RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 8 August to 14 August 2010, CDC Week 32

Prepared by Lisa M. Reed, Scott Crans and Mark Robson
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.

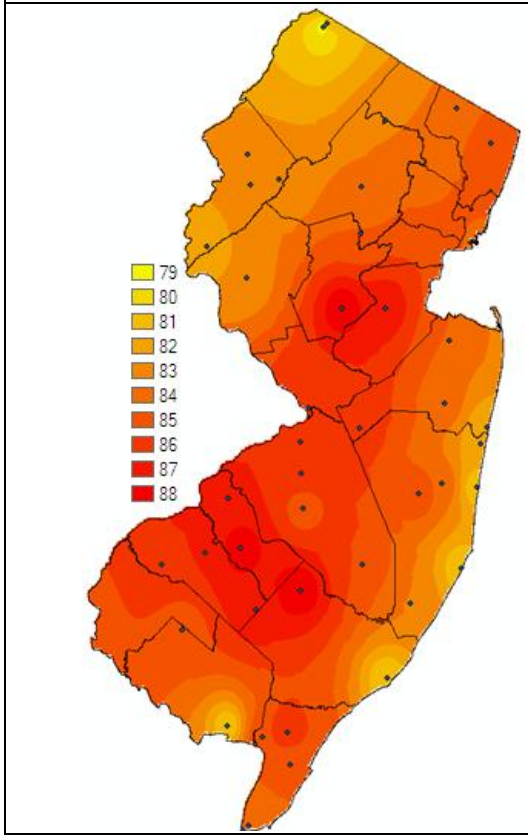
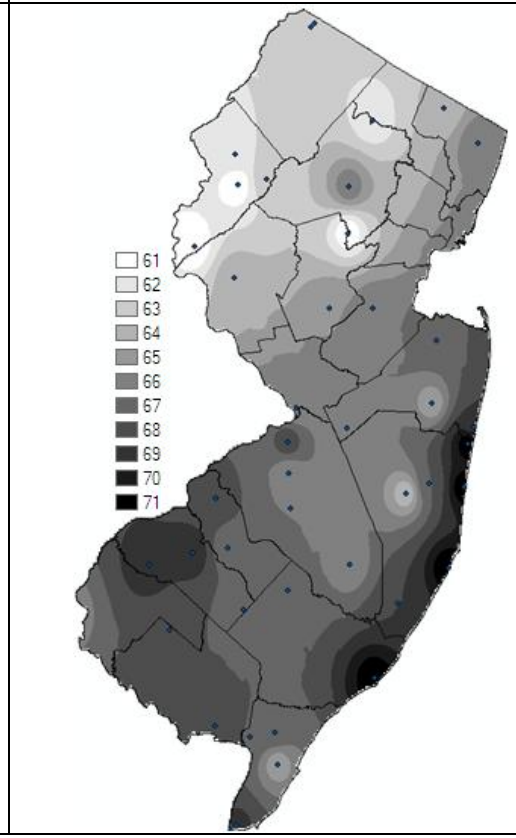
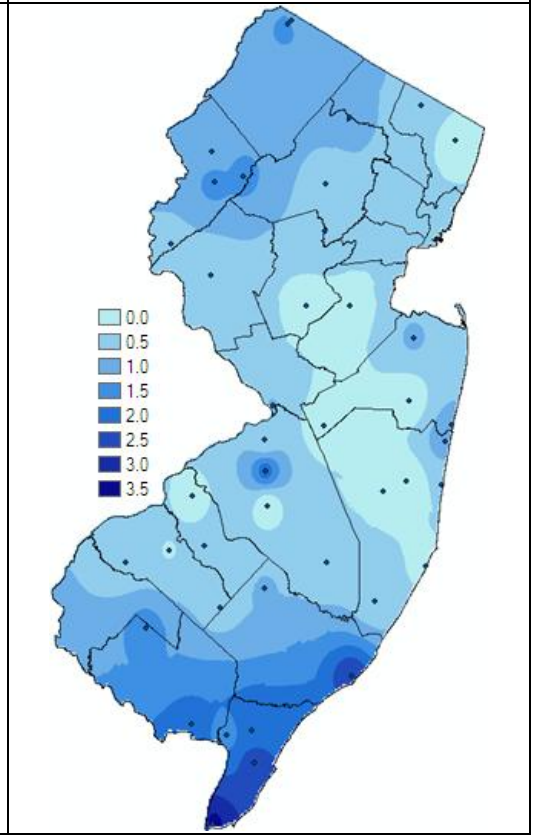
Summary table – Week 32

	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	**0.43**	**2.17**	**0**	**0.57**	**2.96**	**0**	**0.02**	**0.10**	**0**	**0.29**	**0.74**	**0**
Coastal	**1.03**	**3.97**	**0**	**0.76**	**6.25**	**0**	**0.00**	**0.22**	**0**	**3.44**	**22.91**	**0**
Delaware Bayshore	**0.37**	**2.55**	**0**	**0.89**	**23.59**	**0**	**0.46**	**0.87**	**0**	**0.00**	**12.07**	**0**
Delaware River Basin	**5.43**	**9.30**	**0**	**1.71**	**2.51**	**0**	**2.07**	**0.26**	**4**	**0.07**	**0.21**	**0**
New York Metro	**0.50**	**7.29**	**0**	**5.86**	**7.00**	**0**	**0.13**	**0.09**	**1**	**0.16**	**0.53**	**0**
North Central Rural	**0.33**	**0.59**	**0**	**0.08**	**0.91**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**4.49**	**18.03**	**0**	**1.49**	**2.67**	**0**	**0.48**	**0.55**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.93**	**7.95**	**0**	**0.33**	**3.14**	**0**	**0.03**	**0.12**	**0**	**0.00**	**0.00**	**0**
Pinelands	**1.03**	**1.76**	**0**	**1.16**	**3.49**	**0**	**0.68**	**0.37**	**2**	**0.00**	**0.06**	**0**
Suburban Corridor	**0.64**	**9.43**	**0**	**0.50**	**2.03**	**0**	**0.16**	**0.25**	**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 in the increase column denote increases from an historic zero and thus no value can be appropriately given.

State Summary: Mosquito populations continue to drop with the prospects of rain. *Coquillettidia perturbans* did show unusually high activity in the Delaware River Basin along with modest increases also seen in the New York Metro and Pinelands regions.

Climate Factors

Average High Temperatures	Average Low Temperatures	Total Precipitation
		

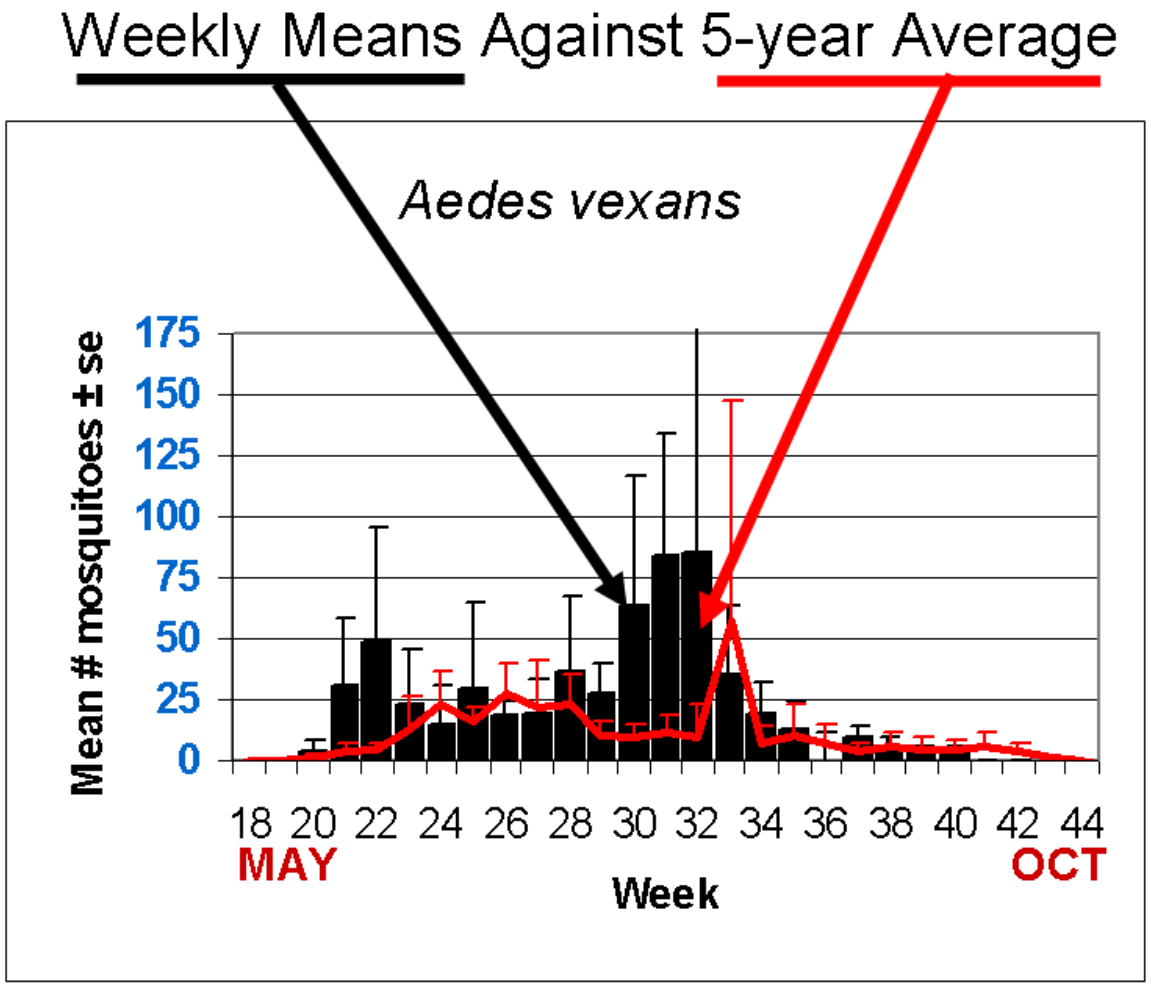
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for August 1-18, 2010 in New Jersey. Data points are from 40 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

