# NEW JERSEY ADULT MOSQUITO SURVEILLANCE

## Report for 27 May to 2 June, 2007, Week 22

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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 Hatch funds and funding from the NJ State Mosquito Control Commission.*

Figure 1: Map of ten regions selected for the New Jersey Surveillance Program overlaid with county borders.

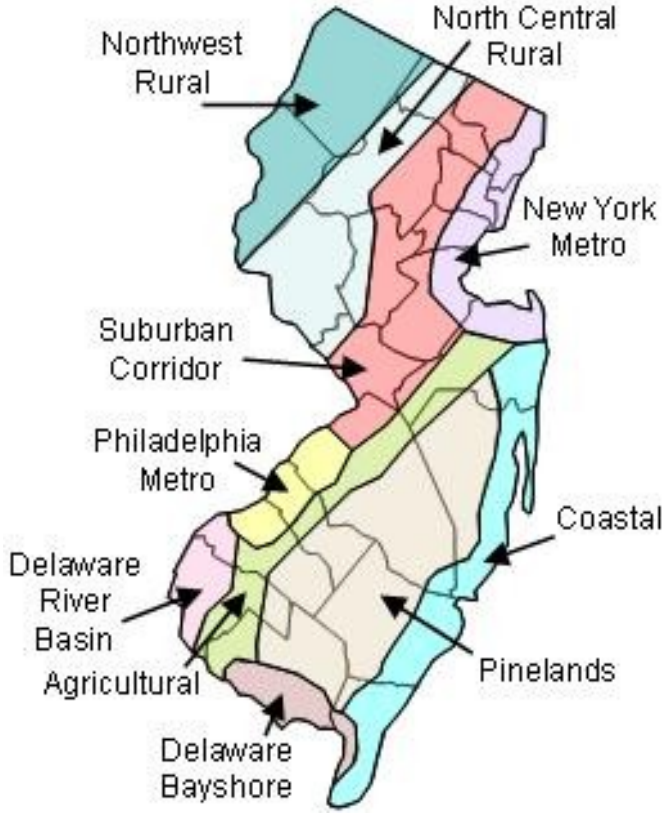



Figure 2. Trap lat-long locations.

