NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 19 August to 25 August, 2007, Week 34

Prepared by Lisa M. Reed, Scott Crans and Dina Fonseca
Center for Vector Biology
Rutgers University, New Brunswick, NJ

Purpose: Samples from New Jersey light traps throughout the state are collected by county mosquito control agencies for use in their IPM programs. A portion of this data (about 82 traps) is sent to Rutgers and re-calculated to show statewide trends in mosquito populations for species of nuisance or health concerns.

Calculations are based on regional distributions, with emphasis on mosquito habitat and land use. Trends will allow a statewide evaluation of changing mosquito populations, in response to control and/or changes in habitat.

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 county mosquito control agencies in New Jersey.

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

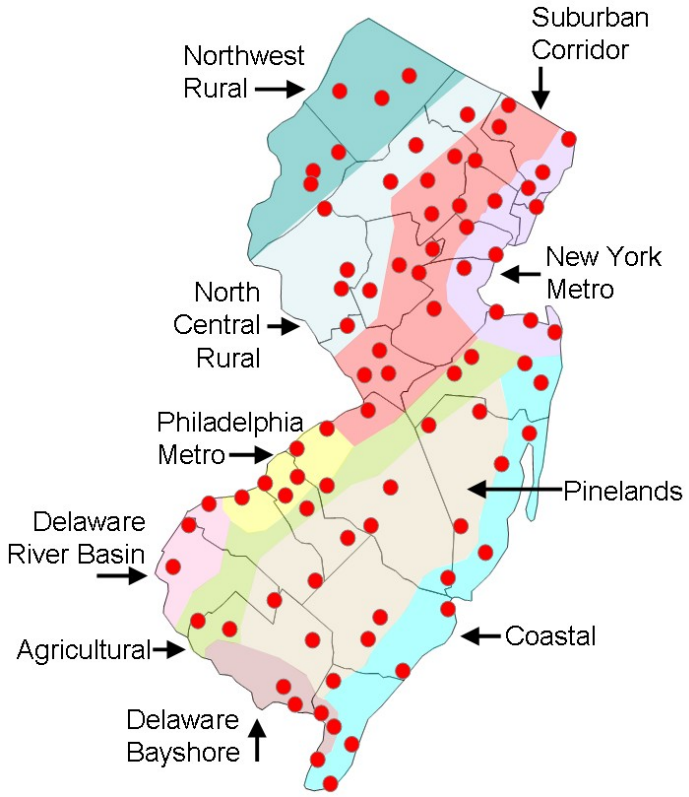


Figure 1: Ten regions selected for the New Jersey Adult Mosquito Surveillance Program overlaid with county borders. Trap locations indicated by red-filled circles.

