VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 31: July 28 – August 3, 2013

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Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland / Coastal	Historic Population Mean	Current Weekly Mean	Total (Collected) Tested*	Total Pools (Submitted) Tested*	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	0.50	1.60	16 (24)	5 (6)		
Green Bank (Burlington Co.)/25	**Coastal**	4.14	2.00	68 (118)	9 (10)		
Corbin City (Atlantic Co.)/25	**Coastal**	0.98	1.32	101 (134)	9 (10)		
Dennisville (Cape May Co.)/50	**Coastal**	6.84	0.50	137	8		
Winslow (Camden Co.)/50	**Inland**	1.26	1.66	1099	26		
Centerton (Salem Co.)/50	**Inland**	1.59	1.30	616	18		
Turkey Swamp (Monmouth Co.)/42	**Inland**	1.45	0.66	246 (273)	10 (11)		
Glassboro (Gloucester Co.)/50	**Inland**	0.70	0.24	238	10		

*Current week (in parentheses) results pending.

Remarks: No additional pools positive for EEE have been collected in the past week. To date, 3 positive EEE pools, all in the enzootic vector, *Cs. melanura* have been collected, all from Cape May County.

For counties accessing the West Nile database: Results from samples recently tested at the Cape May labs have been entered with quality control being conducted.

Traditional Resting Box Sites: To date 2521 *Cs. melanura* from 95 pools have been tested from the traditional resting box sites with an additional 4 pools of 118 mosquitoes to be tested. There has been no detection of EEE in samples collected at these sites.

Additional *Cs. melanura*: One hundred thirty additional pools containing 3522 *Cs. melanura* have been tested from other sites using other traps in addition to resting boxes. A total of 3 positive *Cs. melanura* pools from Cape May County have been detected. Note that MFIR value is a "rough estimate" as other data already completed may be pending for entry to the West Nile database and not reflected in the tables below.

Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Number collected (pools)**	**Number of positives pools**	**MFIR**
Burlington	CO_2	2791 (48)		
Cape May	Gravid, RB	338 (29)	3	8.88*
Gloucester	RB	314 (29)		
Monmouth	CO_2	14 (2)		
Ocean	CO_2, RB	33 (16)		
Salem	CO_2	32 (6)		
TOTAL		**3522 (130)**	**3**	0.85*

Additional Species: The table below indicates non-*Cs. melanura* mosquitoes tested for EEE. Last year, *Culex erraticus*, a known enzootic vector and potential bridge vector, was found positive. Currently, no other species have been found positive.

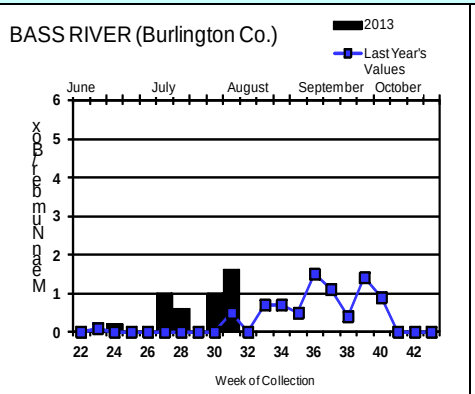
Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes atlanticus	1	44		
Aedes cantator	5	5		
Aedes sollicitans	1	10		
Aedes sticticus	2	3		
Anopheles punctipennis	1	49		
Coquillettidia perturbans	3	102		
Culex erraticus	11	406		
Culex pipiens	86	800		
Culex restuans	2	2		
Culex salinarius	7	158		
Culex spp.	37	143		
State Total	**156**	**1722**	**0**	**0.00**

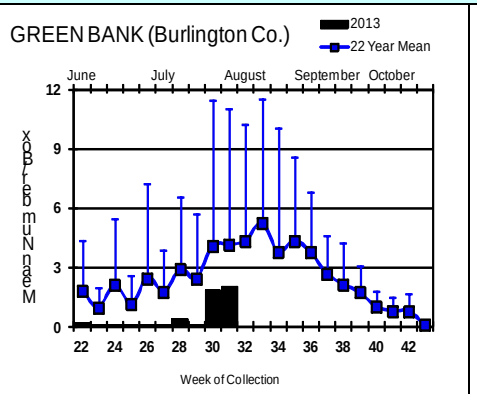
Horses and Humans: Currently there is no reported horse, other livestock or human cases.