August continues with daytime temperatures generally lower than in July (although warmer days are predicted), warmer nights and little precipitation. As with last week, coastal and higher elevation areas are cooler during the day, but the coastal areas retain heat during the night. Area of most rainfall this past week was in Cape May.

NJ Weather & Climate NETWORK

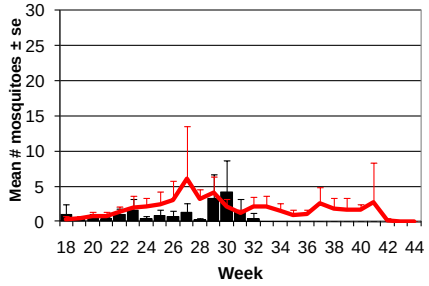
ONJSC at Rutgers University

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 Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hunterdon, Hudson, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties. Note: Previous week's data are from Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hunterdon, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties.

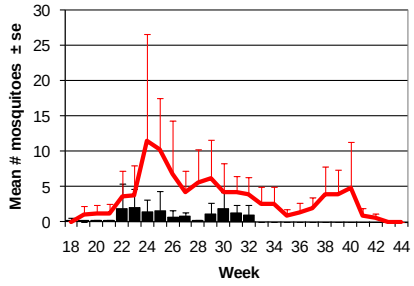


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

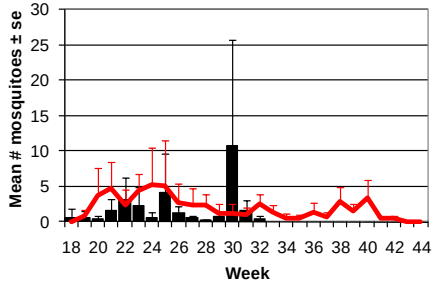
Agricultural



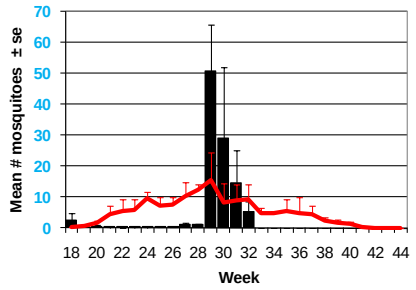
Coastal



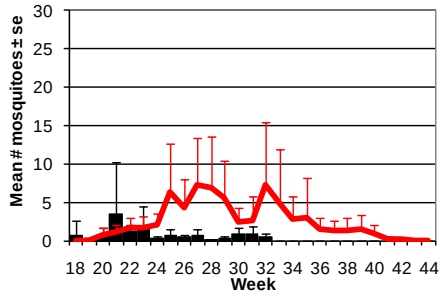
Delaware Bayshore



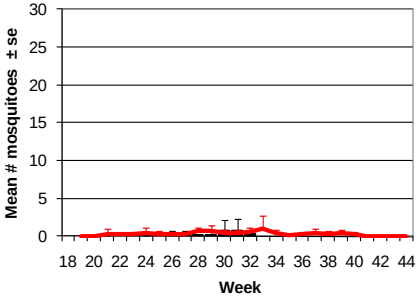
Delaware River Basin



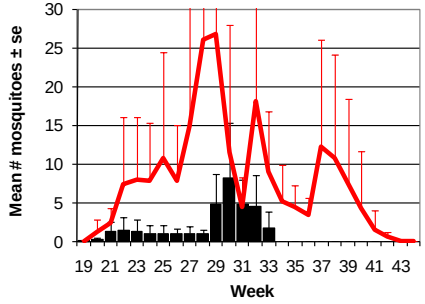
New York Metro



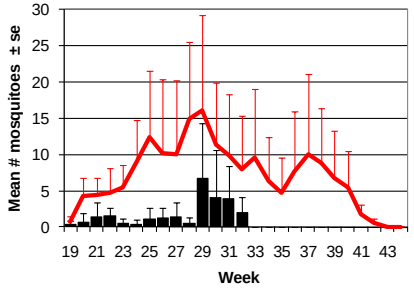
North Central Rural



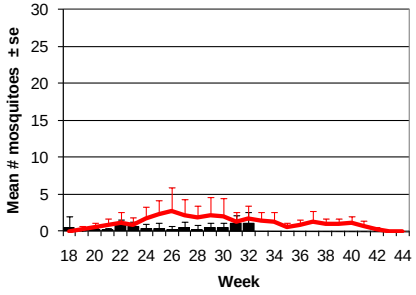
Northwestern Rural



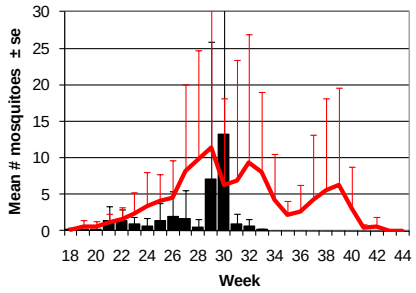
Philadelphia Metro



Pinelands



Suburban Corridor



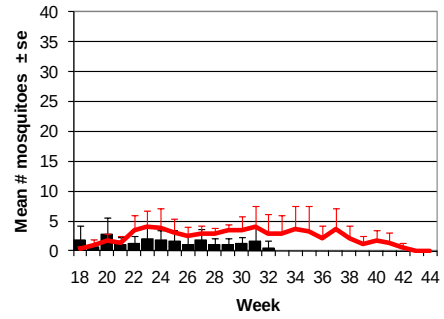
Comments

Dry conditions continue to restrict overall populations of mosquitoes, particularly the floodwater species. New Jersey is currently under “abnormally dry” and “moderate drought” conditions, although forecasts suggests that drought conditions should improve (sometime between now and November).

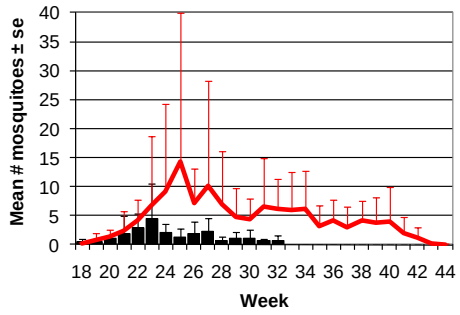
http://tinyurl.com/39wfod6
(goes to http://www.drought.gov/portal/server.pt/gateway/PTARGS_0_2_792_223_0_43/http%3B/drought.unl.edu/dm/DM_state.htm?NJ,NE**)**