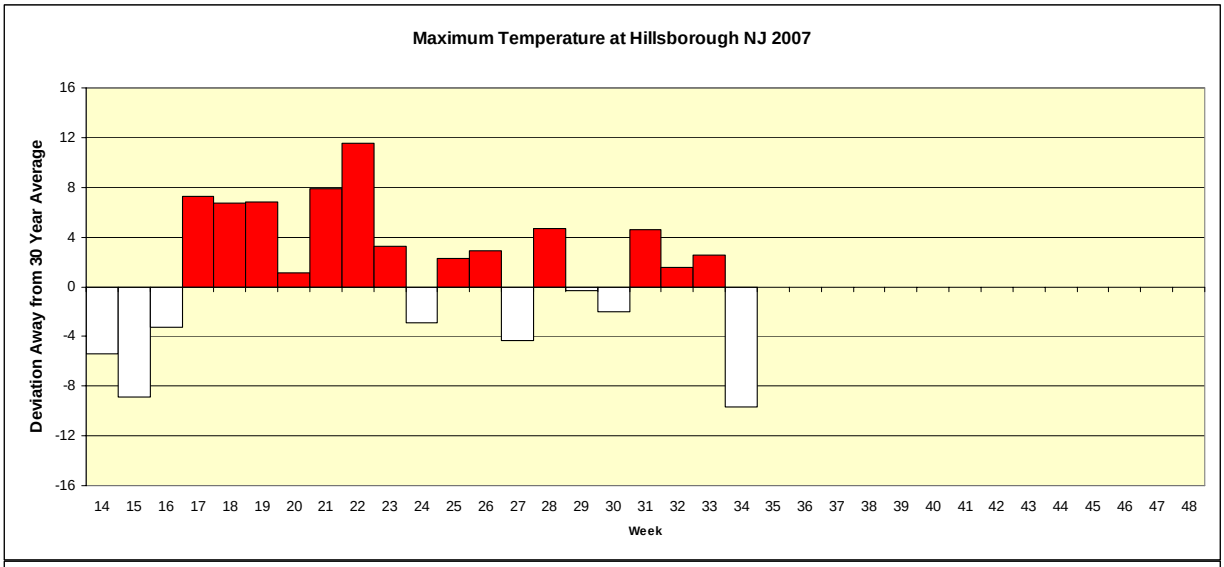
Summary table – Week 34

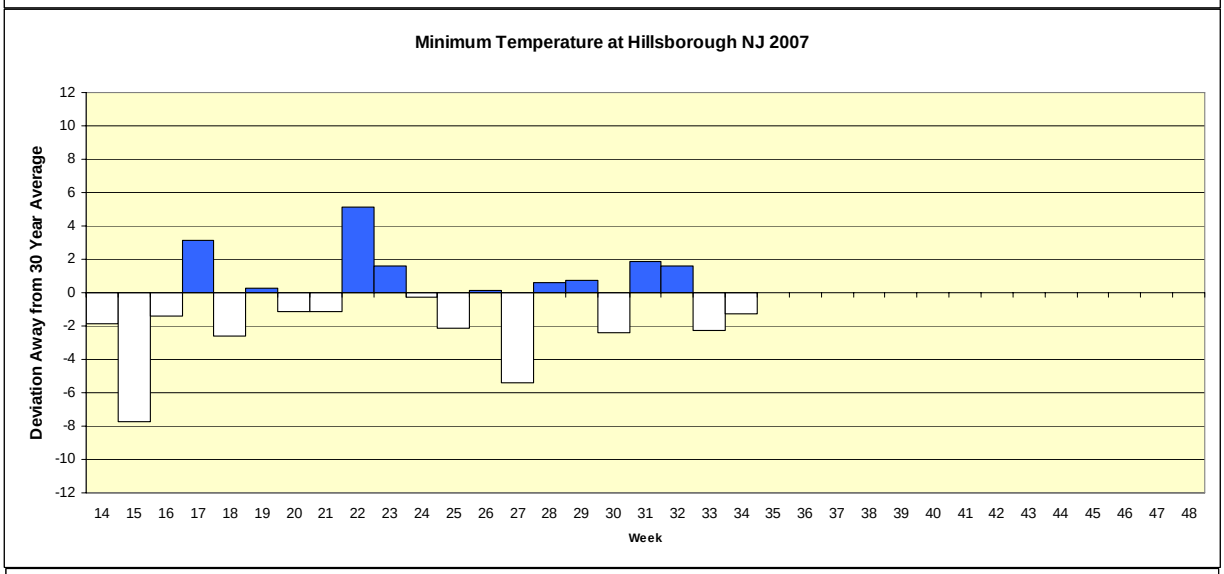
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.26**	**15.71**	**0**	**1.12**	**17.21**	**0**	**0.00**	**0.45**	**0**	**0.33**	**0.26**	**1**
Coastal	**0.16**	**2.97**	**0**	**0.38**	**2.86**	**0**	**0.00**	**0.44**	**0**	**3.02**	**35.44**	**0**
Delaware Bayshore	**0.00**	**2.91**	**0**	**14.43**	**58.87**	**0**	**0.00**	**14.19**	**0**	**12.81**	**15.65**	**0**
Delaware River Basin	**0.00**	**11.46**	**0**	**0.00**	**12.00**	**0**	**0.00**	**0.56**	**0**	**0.00**	**0.18**	**0**
New York Metro	**0.86**	**4.55**	**0**	**4.03**	**4.92**	**0**	**0.04**	**0.21**	**0**	**0.00**	**0.97**	**0**
North Central Rural	**0.02**	**0.78**	**0**	**0.47**	**0.97**	**0**	**0.00**	**0.15**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**1.21**	**30.06**	**0**	**0.29**	**6.17**	**0**	**0.00**	**0.32**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.60**	**7.90**	**0**	**0.50**	**4.33**	**0**	**0.00**	**0.41**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.06**	**2.48**	**0**	**0.43**	**2.99**	**0**	**0.04**	**0.72**	**0**	**0.01**	**0.06**	**0**
Suburban Corridor	**0.36**	**8.21**	**0**	**0.90**	**2.68**	**0**	**0.00**	**1.91**	**0**	**0.00**	**0.07**	**0**

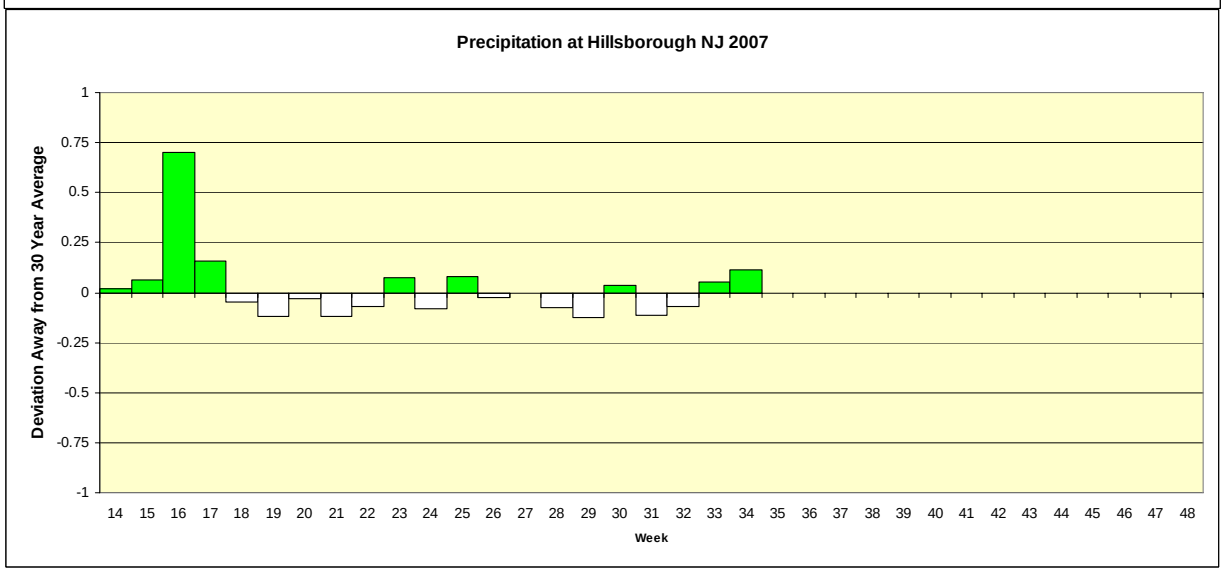
* Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference by 3 (orange) and greater than 150% increase by 4 (red).