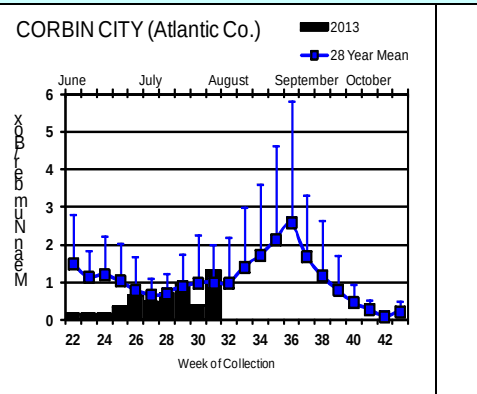
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

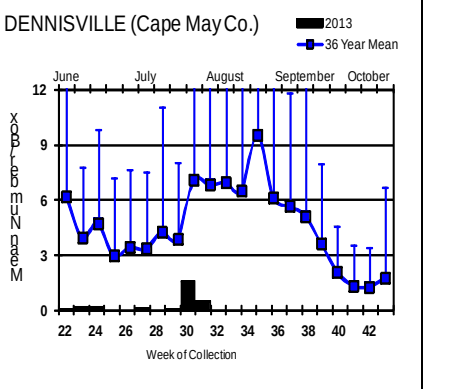
Culiseta melanura Population Graphs

Coastal

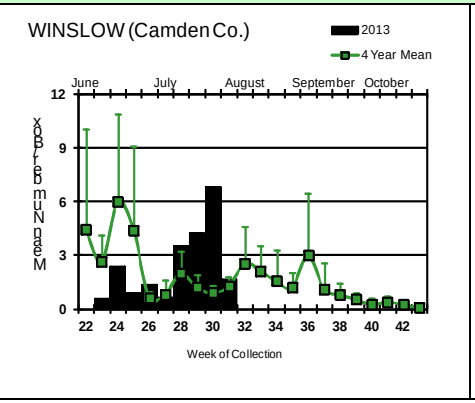


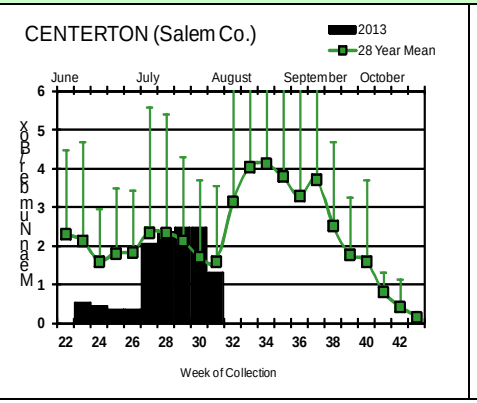


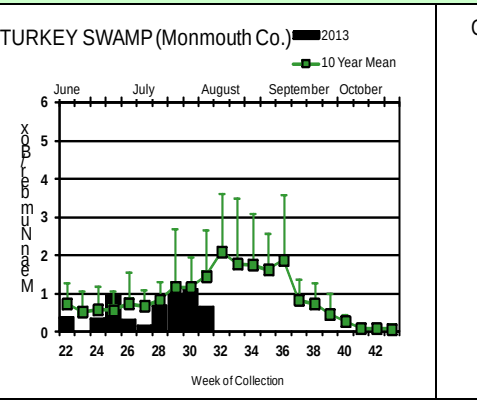


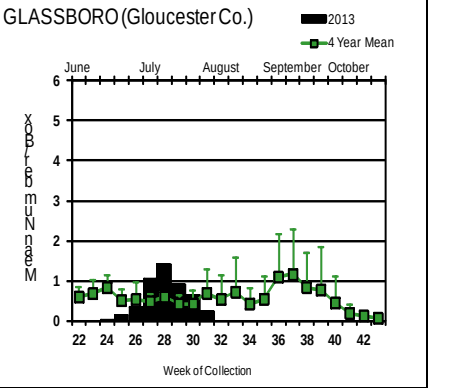


Inland









Cs. melanura numbers continued to increase at several sites on the eastern side of the state including Bass River, Green Bank and Corbin City. Activity appears to be well within historical values at most sites, with the exception of Dennisville, a formerly prolific site.

Note axis change (from 12 to 6) on Bass River, Corbin City, Centerton, Turkey Swamp and Glassboro sites.

= Positive pool(s) detected (red = melanura, purple = other).

EEE in US (2013 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 4(AL) 19(FL) 4(GA) 2(LA) 1(MA) 1(MS) 5(NC) 1(TX) 1(SC)
- mosquito pools: 2(CT) 1(GA) 2(MA) 3(NJ)
- sentinel: 7(AL) 76/3 wild(FL)
- human: 2(FL) 1(GA)

West Nile Virus in US

West Nile in US (2013 cumulative cases): Single black values indicate no change from previous week. Black values / red values equals previous week/New totals.
Note: Data reported by all states should be considered provisional and subject to change. Sources for this table can be found here.

