NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 26 August to 1 September, 2007, Week 35

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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.

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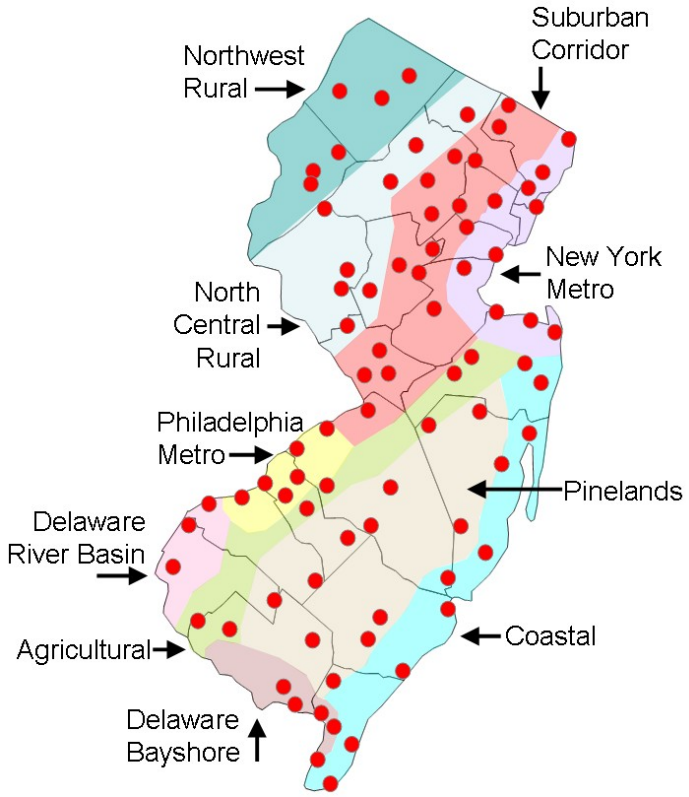


Figure 1: Ten regions selected for the New Jersey Adult Mosquito Surveillance Program overlaid with county borders. Trap locations indicated by red-filled circles.