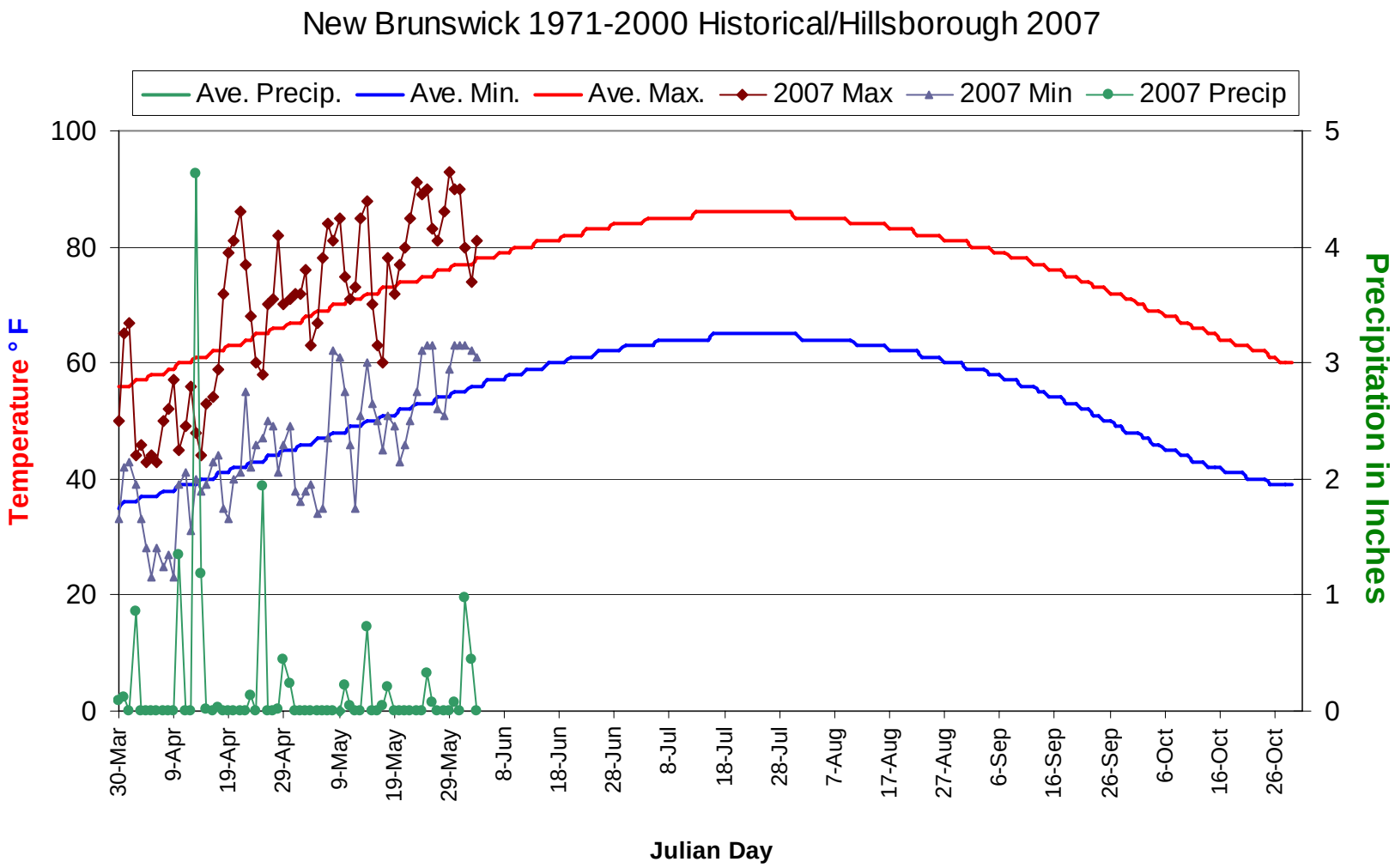
## Summary table – Week 22

| | *Aedes vexans* | | *Culex* mix | | *Coquillettidia perturbans* | | *Aedes sollicitans* | |
|---|---|---|---|---|---|---|---|---|
| **Region** | This Week | Average* | This Week | Average* | This Week | Average* | This Week | Average* |
| **Agricultural** | **0.43** | **1.51** | **1.26** | **1.61** | **0.02** | **0.08** | **0.02** | **0.11** |
| **Coastal** | **4.87** | **3.65** | **1.44** | **1.65** | **0.00** | **0.20** | **1.56** | **2.53** |
| **Delaware Bayshore** | **0.26** | **4.00** | **3.21** | **4.02** | **0.00** | **0.60** | **5.69** | **4.04** |
| **Delaware River Basin** | **0.00** | **13.31** | **0.00** | **8.21** | **0.00** | **0.01** | **0.00** | **0.00** |
| **New York Metro** | **0.54** | **1.60** | **0.74** | **2.40** | **0.00** | **0.00** | **0.04** | **0.07** |
| **North Central Rural** | **0.00** | **0.33** | **0.00** | **0.24** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Northwest Rural** | **0.00** | **5.80** | **0.00** | **1.43** | **0.00** | **0.01** | **0.00** | **0.00** |
| **Philadelphia Metro** | **2.46** | **5.05** | **1.24** | **3.85** | **0.20** | **0.45** | **0.00** | **0.00** |
| **Pinelands** | **2.60** | **1.27** | **3.40** | **1.91** | **0.12** | **0.08** | **0.03** | **0.03** |
| **Suburban Corridor** | **0.77** | **1.64** | **0.24** | **1.91** | **0.03** | **0.09** | **0.00** | **0.00** |

* Averages represent data from the previous 5 years.