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama					1
Alaska					
Arizona	0	103	0	0	3
Arkansas				0	0
California	323/452	761/1007	76/96	2/3	4/14
Colorado		95		1	1
Connecticut		2/8			
Delaware			1		
DC		1			
Florida			51/52	1	
Georgia	0	3/15		0	1
Hawaii					
Idaho		31/38		2	1/2
Illinois	4/12	149/311		0	0
Indiana	0	27/39		0	1
Iowa		1	1		2
Kansas		0			0
Kentucky					
Louisiana		16/47	19/24	1	1
Maine		0		0	0
Maryland		1			
Mass.		24/43		0	0
Michigan	3			0	1
Minnesota	1	5/9			1/3
Mississippi		15/30		0	7/8
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana		1		0	0
Nebraska		26			4
Nevada		4			5/6
New Hampshire		2			
New Jersey	3/5	57/119		0	0
New Mexico					1
New York		33/62		0	0
North Carolina					
North Dakota	2/3	6		0	1
Ohio		1/21		1	
Oklahoma					
Oregon	1	32/47	0	0	0
Pennsylvania	2	124/276		0	0
Rhode Island		0			
South Carolina					
South Dakota	1	109/139		1	7/12
Tennessee	0	105/161		0	1
Texas		72/75		1	2/4
Utah		13/24	0	0	0
Vermont		1			
Virginia					
Washington	0	3		0	1
West Virginia		9/12			
Wisconsin	17/20	1		0	1
Wyoming		6			

* Can include other species (e.g., dogs, cows) reported positive.

Protocol: New Jersey Department of Health (NJDH Public Health Environmental and Agricultural Laboratories, PHEAL) and the Cape May County Department of Mosquito Control tests mosquito pools using RT-PCR Taqman techniques.

Mosquito Species Submitted and Tested for West Nile Virus Testing through 3 August 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	223	1835		
Aedes atlanticus	3	47		
Aedes atropalpus	2	2		
Aedes canadensis canadensis	33	725		
Aedes cantator	17	95		
Aedes grossbecki	1	1		
Aedes japonicus	201	1373	1	0.728
Aedes sollicitans	1	10		
Aedes sticticus	3	5		
Aedes taeniorhynchus	3	7		
Aedes triseriatus	36	110		
Aedes trivittatus	6	58		
Aedes vexans	28	447		
Anopheles bradleyi	4	13		
Anopheles punctipennis	15	118		
Anopheles quadrimaculatus	24	265		
Coquillettidia perturbans	9	163		
Culex erraticus	14	416		
Culex pipiens	310	9996	9	0.900
Culex restuans	255	3312	9	2.717
Culex salinarius	11	176		
Culex spp.	1641	71367	95	1.331
Culex territans	3	4		
Culiseta melanura	238	6079		
Psorophora ciliata	1	1		
Psorophora columbiae	11	141		
Psorophora ferox	18	296		
Psorophora howardii	1	10		
State Total	**3117**	**97136**	**119**	**1.225**

Remarks: To date, 3117 pools of 97136 mosquitoes from 27 species have been tested, with 119 positive pools detected. First positive was detected in a pool collected on 26 June in Middlesex County. Most positive pools are from ornithophilic *Culex* or *Culiseta*. The potential bridge vector, *Aedes japonicus*, a very efficient vector of WNV, has been detected with the virus. *Ae. japonicus* shows up positive nearly every year in New Jersey.

Humans, Horses and Wild Birds: No human cases have been reported. See http://www.state.nj.us/health/cd/westnile/techinfo.shtml for further information.

Last year the first horse was detected in mid July. No horse or other livestock have been reported positive in 2013 to date.

Bird testing began in mid-April. Five positive birds have been reported, all corvids. To date, 70 birds have been tested. Testing includes: American Crow (*Corvus brachyrhynchos* 0/3), Fish Crow (*C. ossifragus* 1/11), unidentified Crow (*Corvus* spp. 1/2), Blue Jay (*Cyanocitta cristata* 2/6), Hawk/Raptor (0/9) and other avian species (1/40). Counties submitting birds are Bergen, Burlington, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Monmouth, Morris, Ocean, Salem, Sussex, Union and Warren.

2013 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
114 / 3117 (0.036)	476 / 4052 (0.117)
2013 Positive Birds to date / Total Birds Submitted	This time last year
5 / 70 (0.071)	38 / 126 (0.302)

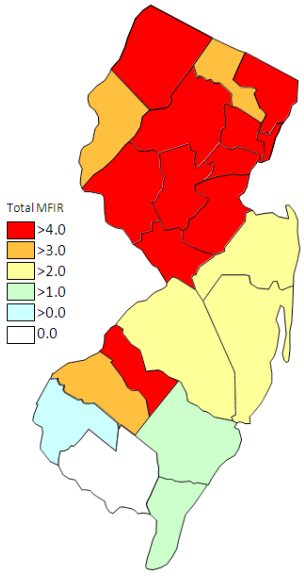
WNV Results by County through 3 August 2013