State Summary: A recent cold spell where daytime temperatures declined to the mid-60's °F should have delayed emergence for several species whose development are temperature–dependent, such as *Aedes vexans*. With the exception of *Aedes sollicitans* in the Agricultural region, the four major pestiferous mosquitoes were lower than recent historical data trends.

Climate Deviations

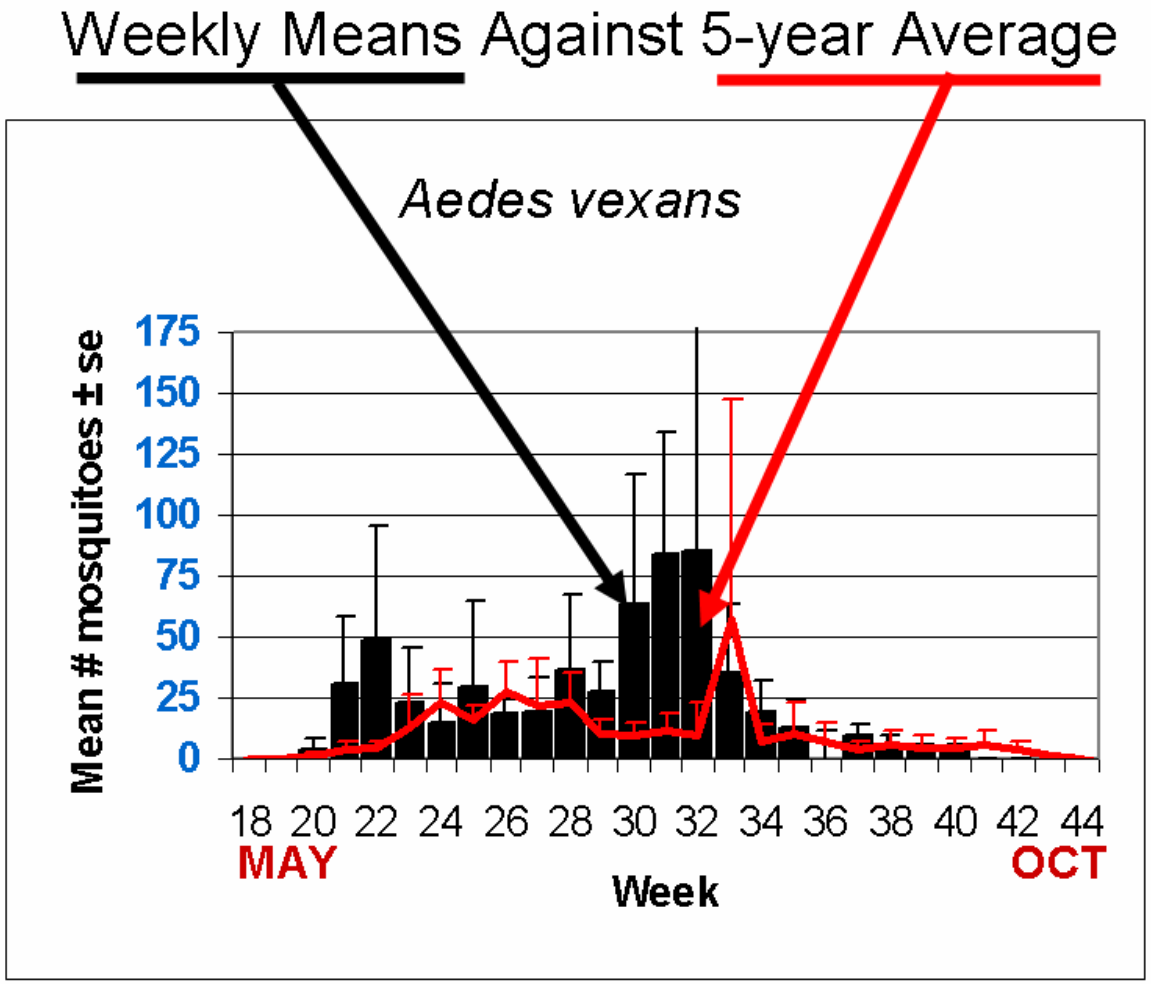




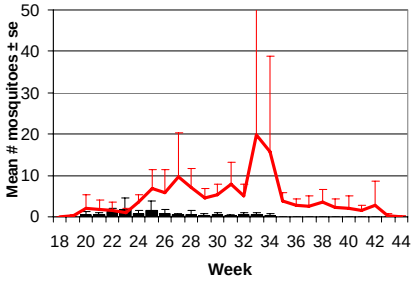
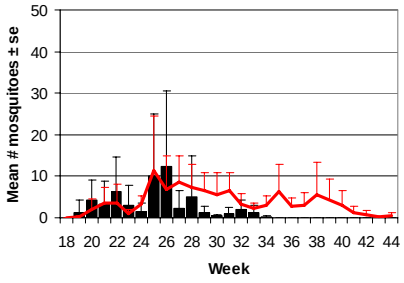
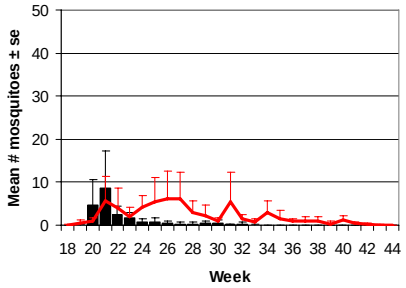
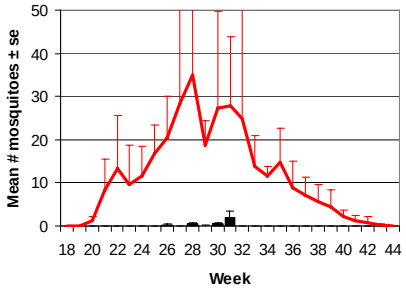
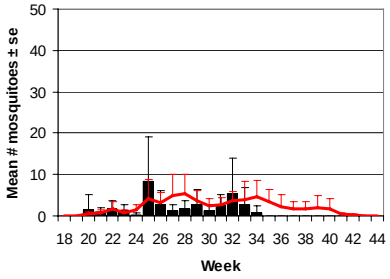
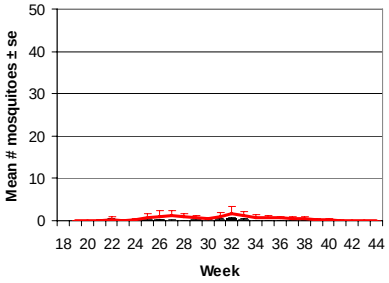
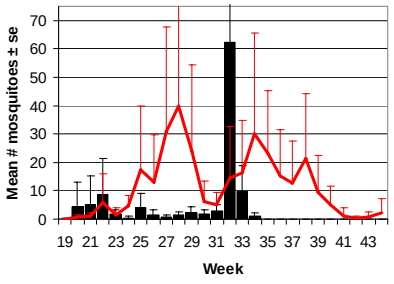
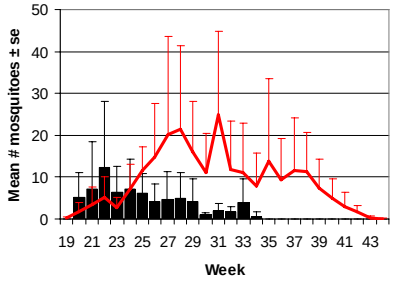
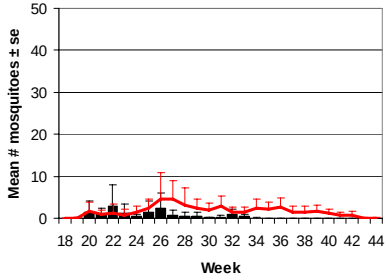