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

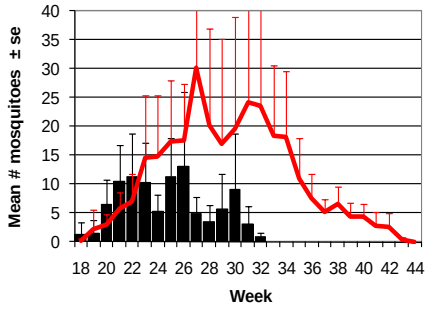
Agricultural



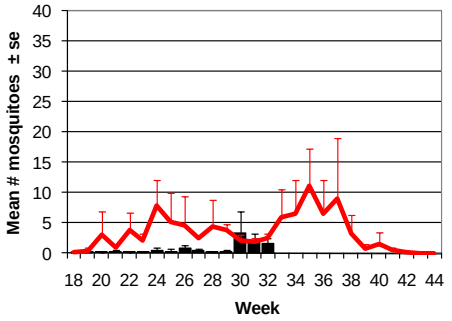
Coastal



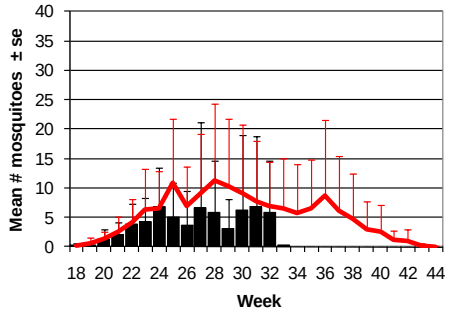
Delaware Bayshore



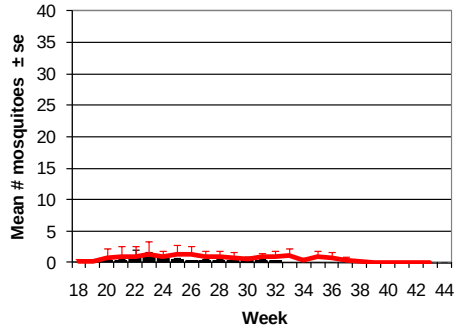
Delaware River Basin



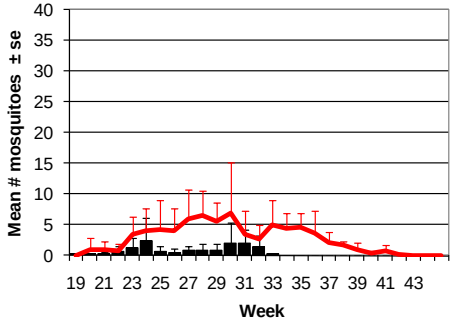
New York Metro



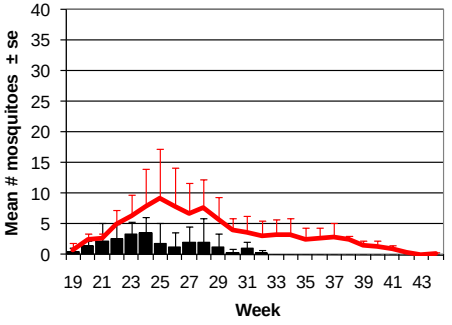
North Central Rural



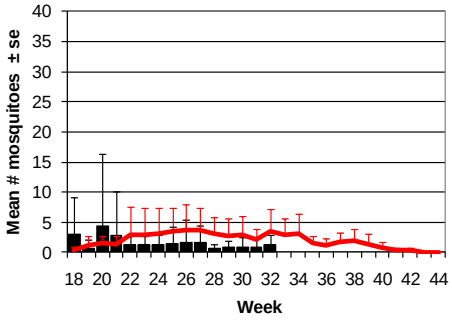
Northwestern Rural



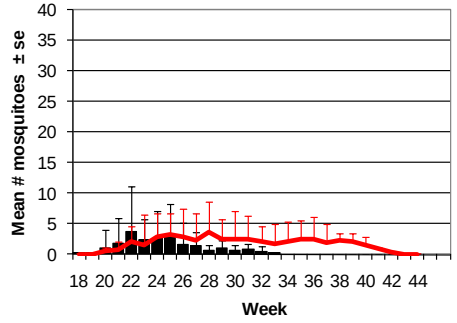
Philadelphia Metro



Pinelands



Suburban Corridor

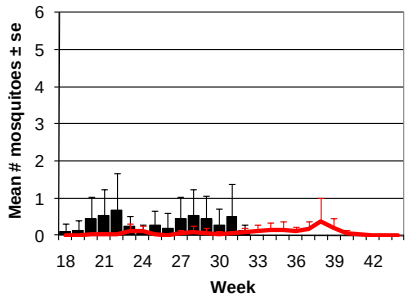
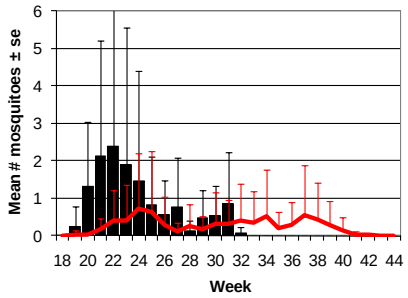
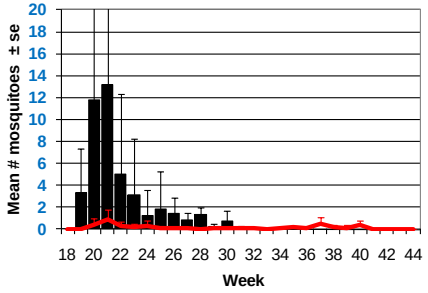
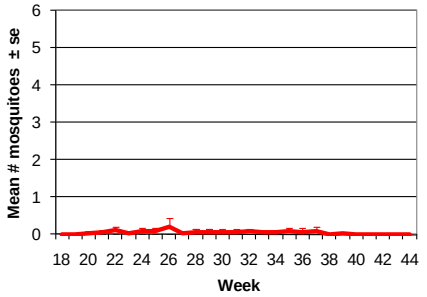
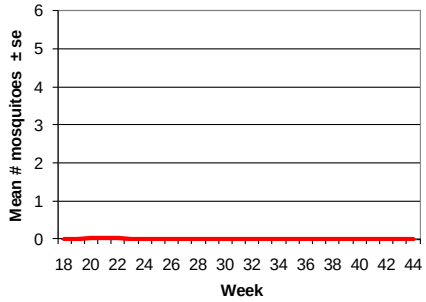
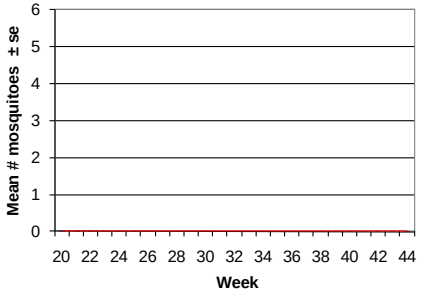
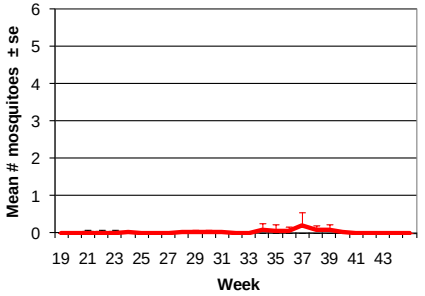
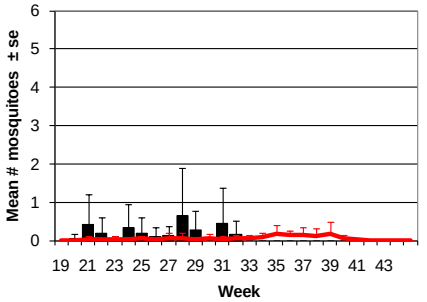
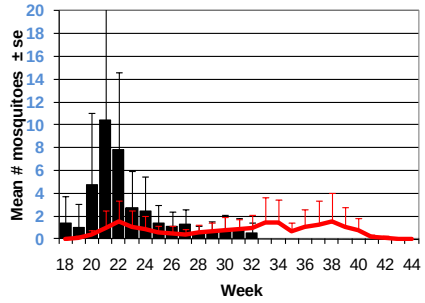
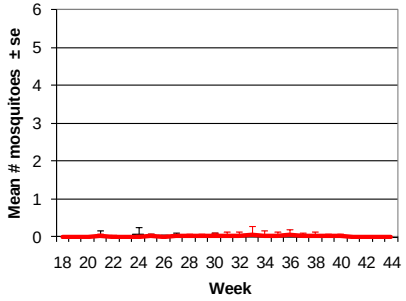