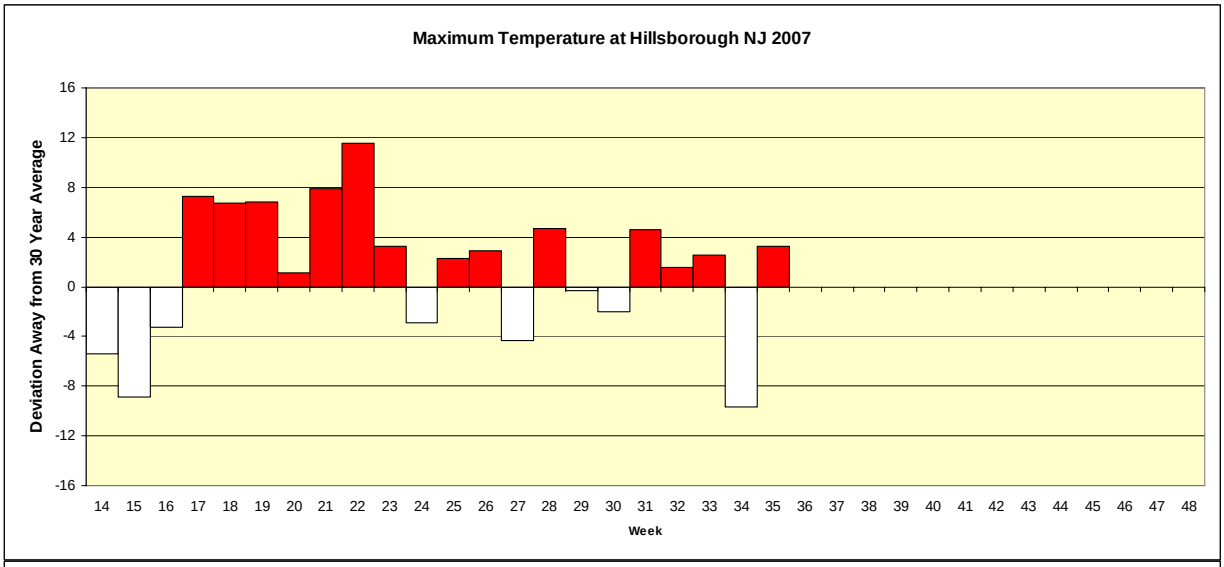
Summary table – Week 35

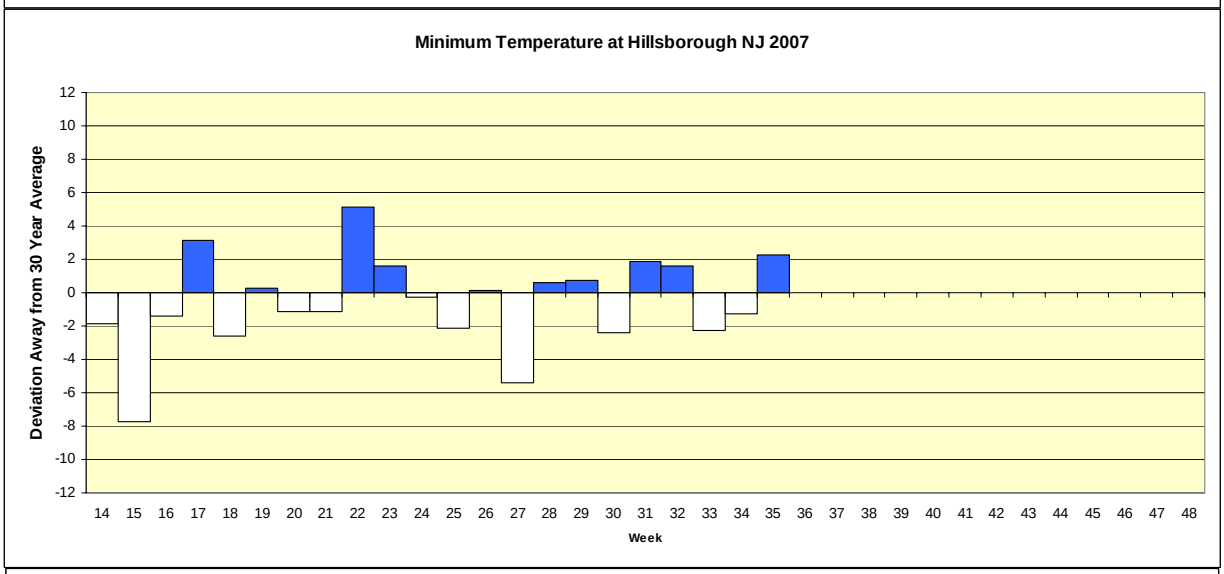
Region	*Aedes vexans*			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.10**	**3.85**	**0**	**2.14**	**10.68**	**0**	**0.02**	**0.19**	**0**	**1.26**	**0.11**	**4**
Coastal	**0.52**	**6.38**	**0**	**0.41**	**5.40**	**0**	**0.00**	**7.74**	**0**	**8.73**	**9.88**	**0**
Delaware Bayshore	**0.00**	**1.60**	**0**	**7.29**	**29.58**	**0**	**0.00**	**4.71**	**0**	**14.29**	**11.69**	**1**
Delaware River Basin	**0.00**	**14.85**	**0**	**0.00**	**12.79**	**0**	**0.00**	**0.27**	**0**	**0.00**	**0.15**	**0**
New York Metro	**8.70**	**3.40**	**4**	**5.91**	**4.67**	**1**	**0.19**	**0.47**	**0**	**0.53**	**0.41**	**1**
North Central Rural	**0.08**	**0.67**	**0**	**0.08**	**0.71**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**8.43**	**23.20**	**0**	**1.74**	**6.18**	**0**	**0.02**	**0.08**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.71**	**13.82**	**0**	**0.86**	**3.90**	**0**	**0.03**	**0.45**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.16**	**2.06**	**0**	**0.77**	**2.64**	**0**	**0.22**	**0.45**	**0**	**0.01**	**0.16**	**0**
Suburban Corridor	**1.87**	**8.93**	**0**	**2.08**	**1.68**	**1**	**0.15**	**2.15**	**0**	**0.03**	**0.00**	**0**