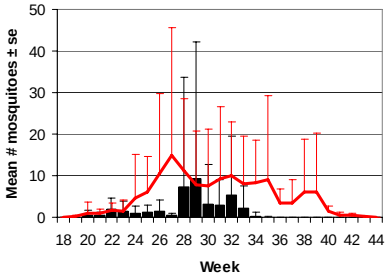


The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data is from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) 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.

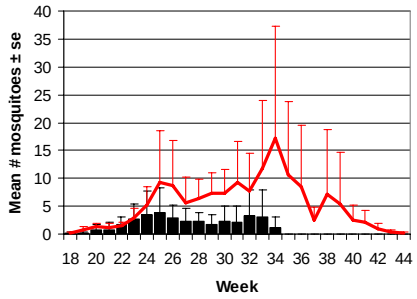
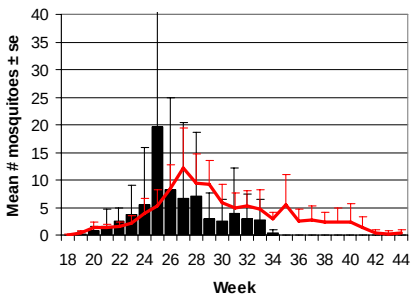
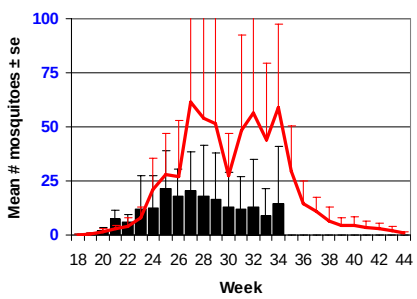
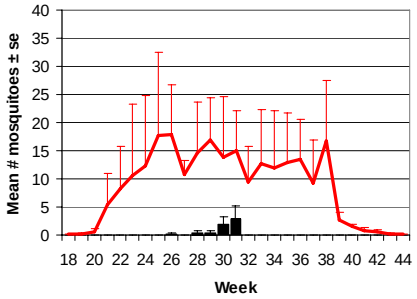
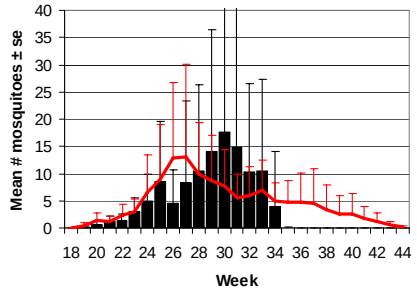
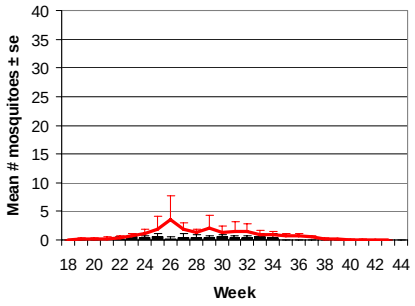
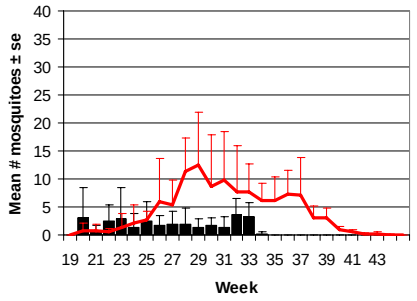
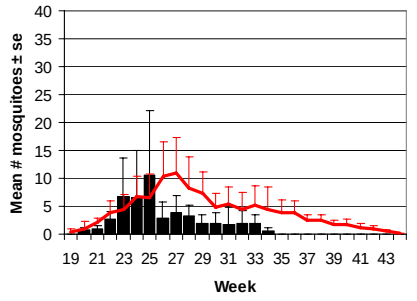
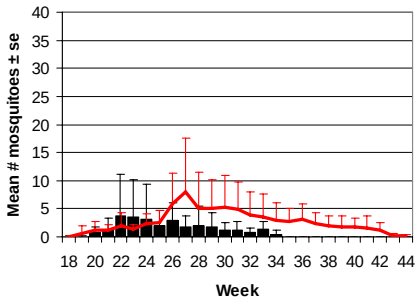
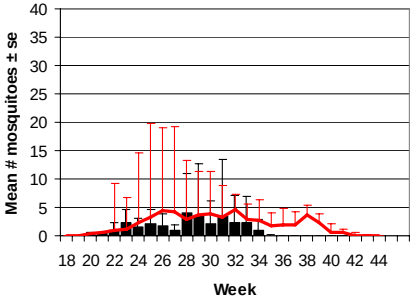
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 Week 34 are from Camden, Cumberland, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Somerset, Sussex, Union and Warren counties.