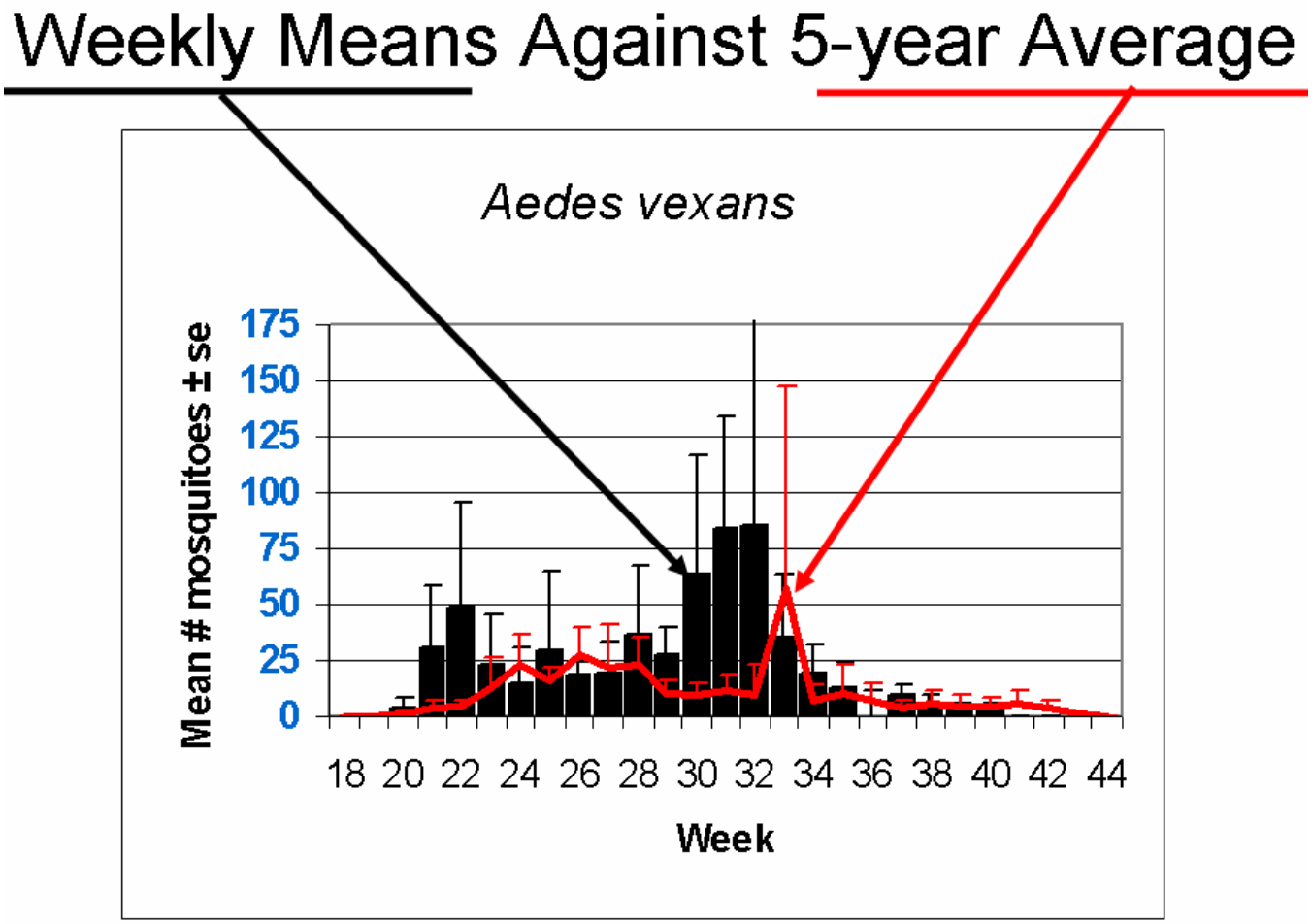
State Summary: The Pinelands region has seen recent activity with from both floodwater species such as *Aedes vexans* as well as more permanent water species. Southern New Jersey has also seen activity along the Coast and Bayshore regions from *Aedes vexans* and from *Ae. sollicitans*.

***Climate Data***

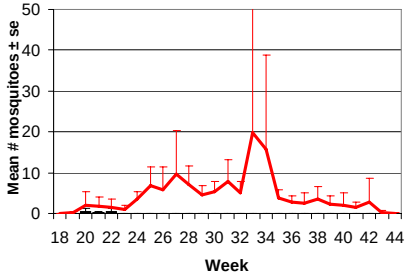
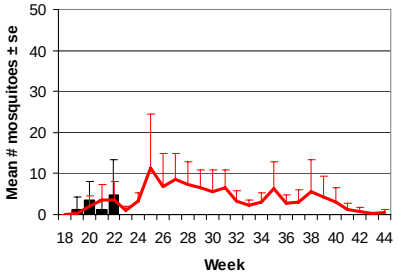
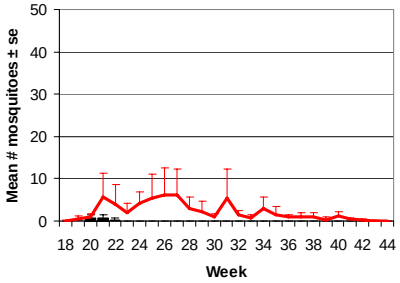
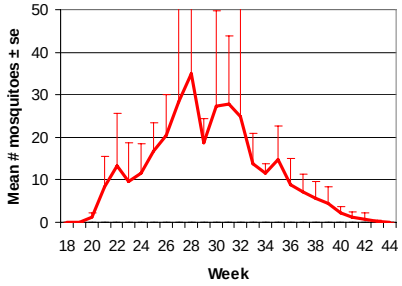
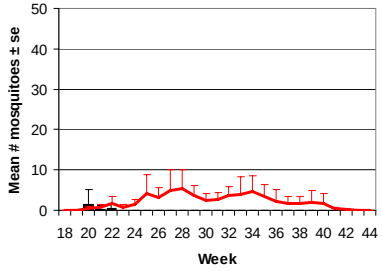
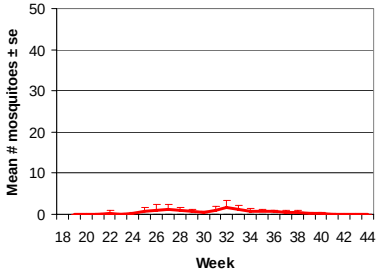
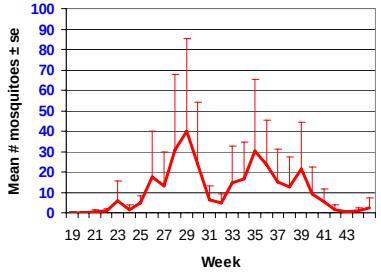
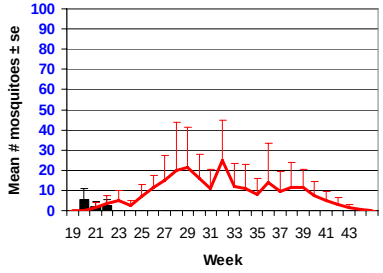
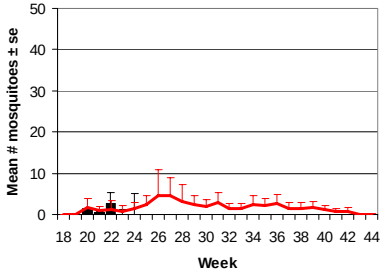
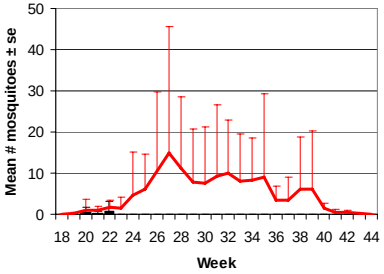



