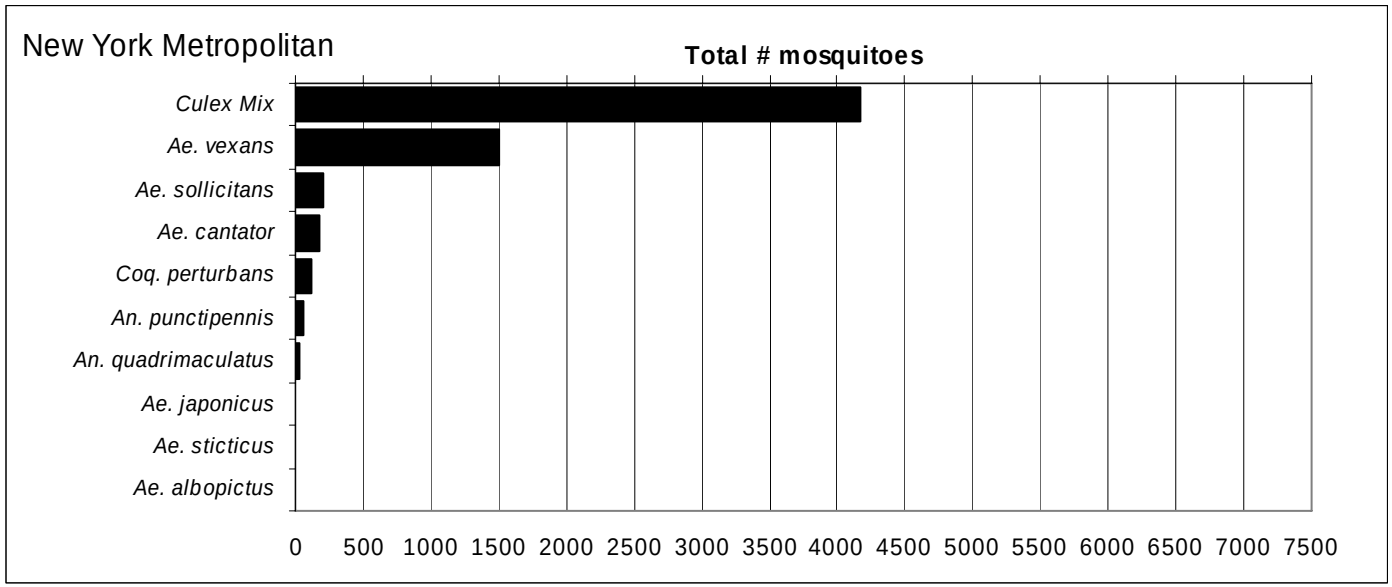


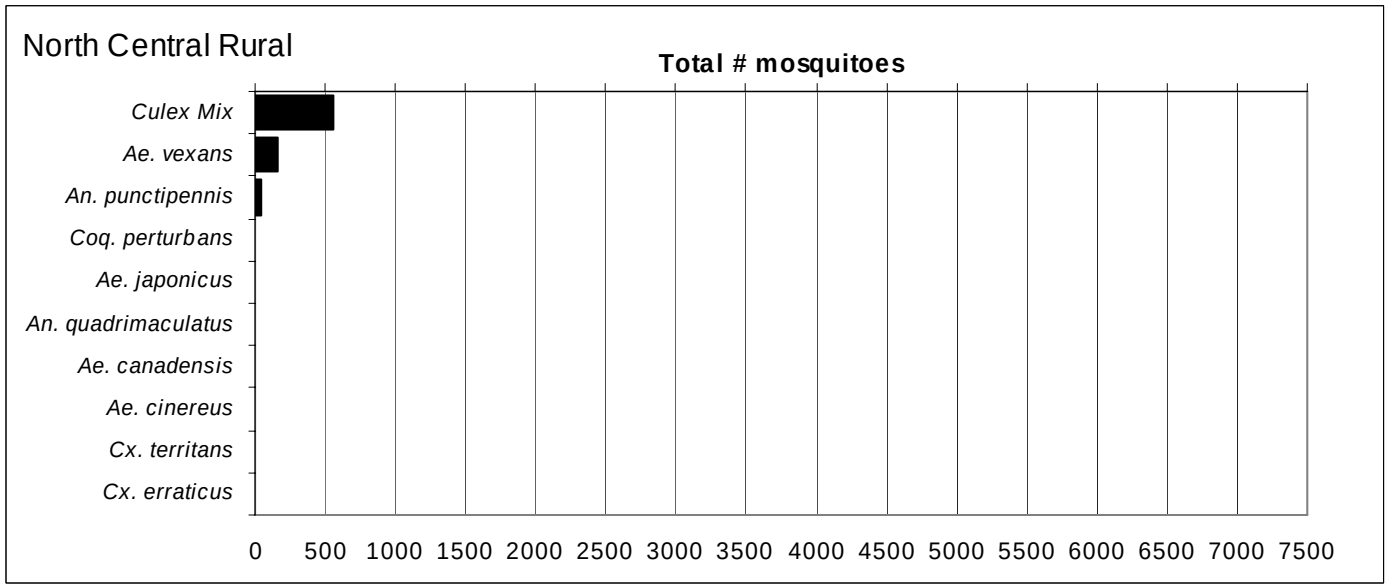
Delaware Bayshore

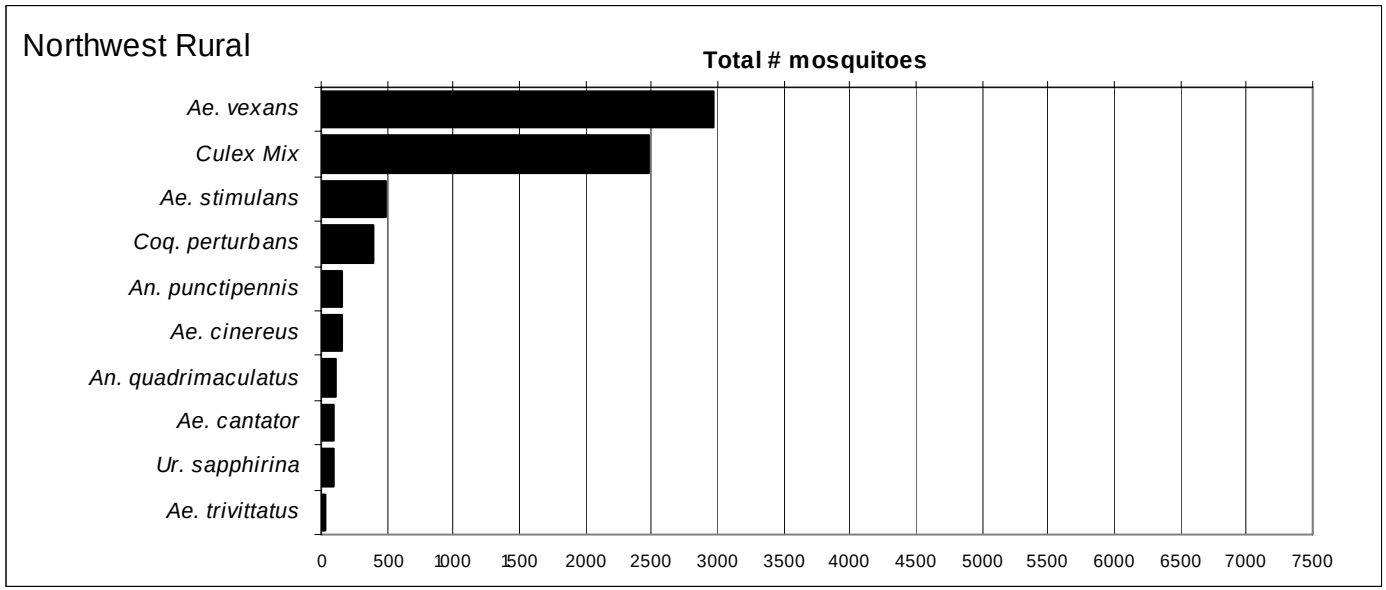


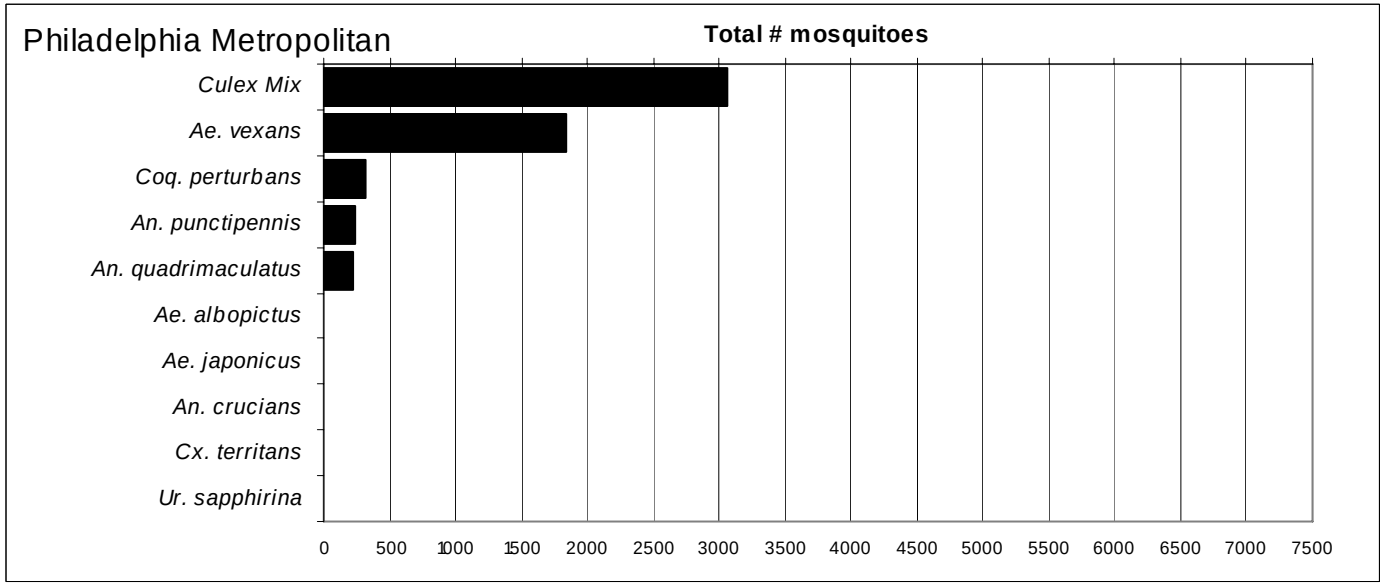
Delaware River Basin



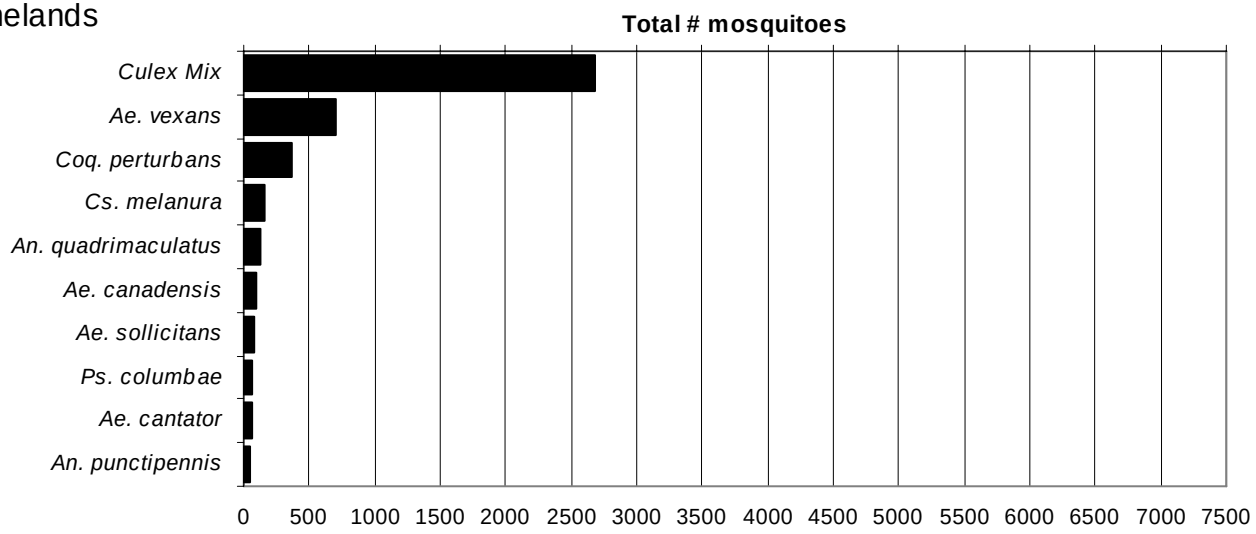

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sollicitans
Ae. cantator
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Ae. sticticus
Ae. albopictus
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
Coq. perturbans
Ae. japonicus
An. quadrimaculatus
Ae. canadensis
Ae. cinereus
Cx. territans
Cx. erraticus
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. stimulans
Coq. perturbans
An. punctipennis
Ae. cinereus
An. quadrimaculatus
Ae. cantator
Ur. sapphirina
Ae. trivittatus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ae. albopictus
Ae. japonicus
An. crucians
Cx. territans
Ur. sapphirina
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500

Pinelands



Suburban Corridor