Aedes vexans - Fresh Floodwater Species

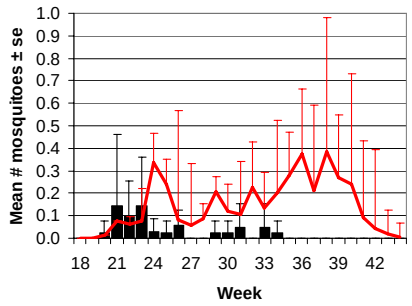
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations decreased in many regions. This may have been the result of low temperature, possibly resulting in a delay of emergence and subsequently reduction in the number of individuals joining the adult population. If temperatures increase to seasonal levels and rainfall recharges potential larval habitat, further emergences may occur before the season ends.	

Culex Mix - *Multivoltine Culex Species*

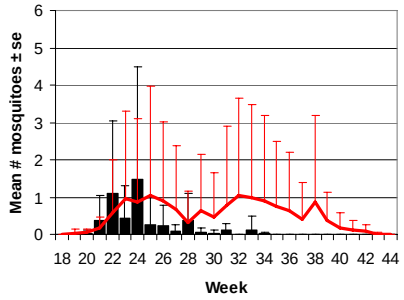
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* species (*Cx. pipiens, restuans,* and *salinarius*) have declined to historical levels in the New York Metro region. *Culex pipiens* and mixed *Culex* pools in the metropolitan and suburban corridor regions have West Nile MFIR values that suggest amplification among avian hosts is significant. In addition, bridge vectors, such as *Aedes albopictus* have also been shown positive. Feeding on avian hosts will decline as female *Culex* begin to search out nectar for producing the fat bodies (a fat deposit) necessary for the survival of overwintering adults.	