This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist).

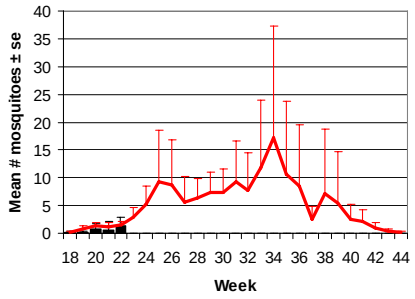
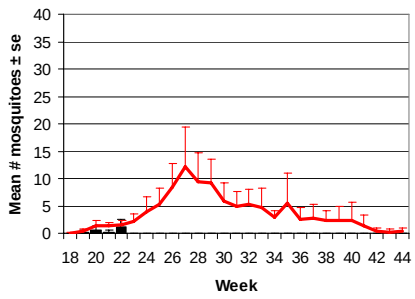
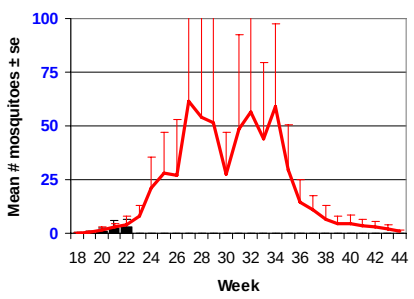
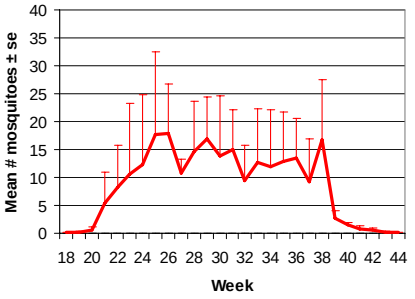
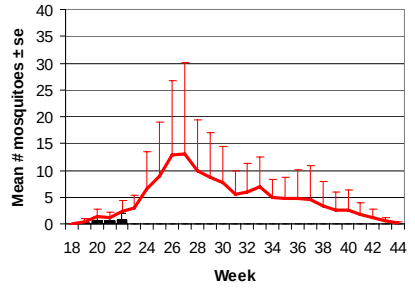
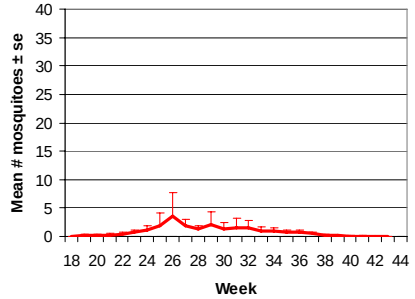
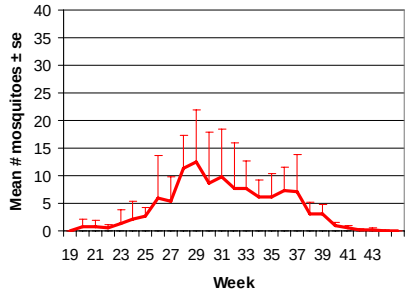
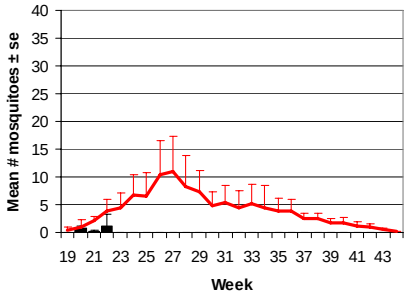
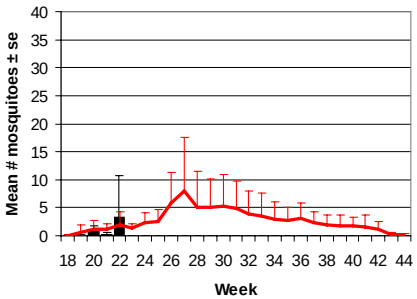
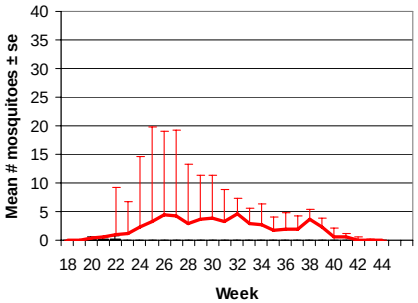
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 22 are from Atlantic, Bergen, Burlington, Cumberland, Middlesex, and Ocean Counties.