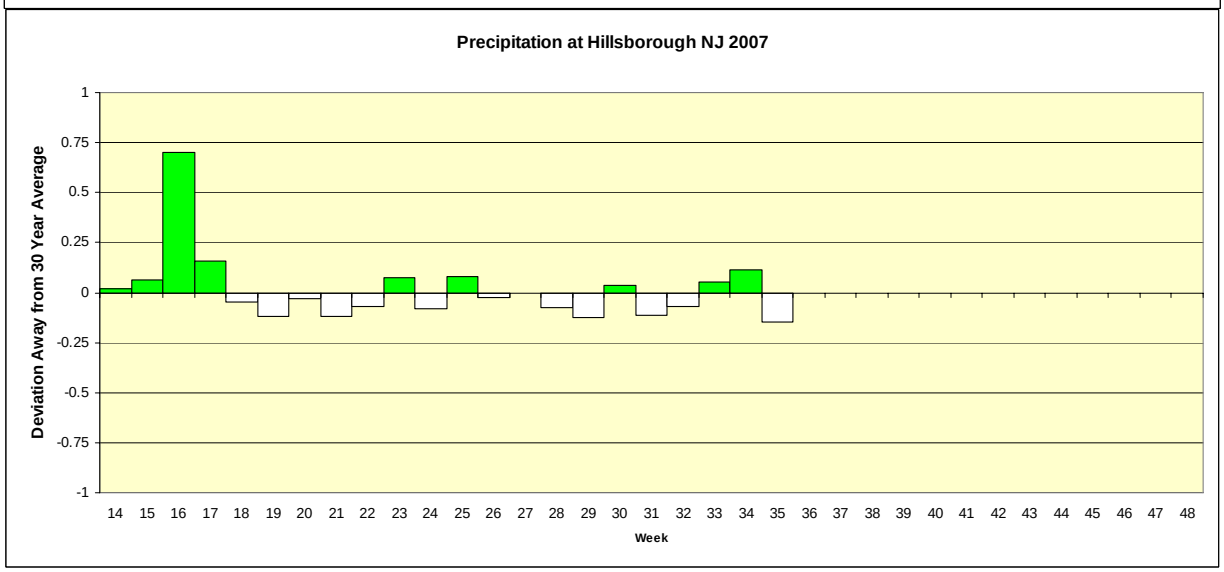
* Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference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

State Summary: The New York Metropolitan region experienced higher than historical averages for the floodwater species *Aedes vexans* and *Aedes sollicitans* as well as for *Culex* Mix. The southern portion of the Suburban Corridor also experienced high *Culex* numbers. High *Ae. sollicitans* abundance was also seen in the Delaware Bayshore region and in the southernmost point of the Agricultural region nearest to the Bayshore.