Culiseta melanura – Miscellaneous Group

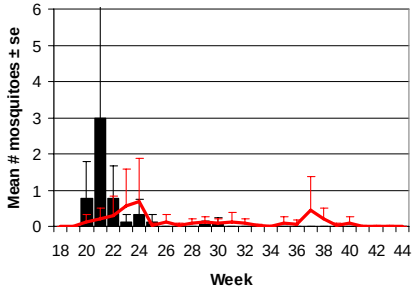
Agricultural



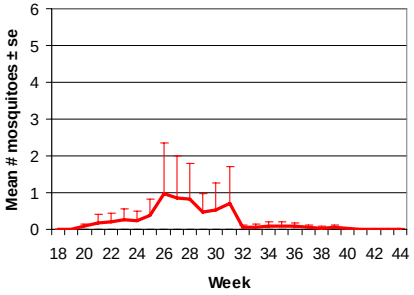
Coastal



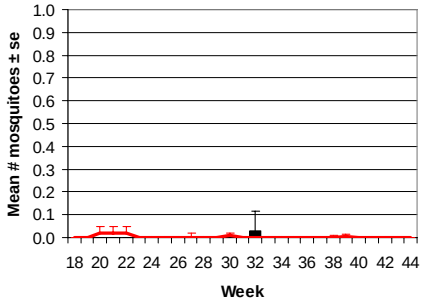
Delaware Bayshore



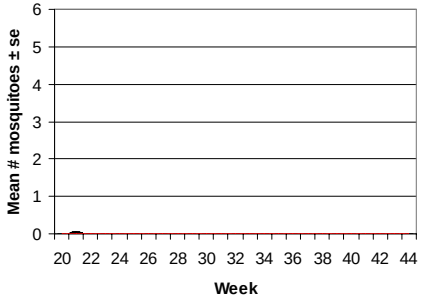
Delaware River Basin



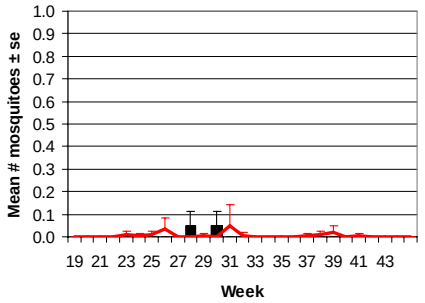
New York Metro



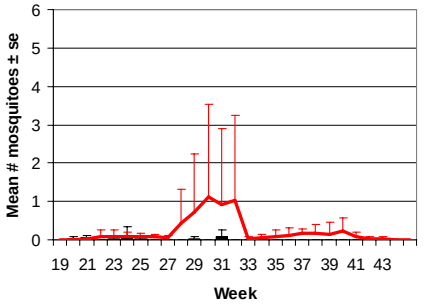
North Central Rural



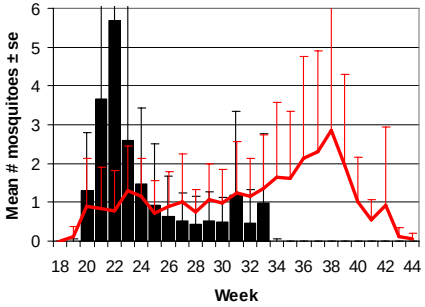
Northwestern Rural



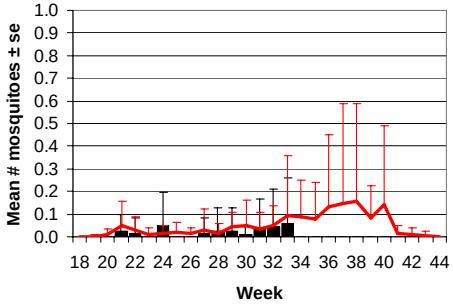
Philadelphia Metro



Pinelands



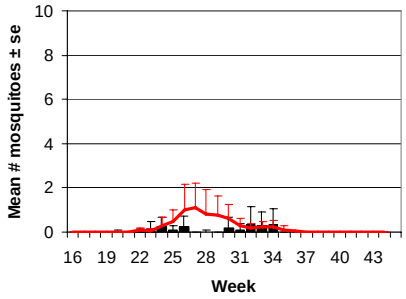
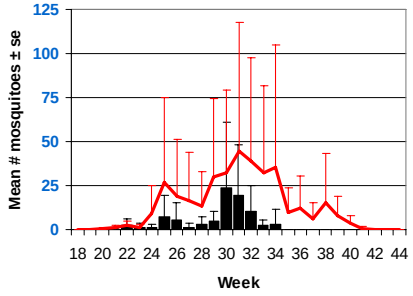
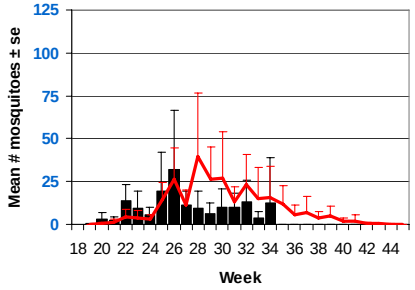
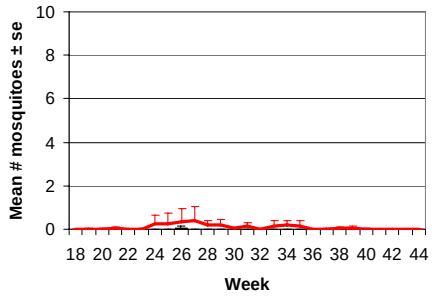
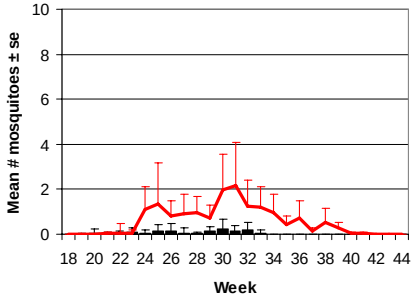
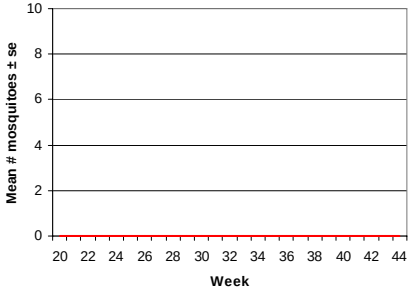
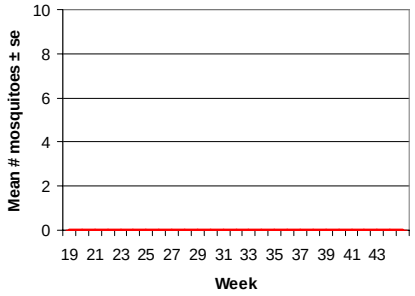
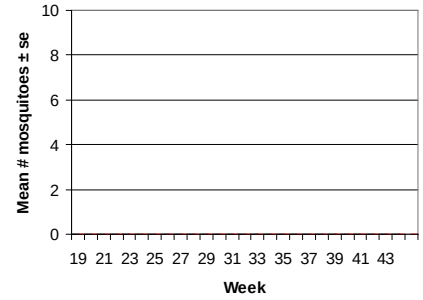
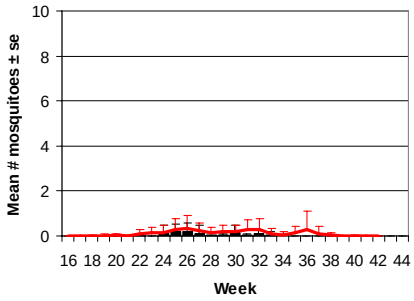
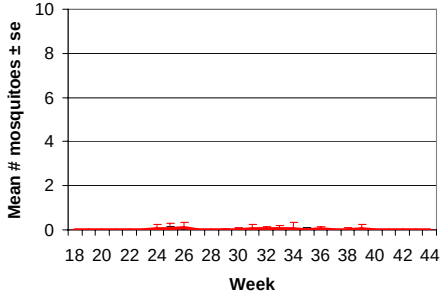
Suburban Corridor