# *Aedes vexans* - Fresh Floodwater Species

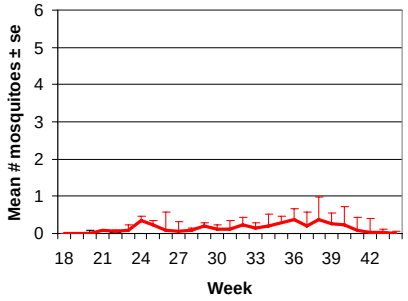
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | *Aedes vexans* are emerging after recent rains and warming weather, and have been recorded in most regions. Currently, the trends are approximating historical trends. | |

# *Culex* Mix - *Multivoltine Culex Species*

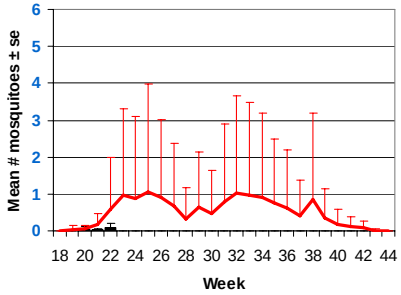
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | As with *Aedes vexans*, *Culex* species are on the wing, and have been reported for most regions. Population levels are approximating historical values at this point. | |

# *Culiseta melanura* – Miscellaneous Group

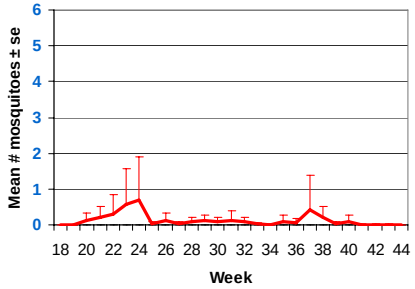
## Agricultural



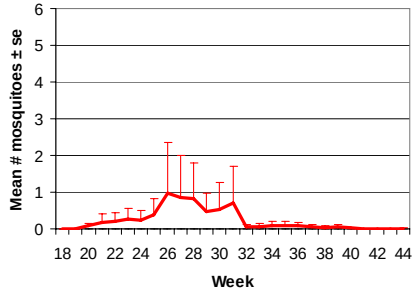

## Coastal



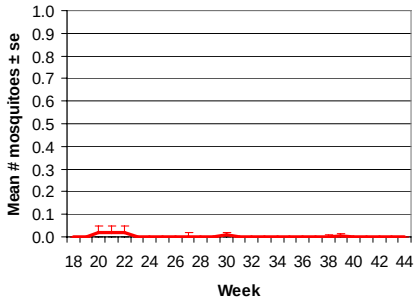