Climate Deviations

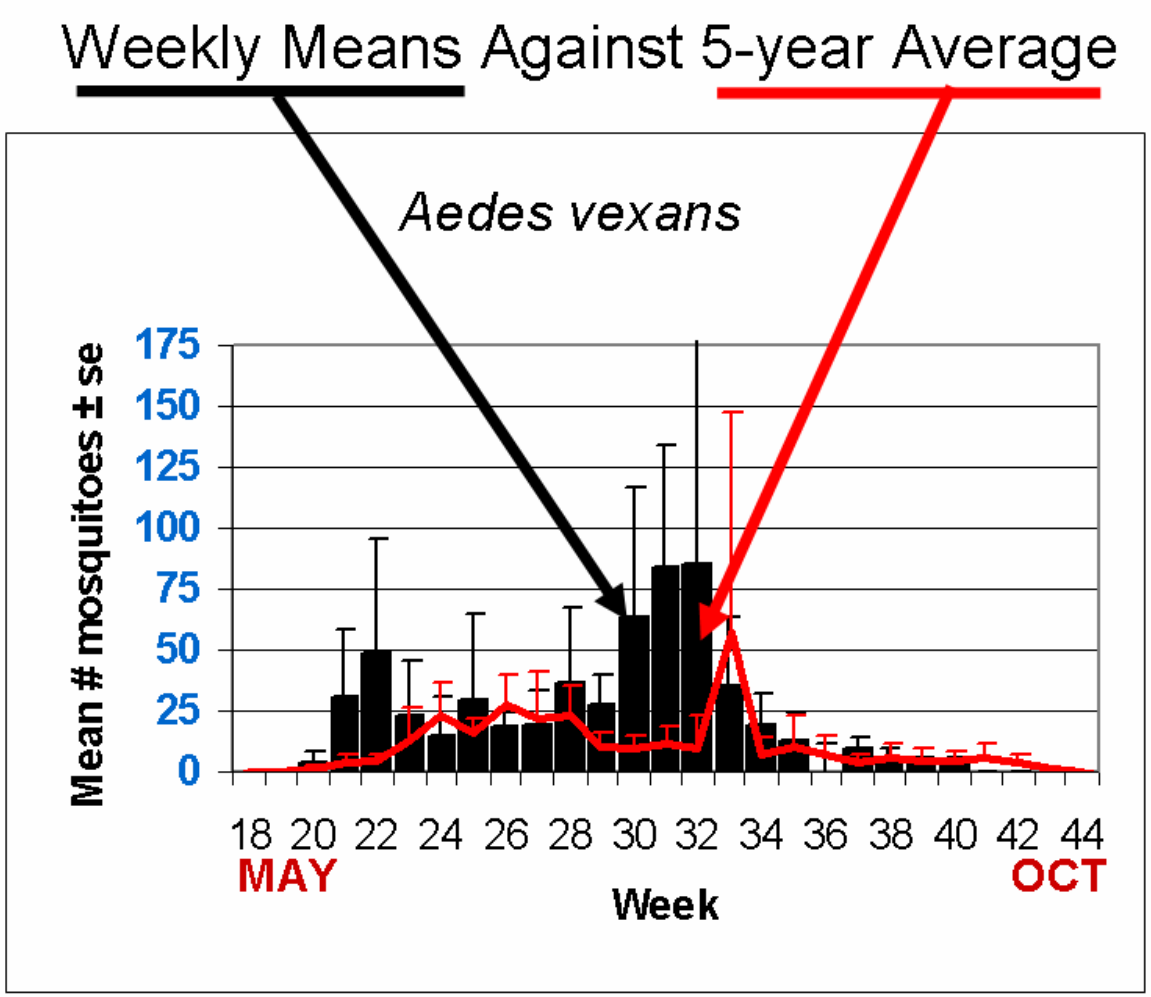






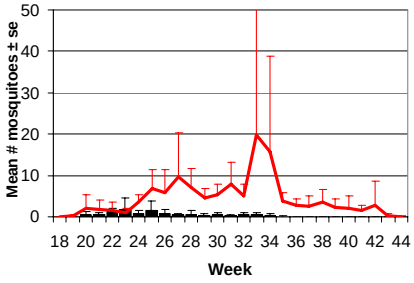
The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data is from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) 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 35 are from Bergen, Burlington, Camden, Cumberland, Essex, Mercer, Middlesex, Monmouth, Ocean, Sussex, Union and Warren counties.