Comments

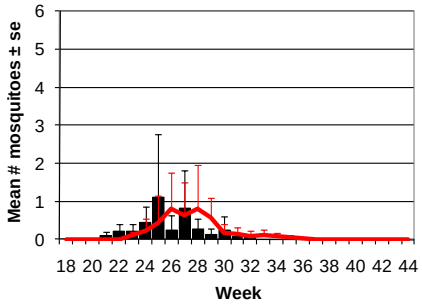
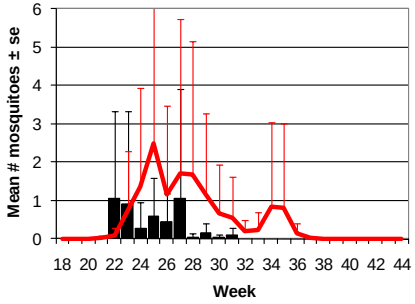
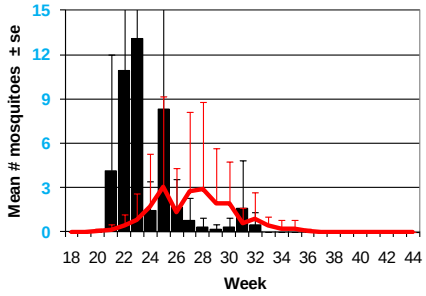
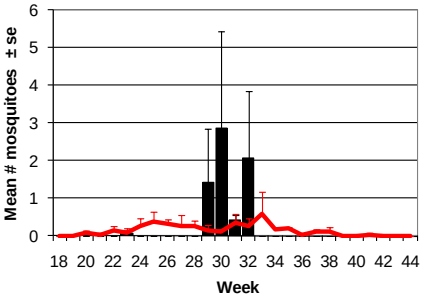
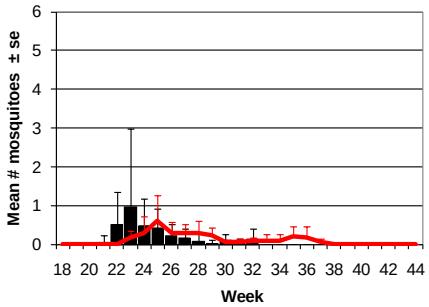
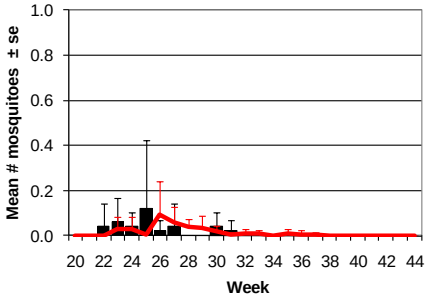
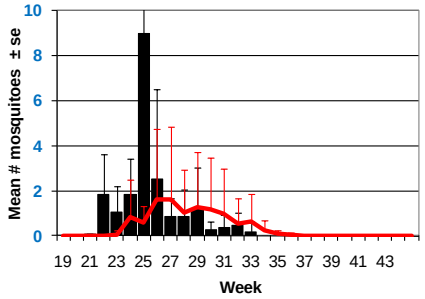
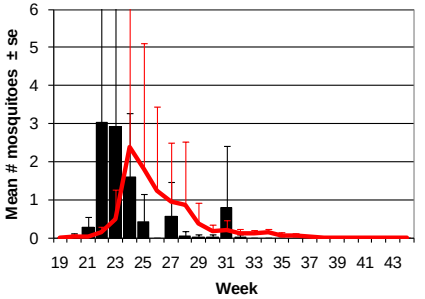
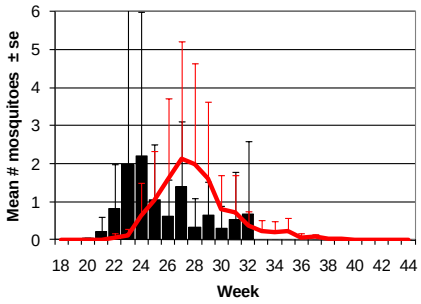
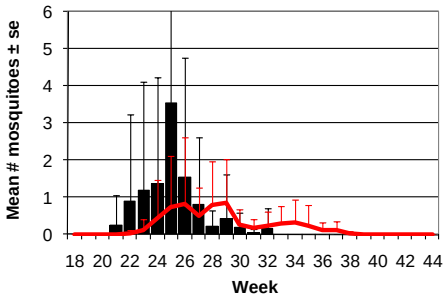
Culex Mix is represented by three species of *Culex* mosquitoes: *Cx. pipiens, Cx. restuans* and *Cx. salinarius*. These mosquitoes are usually grouped together as there is considerable difficulty in separating them to species easily after travelling through the grind of the light trap, often in the company of protesting moths and beetles.

Culex Mix populations in the state continue to show the impact of drought conditions in several regions, such as the Coastal, Delaware Bayshore, Northwestern Rural and Philadelphia Metro. The Delaware River Basin has had a recent increase in *Culex* numbers as the dredge spoil activity begins anew after court battles about their operations.

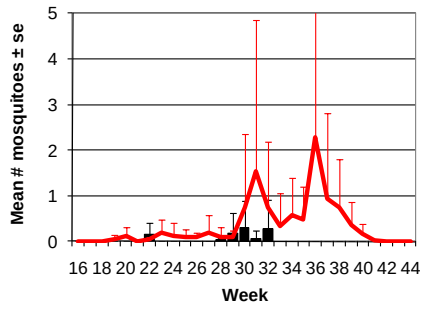
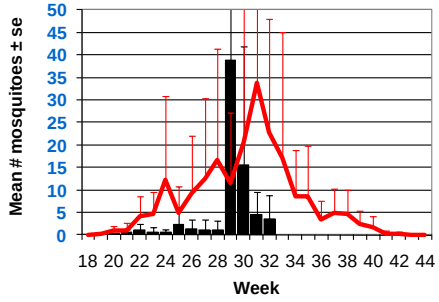
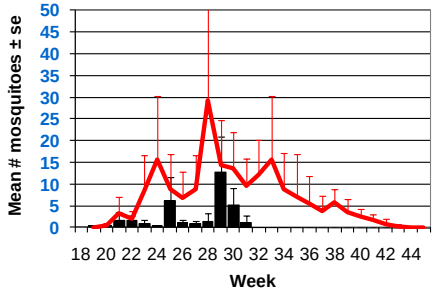
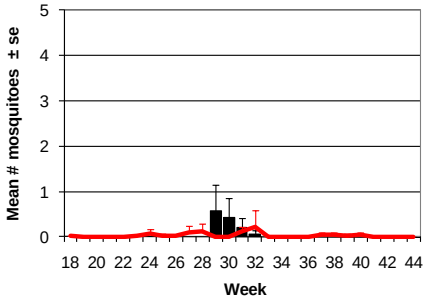
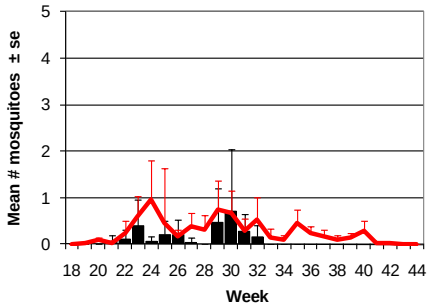
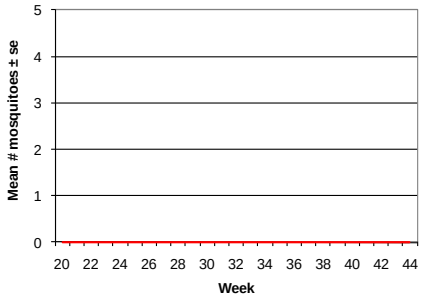
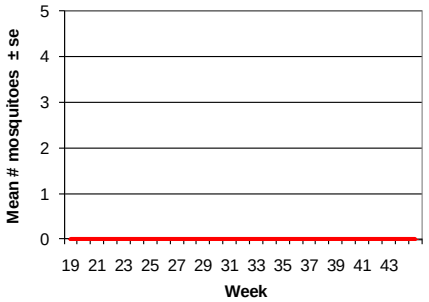
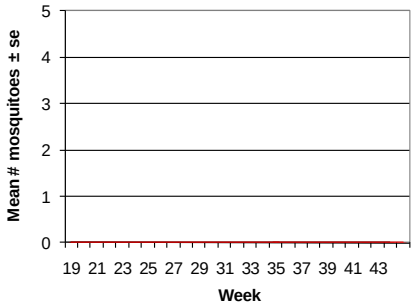
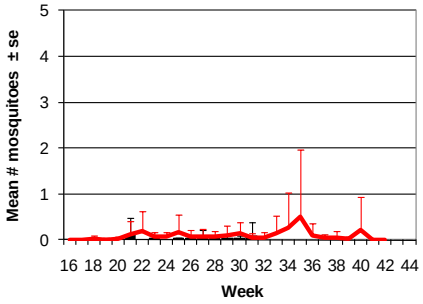
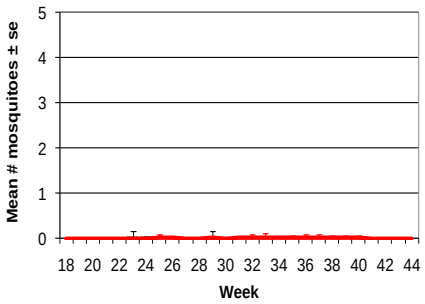
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, continues to remain around historic trends in areas that they are normally found. EEE activity continues to increase, following patterns of increased activity throughout the EEE range in the US. Although the suspected coastal bridge vector *Aedes sollicitans* has had minor activity, some areas are seeing a late season increase in the suspected inland vector, *Coq. perturbans* and monitoring of all transmission participants should continue.	