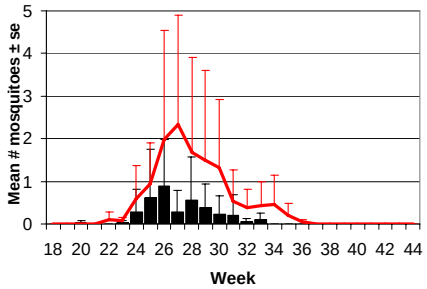
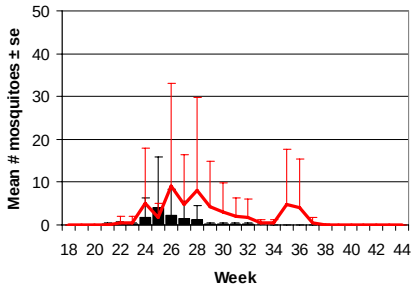
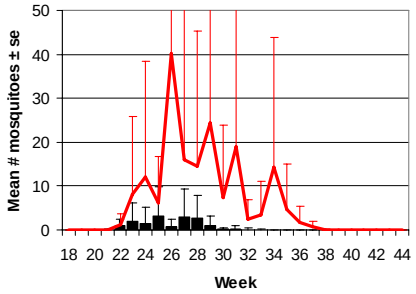
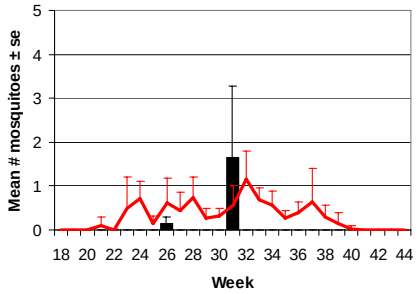
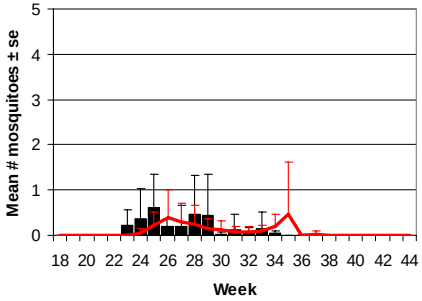
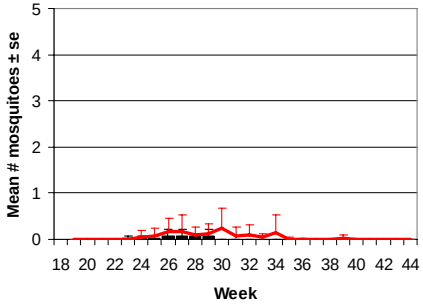
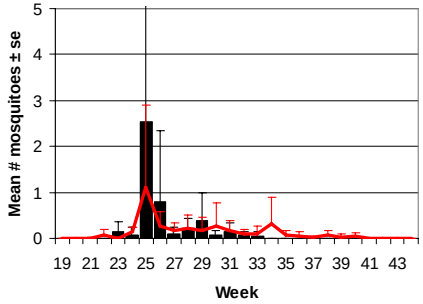
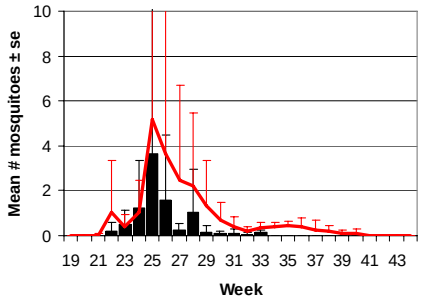
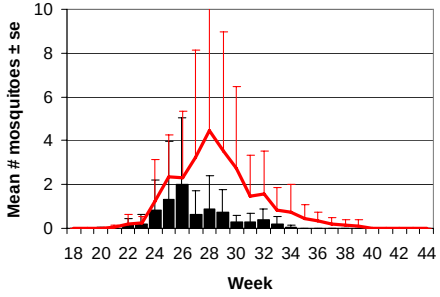
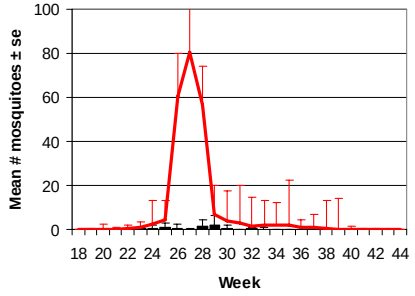
Comments

Culiseta melanura populations are on the rise in the Suburban Corridor while most other regions are on the decline. Sites in the central areas of the Pinelands also are indicating an increase in the local population. Eastern equine encephalitis has been detected in one pool from Green Bank. The MFIR value is high enough to suggest that transmission to horses could occur, although no bridge vectors have yet been found positive.