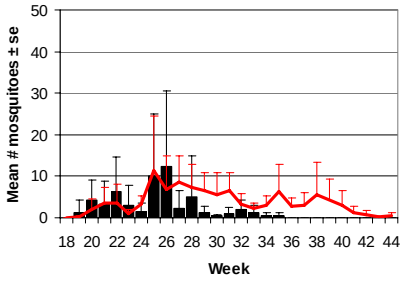


Aedes vexans - Fresh Floodwater Species

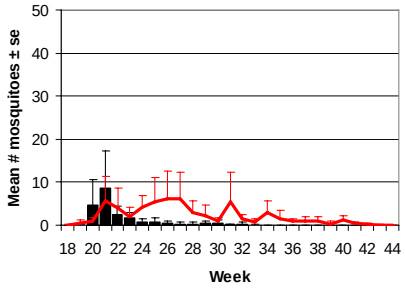
Agricultural



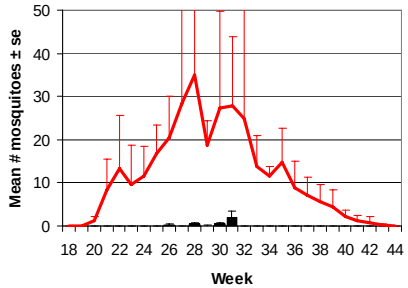
Coastal



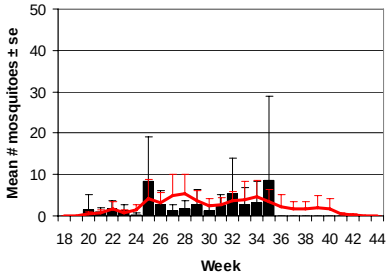
Delaware Bayshore



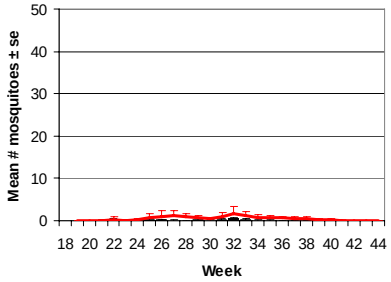
Delaware River Basin



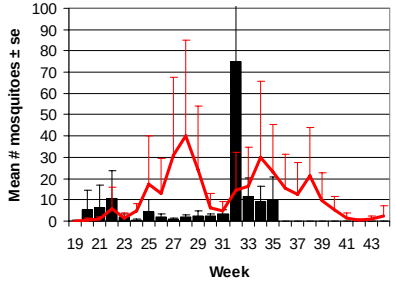
New York Metro



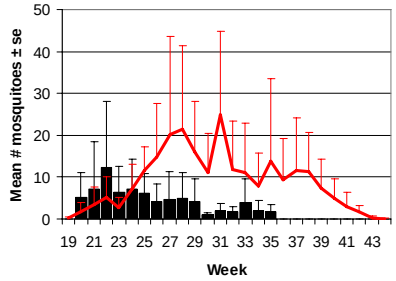
North Central Rural



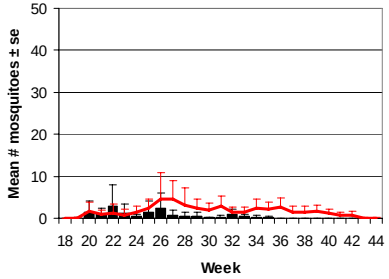
Northwestern Rural



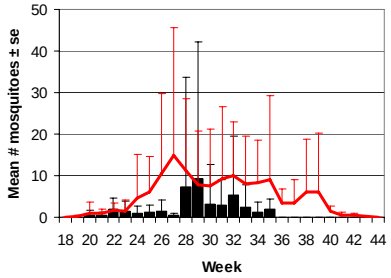
Philadelphia Metro



Pinelands



Suburban Corridor



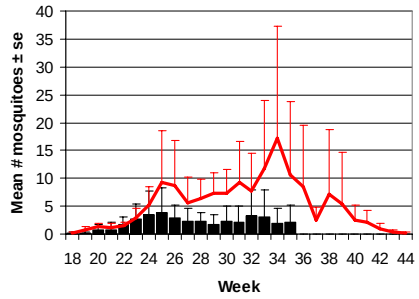
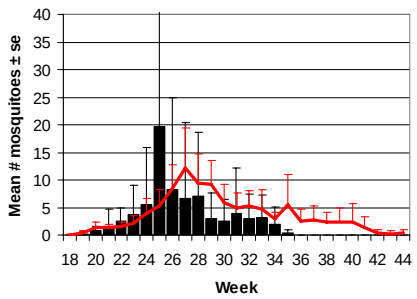
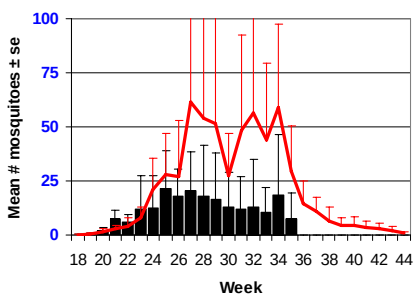
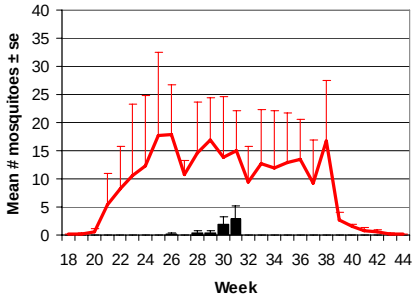
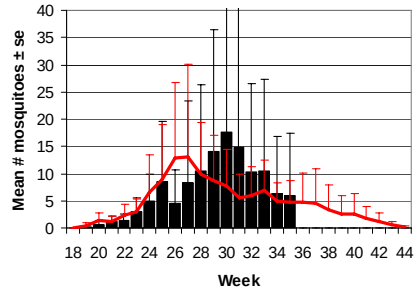
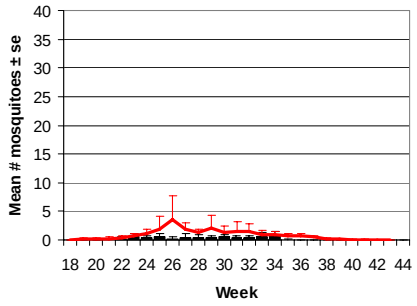
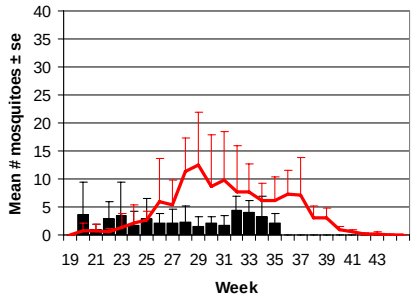
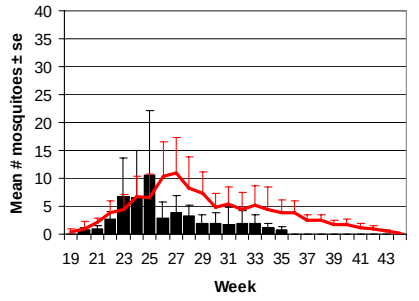
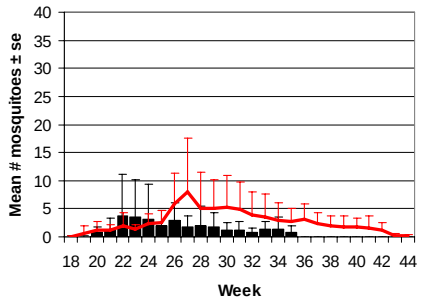
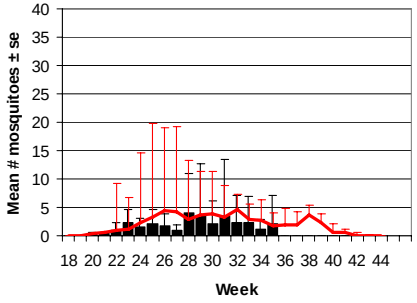
Comments