## Delaware Bayshore



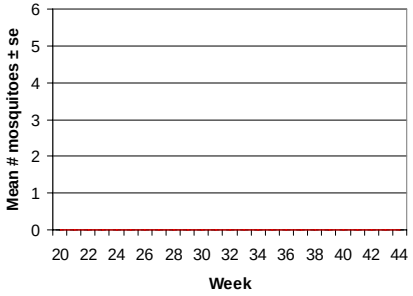

## Delaware River Basin



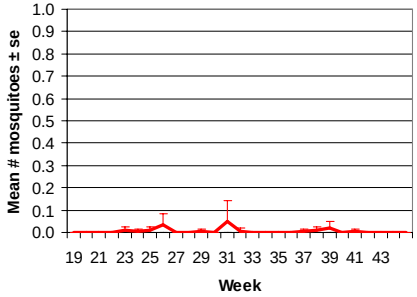

## New York Metro



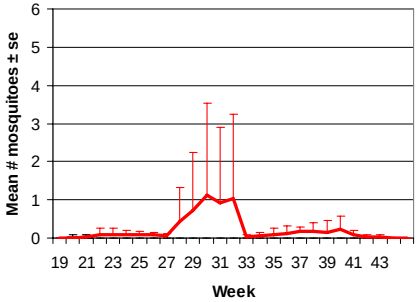

## North Central Rural



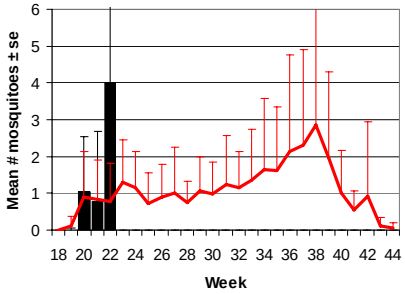

## Northwestern Rural



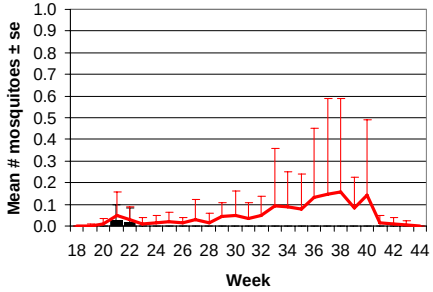

## Philadelphia Metro




## Pinelands



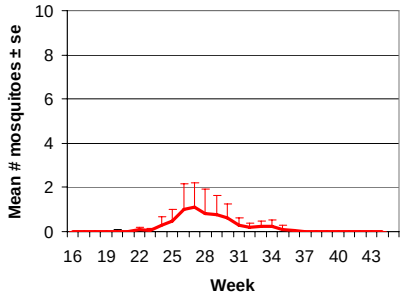
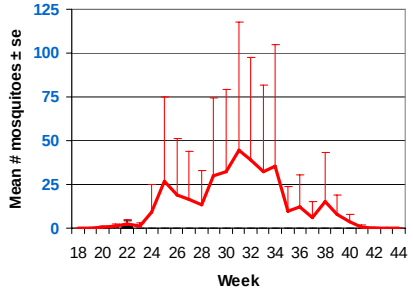
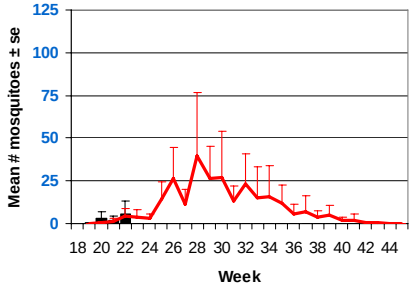
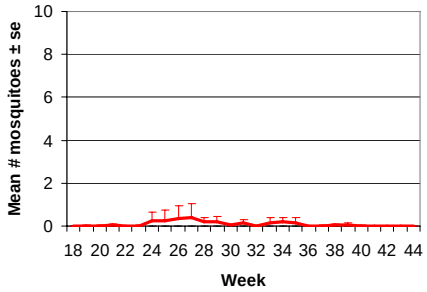
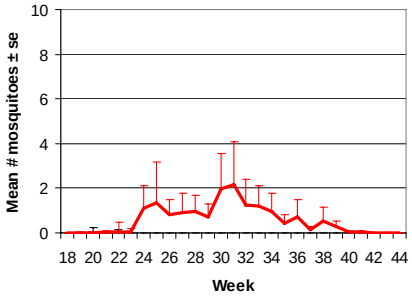
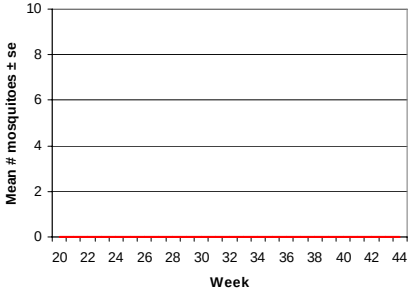
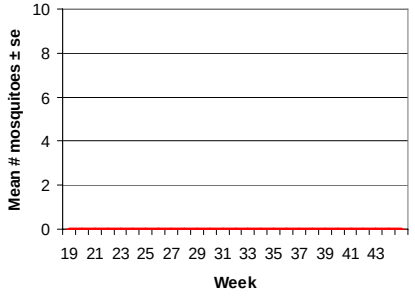
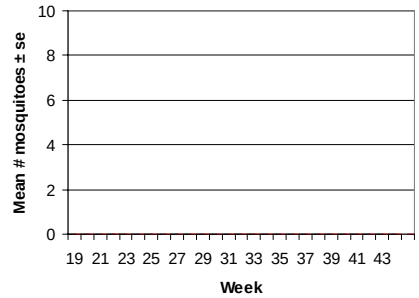
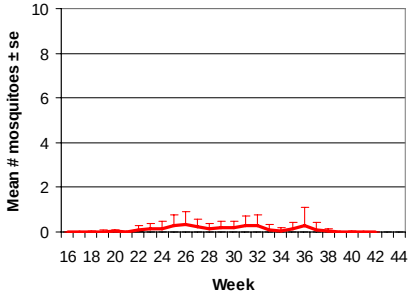
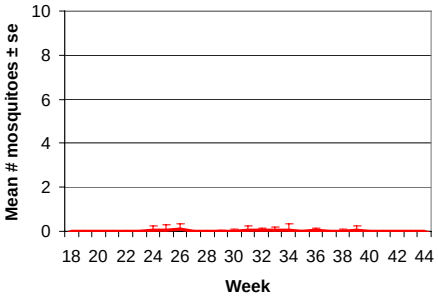