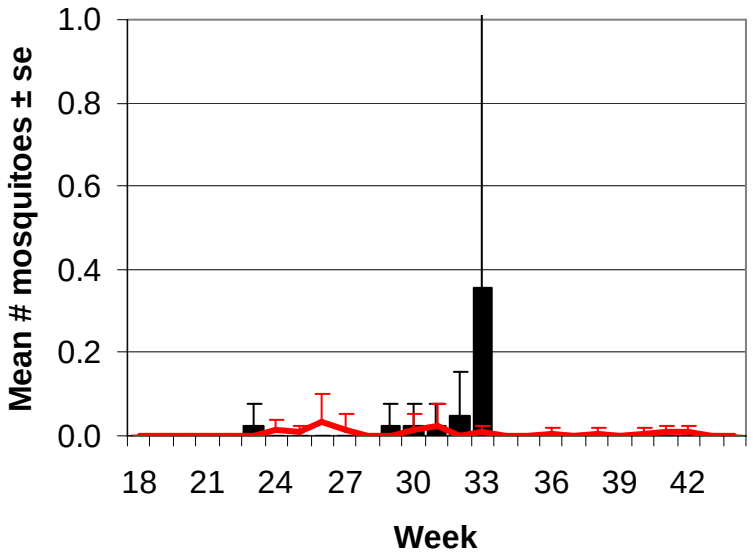
Aedes sollicitans - Salt Marsh Floodwater Species

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* are emerging for the fourth and possibly last time this season with this pattern particularly evident in the Coastal region. This species has been implicated in the coastal transmission of EEE. Although the number of *Ae. sollicitans* feeding upon birds and then mammals are low, the large populations of this mosquito which normally occur can raise the threat of infection to horses or humans.	

Coquillettidia perturbans – Unique Life History

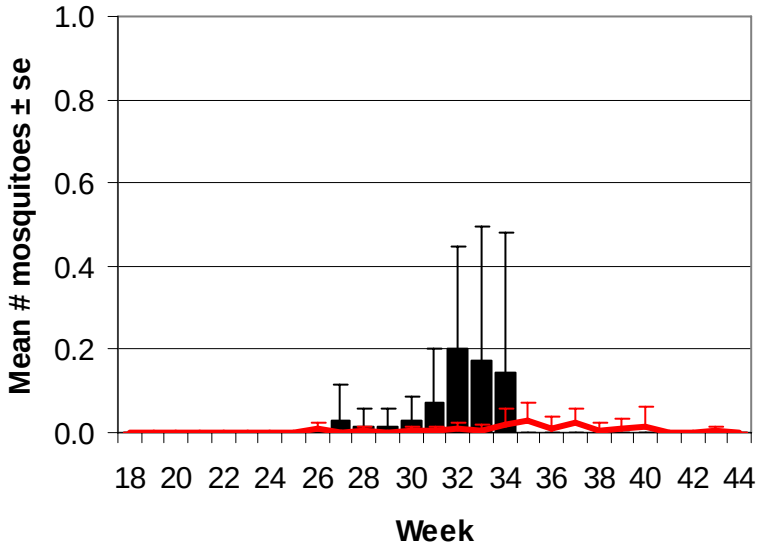
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* numbers are generally decreasing throughout the state. This is the last report of this species for this season.	

Aedes albopictus in the Agricultural and Metropolitan Regions.

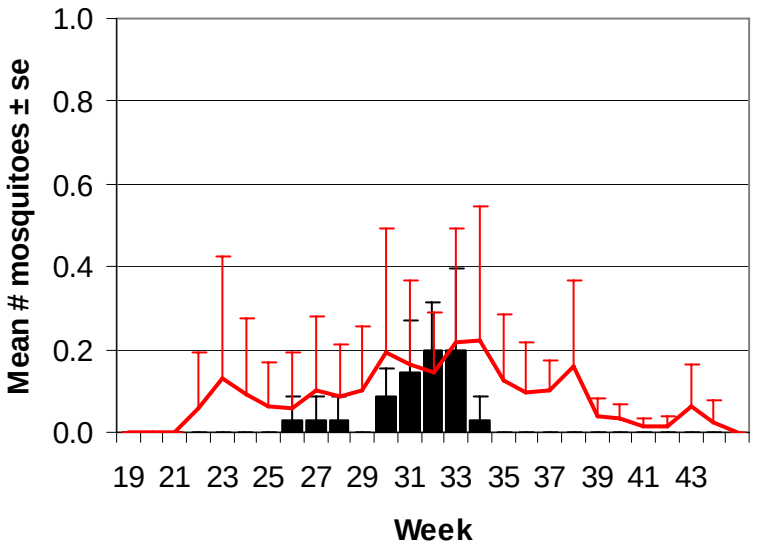


Agricultural Region

This aggressive biter and competent WN vector has shown up above historical trends in both the Agricultural and New York Metropolitan regions. This container species does not readily come to light traps. Despite an early-season absence, abundances near historical trends are also seen around the Philadelphia Metro region. Two WN positive pools of *Ae. albopictus* have been detected.



New York Metro Region



Philadelphia Metro Region