Coquillettidia perturbans – Miscellaneous Group
Monotypic (*Coq. perturbans* Type)

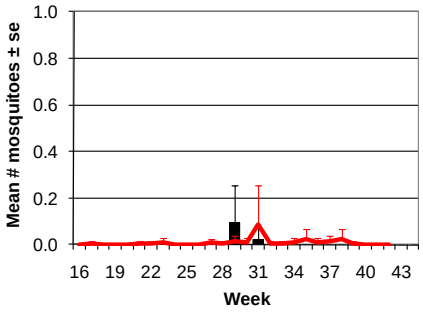
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations generally continue to decrease throughout the state, although some increases were seen, particularly in the Delaware River Basin, where numbers were considerably higher than historic values. See also *Cs. melanura.*	

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

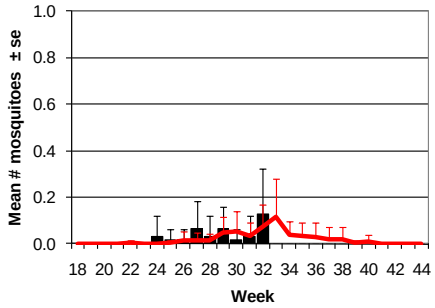
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* population numbers declined in all regions except the Agricultural. This species is a long-distant migrant and will travel inland searching for food or mating opportunities. In the Delaware River Basin, *Ae. sollicitans* has appeared there in recent weeks. Interestingly, the salt line for the Delaware River is closer to the mouth rather than farther up river as can occur during drought conditions: http://www.state.nj.us/drbc/salt.htm August 24th is the next full moon.	

Aedes albopictus – Container Species
Multivoltine Aedine (*Ae. triseriatus* Type)