Rainfall from the previous week combined with warmer day and nighttime temperatures provided conditions for a substantial emergence of *Aedes vexans* in the northern portions of the New York Metro region to push the average higher than the historical mean. However, most regions are experiencing fewer emergences from flooding events, illustrating the wide variation in conditions that can lead to a floodwater species emergence.

Soil moisture is an important feature in the sites selected by *Ae. vexans* in which to deposit their eggs. Damp, but not wet soil was most attractive to this species (Horsfall et all 1975). A place that can flood at several different heights is optimal for providing emergences through the season when the appropriate rainfall comes.

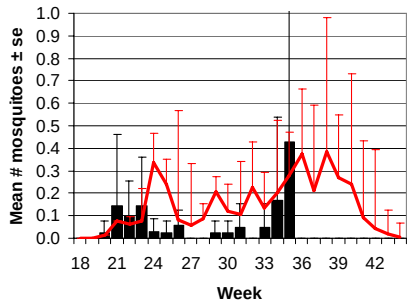
Horsfall, Novak & Johnson 1975 *Aedes vexans* as a flood-plain mosquito. Environmental Entomology: 4(5): 675-81.

Culex Mix - Multivoltine *Culex* Species

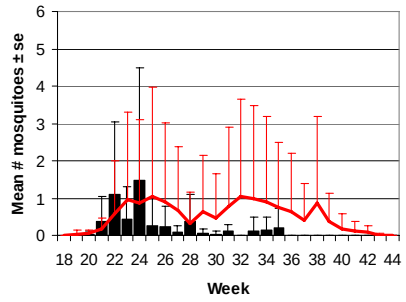
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* species (*Cx. pipiens, restuans,* and *salinarius*) continue to decline throughout all regions, including the New York Metro where populations are higher than the historical mean in the northern portions of that region. As the photoperiod shortens and temperatures fall, inseminated females should begin looking for hibernaculae that contain features most suited for overwintering survival: high humidity and low, but not freezing temperatures.	