## Suburban Corridor




## Comments

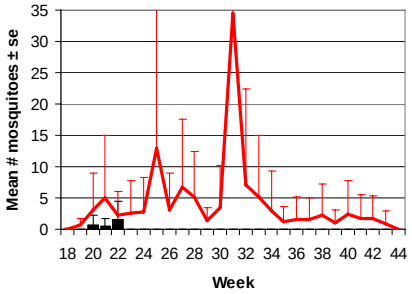
*Culiseta melanura* has shown up in large number in the Pinelands, with an average of more than 4 times historical levels. This is in stark contrast to last year where a cool spring appeared to restrict flying adults and population trends were later and at lower levels than is typically seen. This large emergence was also reflected in the first collection period of resting boxes in the southern portion of the state.

# *Aedes sollicitans* - Salt Marsh Floodwater Species

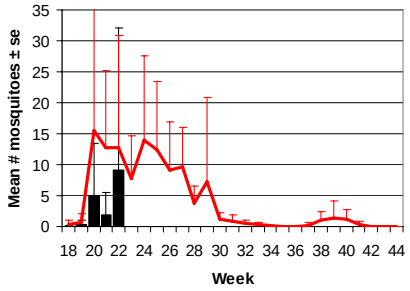
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | *Aedes sollicitans* continue to build in the Delaware Bayshore region and are within historical trends. Activity is also seen in the Agricultural, Coastal, and New York Metro regions. | |