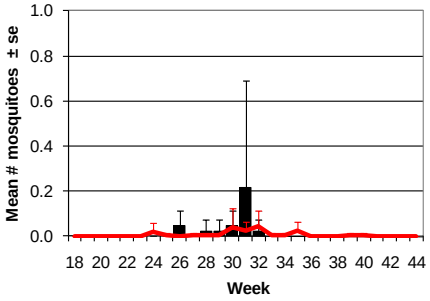
Agricultural



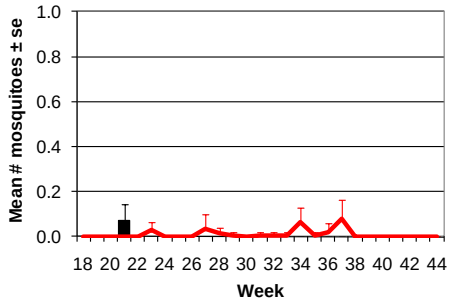
Coastal



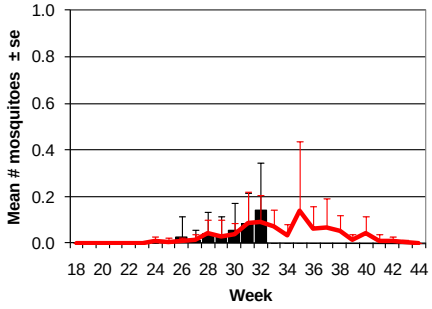
Delaware Bayshore



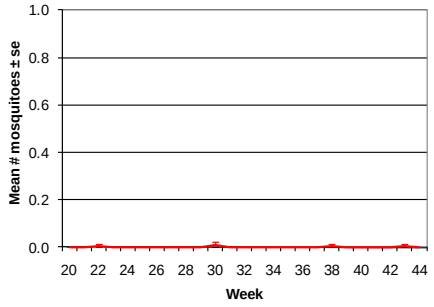
Delaware River Basin



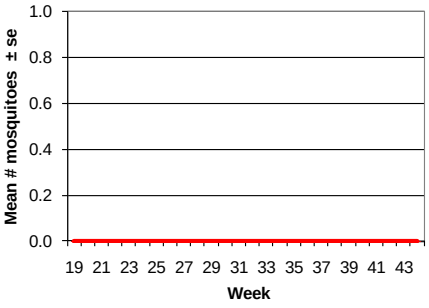
New York Metro



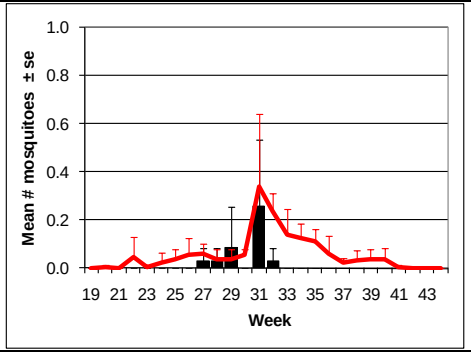
North Central Rural



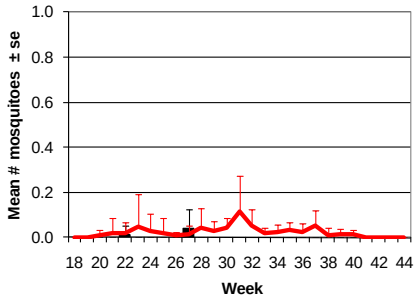
Northwestern Rural



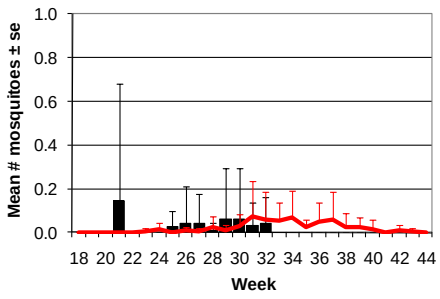
Philadelphia Metro



Pinelands



Suburban Corridor



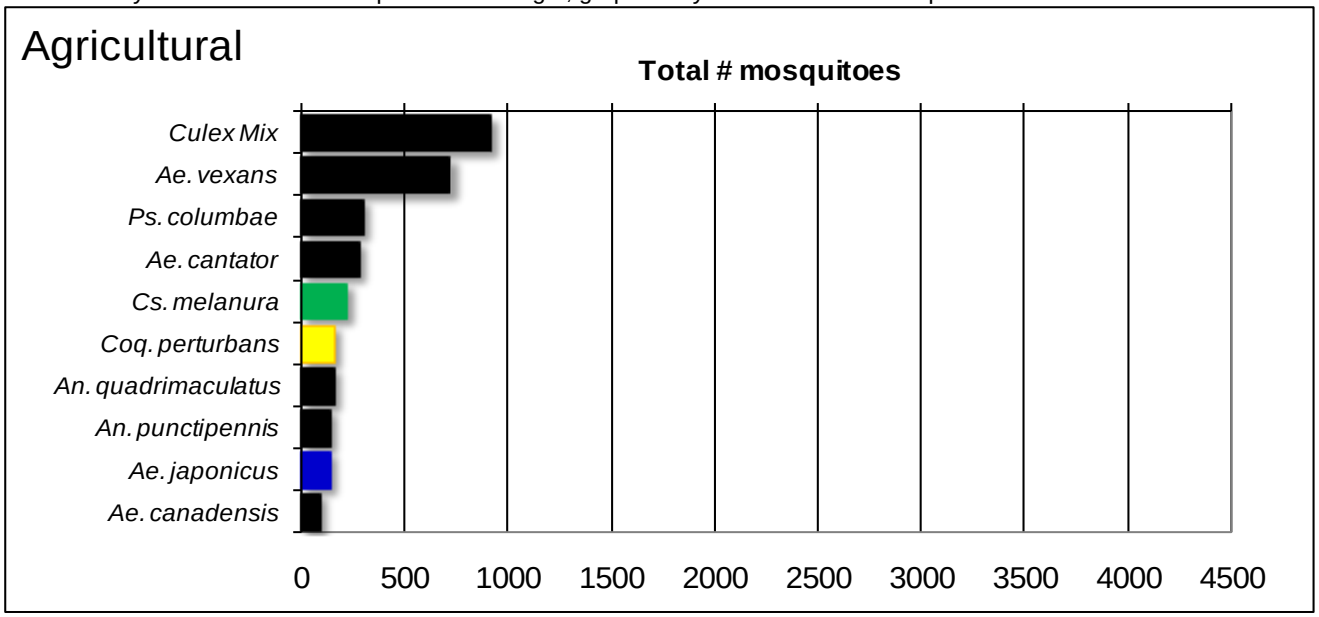
Comments

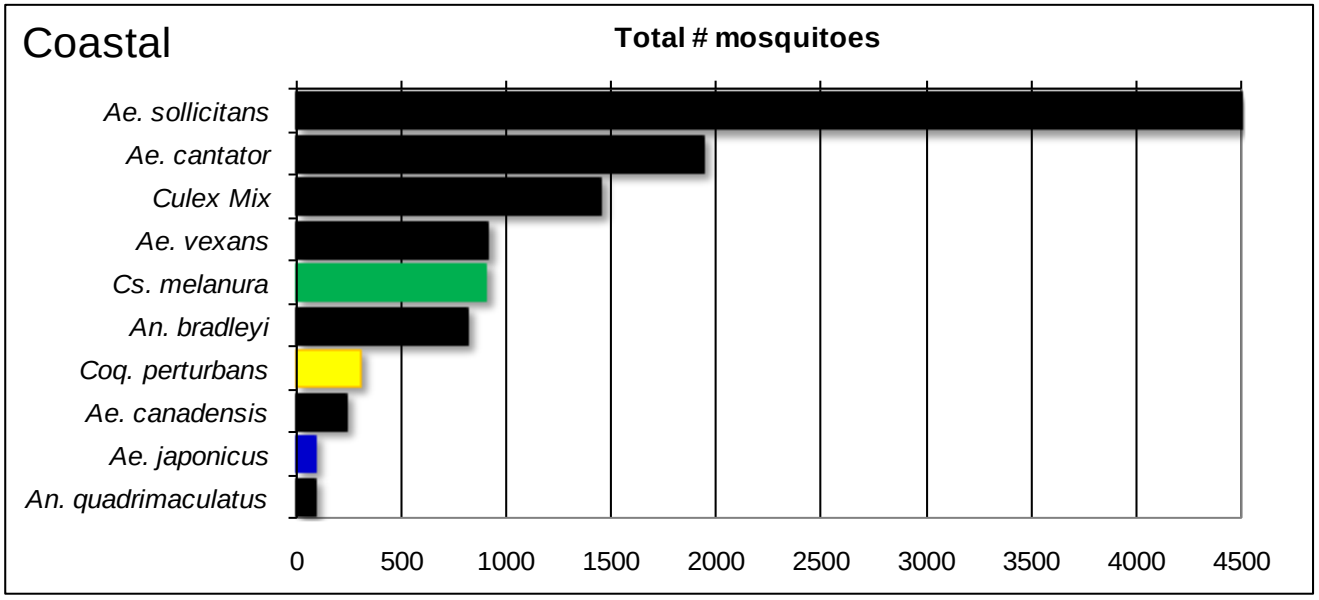
Aedes albopictus, the Asian Tiger Mosquito, has had variable population sizes this year, but now appear to be more consistent. The Suburban Corridor displayed an unusual number early in the season. This week, numbers were above the historical trend in the Coastal and New York Metropolitan region. Unlike *Aedes japonicus*, this species is more sensitive to the cold and populations disappear when cooler temperatures prevail. Heat sinks such as the urban and suburban areas appear to hold onto populations slightly longer.

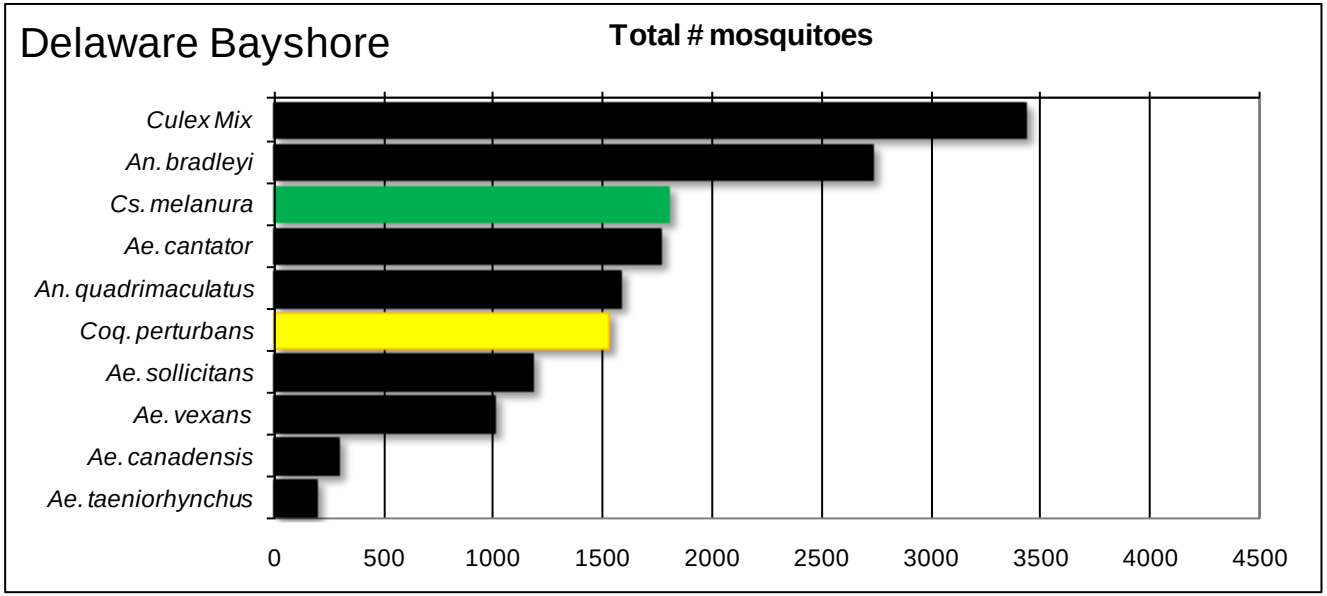
WNV *EEE*

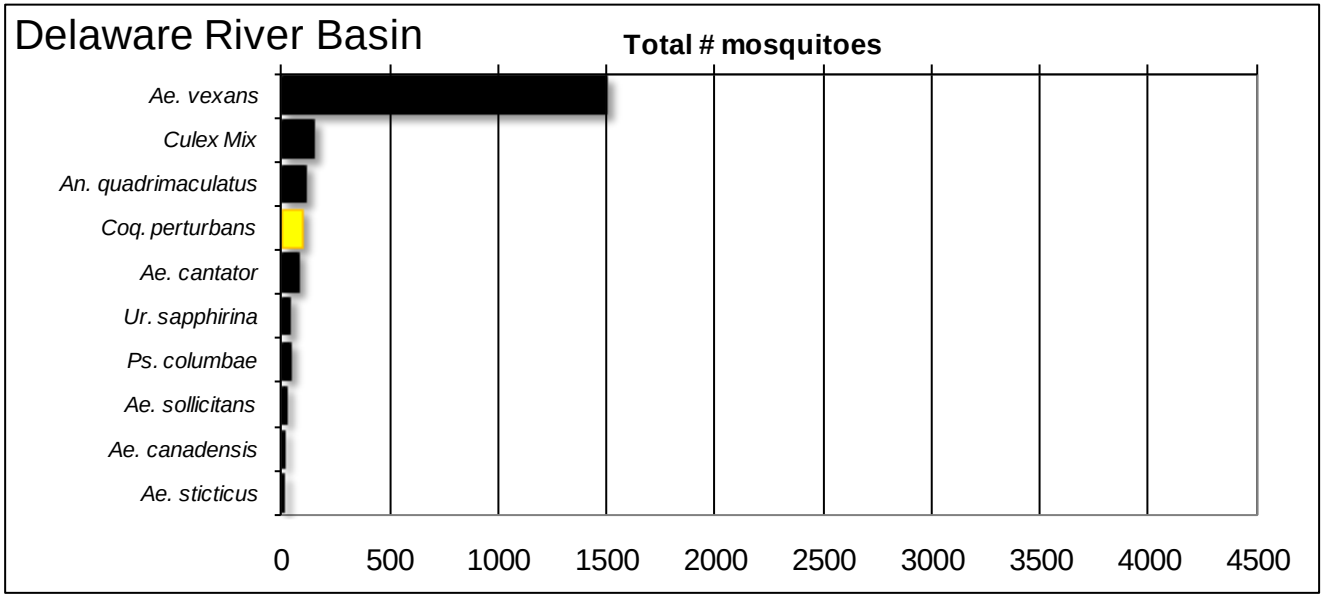
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