Culiseta melanura – Miscellaneous Group

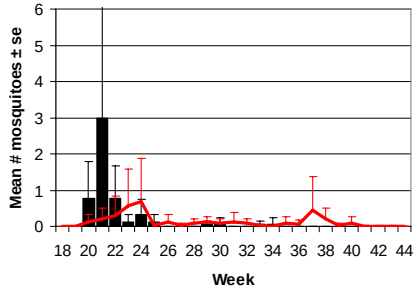
Agricultural



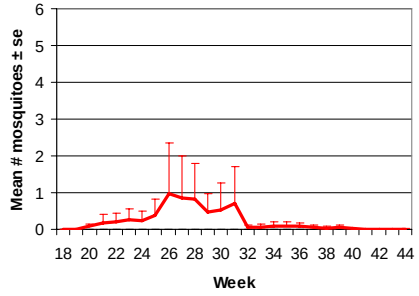
Coastal



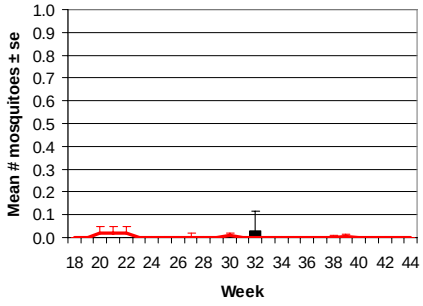
Delaware Bayshore



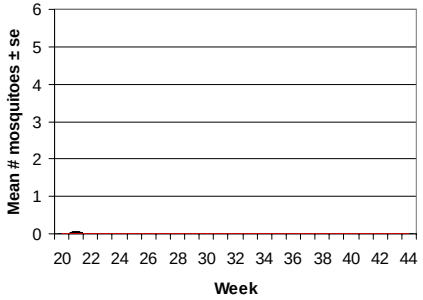
Delaware River Basin



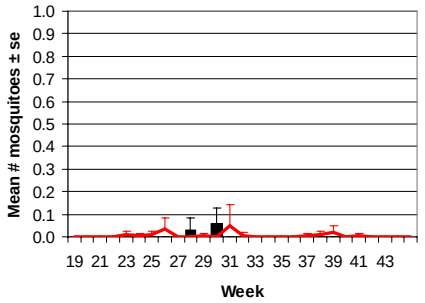
New York Metro



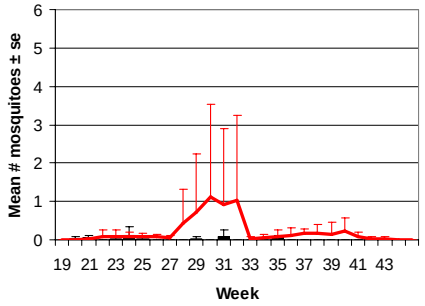
North Central Rural



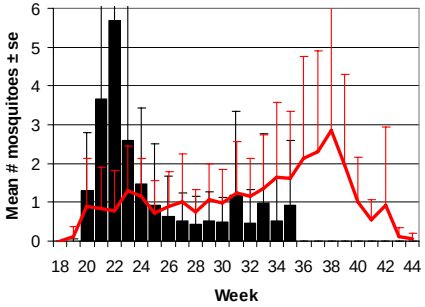
Northwestern Rural



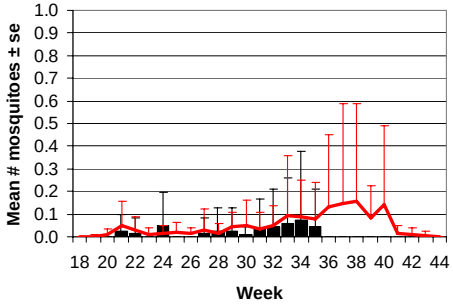
Philadelphia Metro



Pinelands



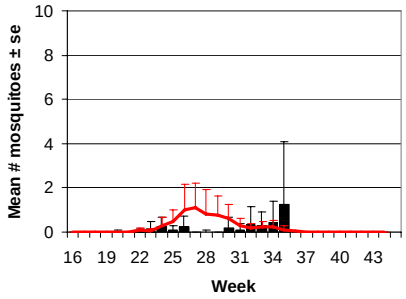
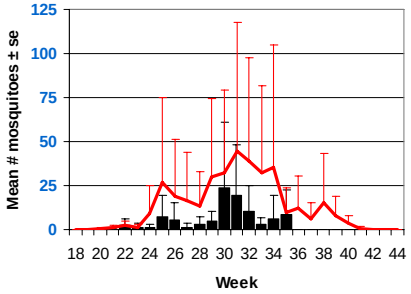
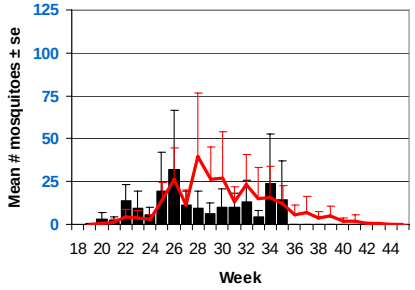
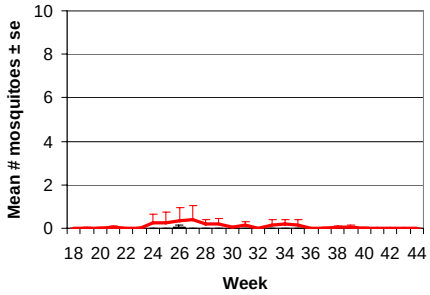
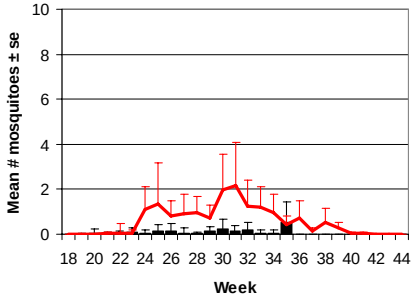
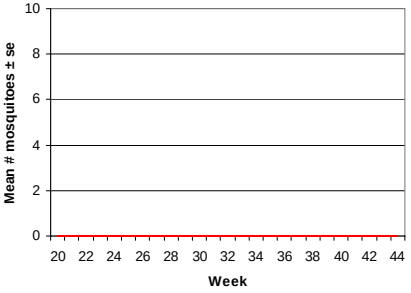
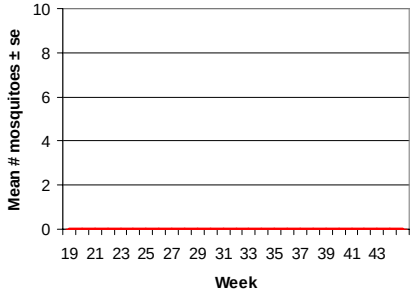
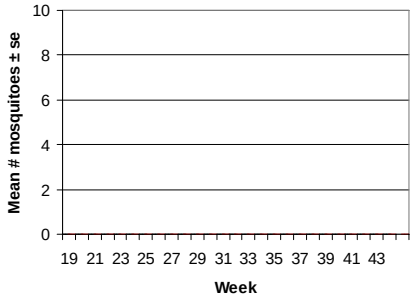
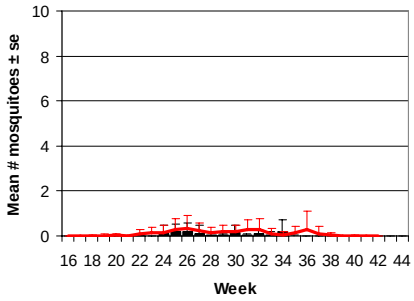
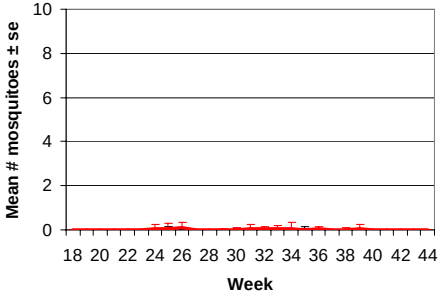
Suburban Corridor



Comments

***Culiseta melanura* populations in the Agricultural region appear to be following a classic seasonal trend: an early season emergence of overwintering late-instar individuals followed by a late season rise in population from the second generation. Although *Cs. melanura* is primarily a bird-feeder, bloodmeal analysis from New York has shown that it will occasionally feed on mammals, including horses.**

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* abundance continues to build in the Coastal region. Numbers in the Agricultural region should normally reflect the migration from both the Coastal and the Bayshore region, but really are only reflective of the Bayshore as the majority of the counts are coming from the most southerly light trap. This is closest to the Bayshore region. Paradoxically, while this species starts to decline as the season progresses, complaints are likely to rise. As temperatures decline, crepuscular feeding decreases and shifts toward the afternoon, a time of day when people are more likely to be outside.	