# *Aedes cantator* – Multivoltine Aedine, *Ae. sollicitans* type

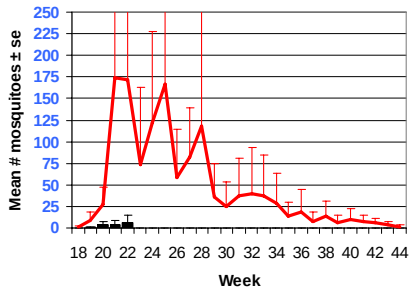
## Agricultural



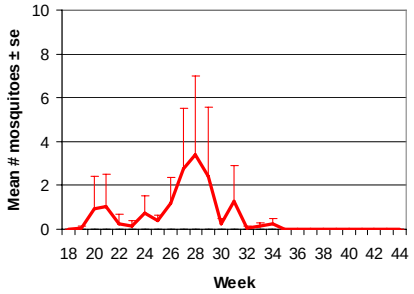

## Coastal



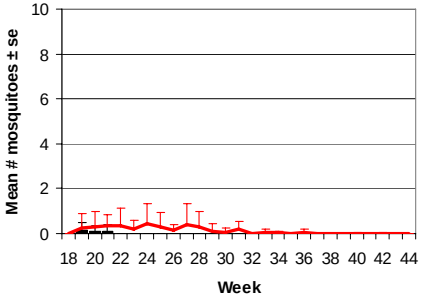

## Delaware Bayshore



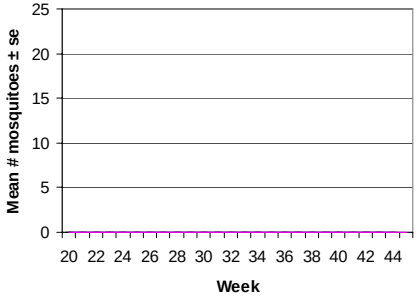

## Delaware River Basin



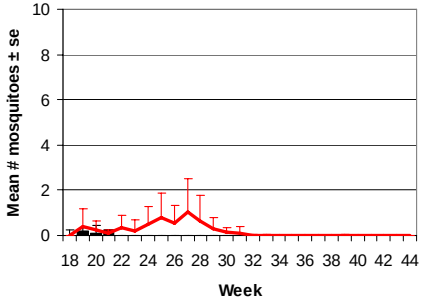

## New York Metro



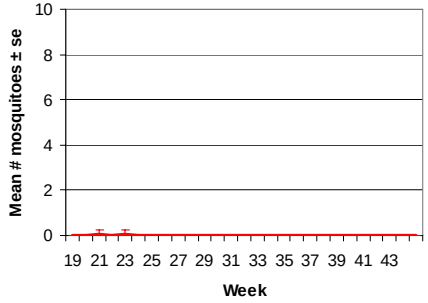

## North Central Rural



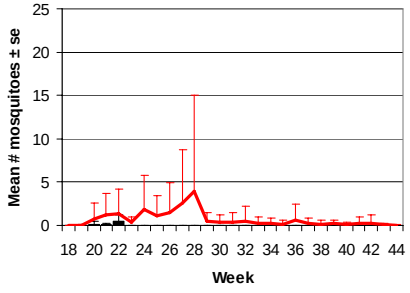

## Northwestern Rural



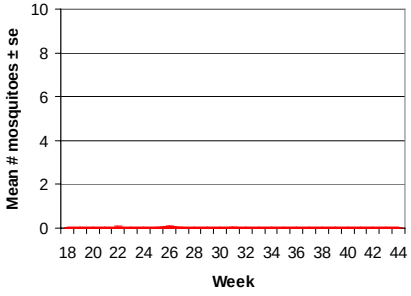

## Philadelphia Metro




## Pinelands



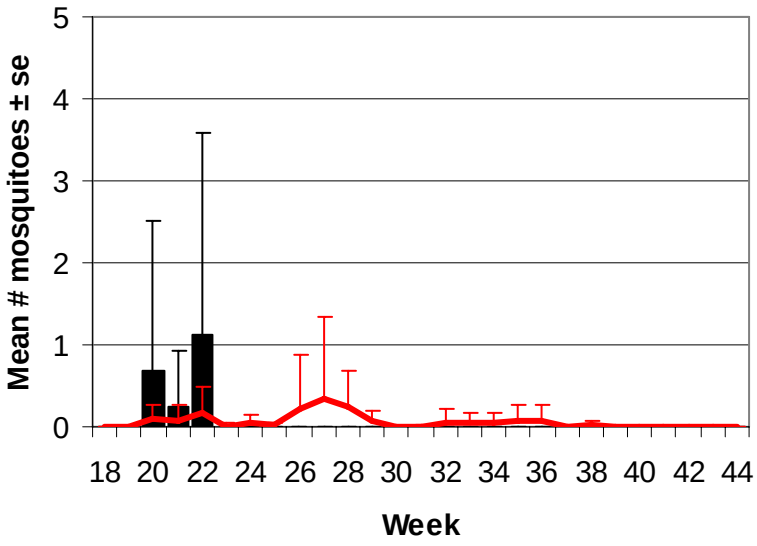
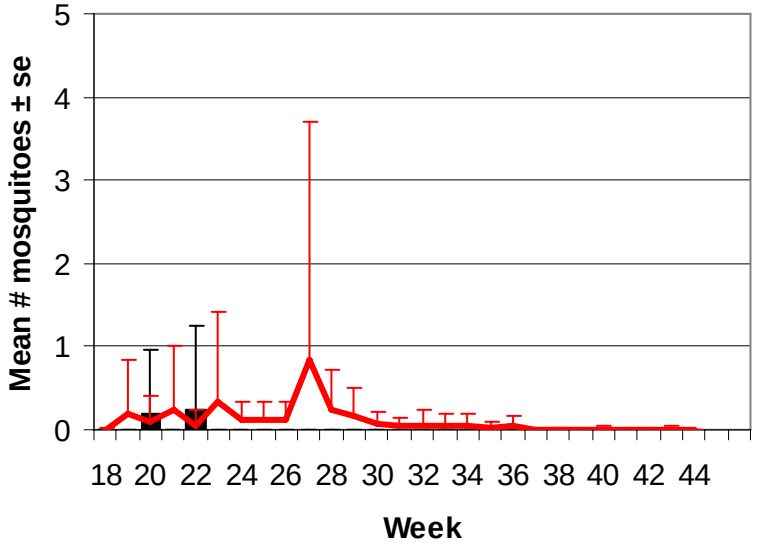

## Suburban Corridor




## Comments

*Aedes cantator* may have potentially peaked in the Coastal and Delaware Bayshore regions. This early-season floodwater species usually peaks in the end of May. While recent warm weather and rains may have prompted the larger emergences, this species can be found in smaller numbers during the first half of the season. *Aedes cantator* will also take advantage of manmade sources of brackish to saline habitat, and can thus be found in unusual areas, such as the Northwestern region.

# *Aedes sticticus*

| Pinelands | Suburban Corridor |
|---|---|
|  |  |



*Aedes sticticus*, a univoltine floodwater species, has shown up in significant number in the Pinelands region. The Suburban Corridor also showed emergences, but were at historical levels. (This species will also show up in significant number in the floodplains of the Passaic River, but light traps were not yet operational at the time of this report.) This species, like *Aedes vexans*, can respond to changing floodwater habitat. *Aedes sticticus* will accelerate development to emerge before the habitat disappears, while *Aedes vexans* can survive and emerge in moist soil (Shafer and Lundstrom 2006). *Ae. sticticus* has been described as a “persistent biter” and is not a strongly competent vector for West Nile.

Shafer and Lundstrom 2006 Different responses of two floodwater mosquito species, *Aedes vexans* and *Ochlerotatus sticticus* (Diptera: Culicidae), to larval habitat drying. Journal of Vector Ecology, 31(1): 123-128.