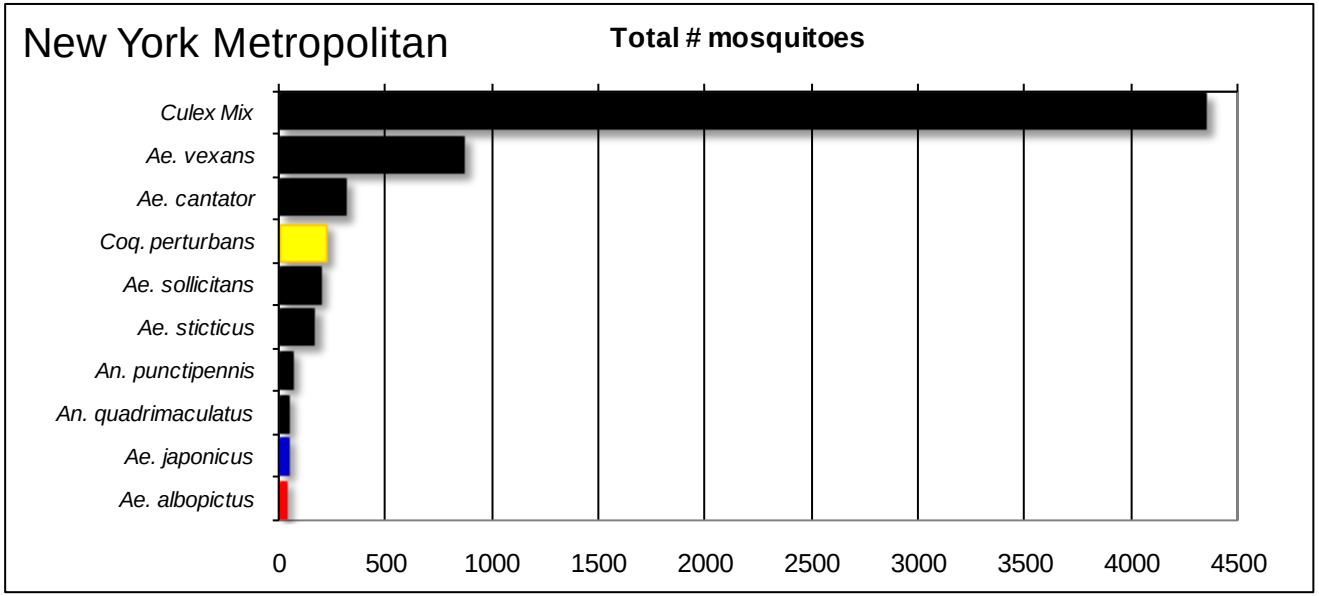
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

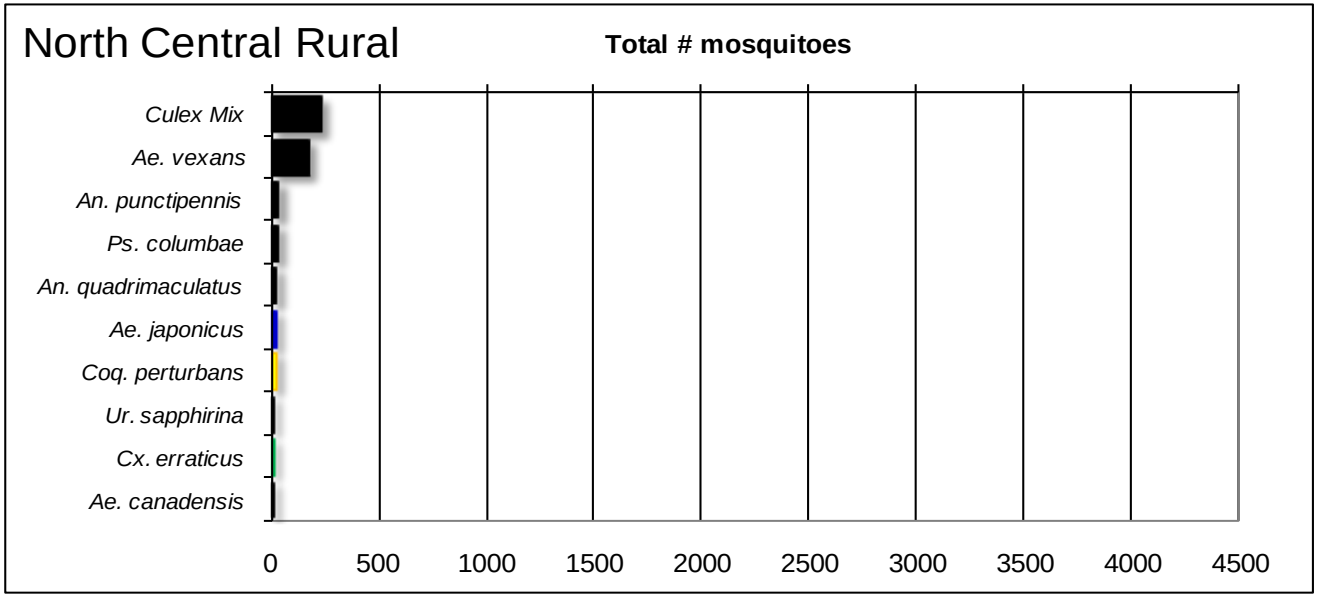


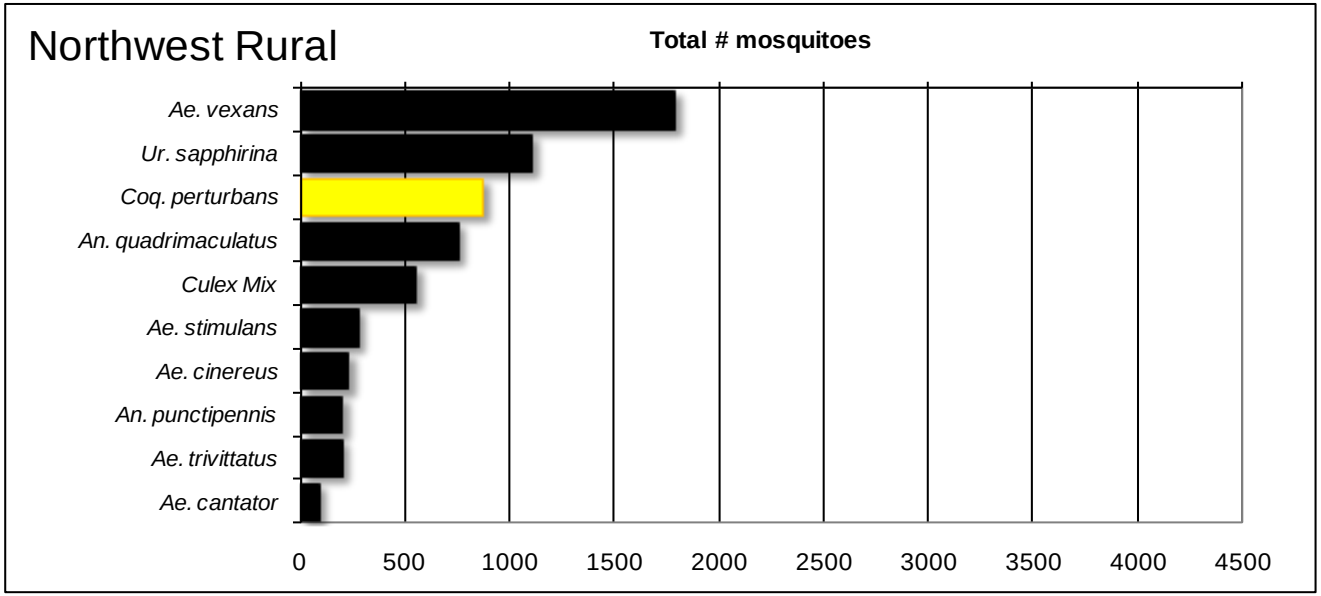


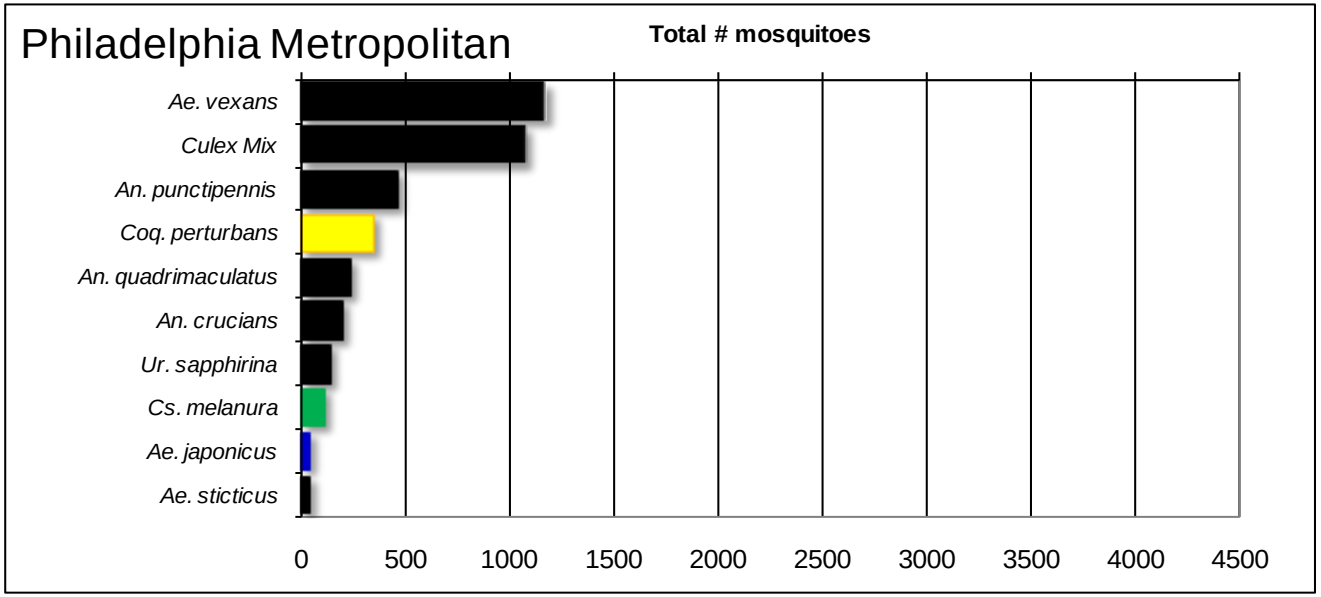

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
Cs. melanura
Ae. cantator
An. quadrimaculatus
Coq. perturbans
Ae. sollicitans
Ae. vexans
Ae. canadensis
Ae. taeniorhynchus
0
500
1000
1500
2000
2500
3000
3500
4000
4500

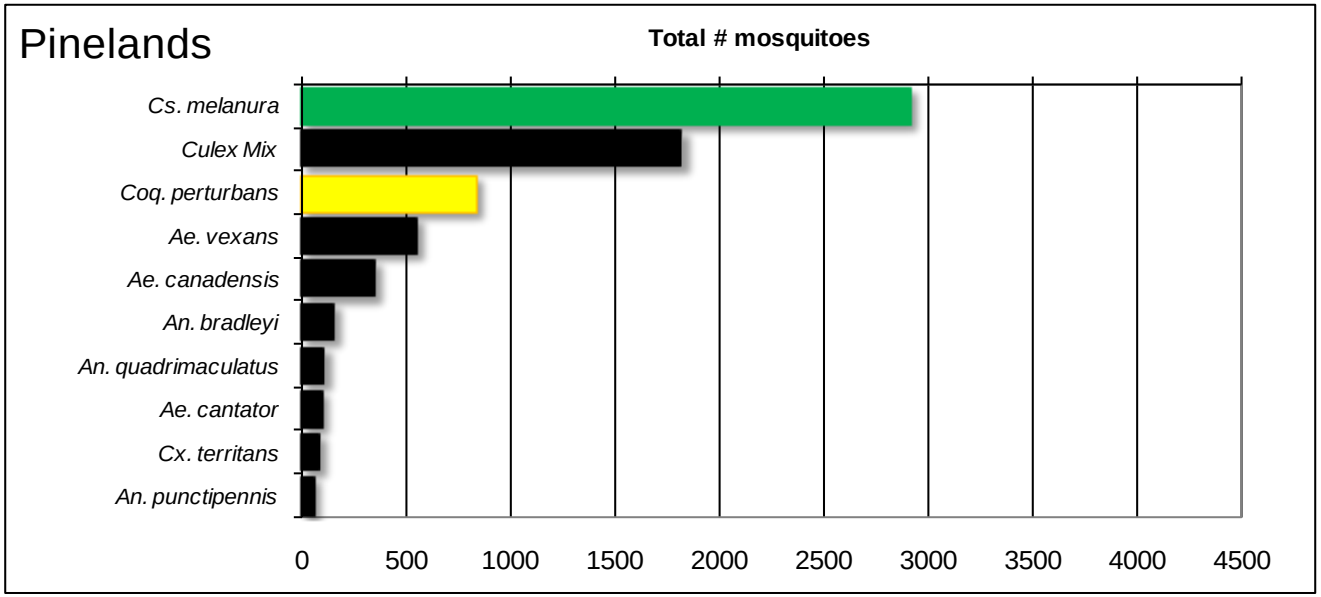

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
Ae. cantator
Ur. sapphirina
Ps. columbae
Ae. sollicitans
Ae. canadensis
Ae. sticticus
0
500
1000
1500
2000
2500
3000
3500
4000
4500

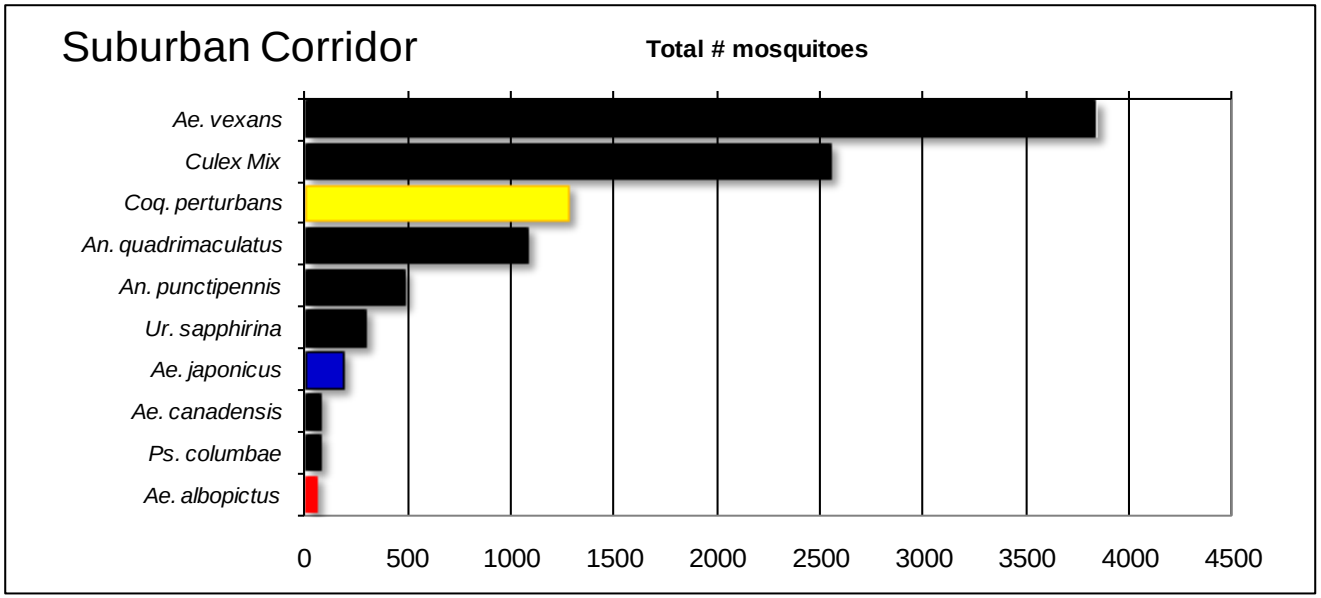

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. sticticus
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Ae. albopictus
0
500
1000
1500
2000
2500
3000
3500
4000
4500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
Ps. columbae
An. quadrimaculatus
Ae. japonicus
Coq. perturbans
Ur. sapphirina
Cx. erraticus
Ae. canadensis
0
500
1000
1500
2000
2500
3000
3500
4000
4500


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


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Coq. perturbans
An. quadrimaculatus
An. crucians
Ur. sapphirina
Cs. melanura
Ae. japonicus
Ae. sticticus
0
500
1000
1500
2000
2500
3000
3500
4000
4500


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Coq. perturbans
Ae. vexans
Ae. canadensis
An. bradleyi
An. quadrimaculatus
Ae. cantator
Cx. territans
An. punctipennis
0
500
1000
1500
2000
2500
3000
3500
4000
4500


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Ur. sapphirina
Ae. japonicus
Ae. canadensis
Ps. columbae
Ae. albopictus
0
500
1000
1500
2000
2500
3000
3500
4000
4500