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**81**	**1591**		
	Aedes albopictus	6	74		
	Aedes canadensis canadensis	3	73		
	Aedes cantator	3	36		
	Aedes grossbecki	1	1		
	Aedes japonicus	4	13		
	Aedes sticticus	2	3		
	Aedes taeniorhynchus	2	6		
	Aedes triseriatus	2	8		
	Aedes vexans	6	154		
	Anopheles bradleyi	2	5		
	Anopheles punctipennis	1	11		
	Anopheles quadrimaculatus	2	6		
	Coquillettidia perturbans	3	25		
	Culex spp.	25	904		
	Culiseta melanura	13	137		
	Psorophora ciliata	1	1		
	Psorophora columbiae	1	1		
	Psorophora ferox	3	123		
	Psorophora howardii	1	10		
Bergen		**90**	**5857**	**18**	**3.073**
	Aedes japonicus	3	32		
	Culex spp.	87	5825	18	3.090
Burlington		**125**	**5330**	**5**	**0.938**
	Aedes albopictus	1	27		
	Aedes atlanticus	1	44		
	Aedes japonicus	4	42		
	Coquillettidia perturbans	1	71		
	Culex pipiens	2	15		
	Culex restuans	1	1		
	Culex salinarius	1	51		
	Culex spp.	52	2204	5	2.269
	Culiseta melanura	62	2875		
Camden		**142**	**5177**	**10**	**1.932**
	Aedes albopictus	15	80		
	Aedes japonicus	13	55		
	Culex spp.	88	3943	10	2.536
	Culiseta melanura	26	1099		
Cape May		**564**	**4966**	**5**	**1.007**
	Aedes albopictus	23	45		

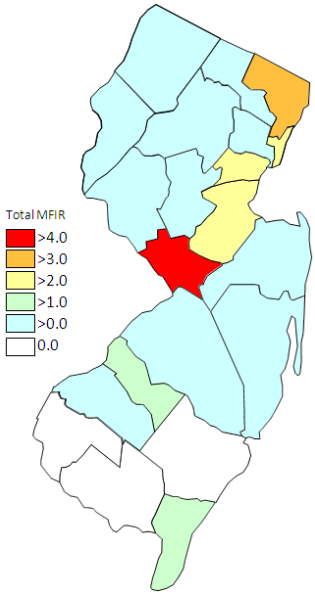
	Aedes atropalpus	2	2		
	Aedes canadensis canadensis	1	1		
	Aedes cantator	6	6		
	Aedes japonicus	46	93		
	Aedes sollicitans	1	10		
	Aedes triseriatus	6	6		
	Aedes vexans	1	1		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	13	232		
	Culex erraticus	12	409		
	Culex pipiens	148	1509	4	2.651
	Culex restuans	220	2023		
	Culex salinarius	6	107		
	Culex spp.	39	138		
	Culex territans	3	4		
	Culiseta melanura	36	379	1	2.639
Essex		**95**	**1612**	**1**	**0.620**
	Aedes albopictus	33	114		
	Aedes japonicus	25	258		
	Culex spp.	37	1240	1	0.806
Gloucester		**223**	**6941**	**9**	**0.934**
	Aedes albopictus	13	452		
	Aedes japonicus	12	173		
	Aedes triseriatus	1	30		
	Aedes vexans	2	87		
	Anopheles punctipennis	3	81		
	Coquillettidia perturbans	1	29		
	Culex pipiens	145	8119	9	1.109
	Culiseta melanura	43	582		
	Psorophora ferox	3	88		
Hudson		**83**	**3696**	**11**	**2.976**
	Culex spp.	83	3696	11	2.976
Hunterdon		**160**	**7502**	**1**	**0.133**
	Culex spp.	160	7502	1	0.133
Mercer		**100**	**2606**	**11**	**4.221**
	Aedes albopictus	25	251		
	Aedes japonicus	8	43	1	23.256
	Aedes triseriatus	2	4		
	Aedes vexans	4	111		
	Culex pipiens	17	411		
	Culex restuans	31	1285	9	7.004
	Culex salinarius	1	5		
	Culex spp.	12	496	1	2.016
Middlesex		**133**	**5341**	**11**	**2.060**
	Aedes albopictus	7	104		
	Aedes japonicus	4	20		
	Culex spp.	122	5217	11	2.108
Monmouth		**177**	**2073**	**1**	**0.482**

	Aedes albopictus	24	129		
	Aedes atlanticus	2	3		
	Aedes canadensis canadensis	15	245		
	Aedes cantator	6	20		
	Aedes japonicus	19	76		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	11	34		
	Aedes trivittatus	5	8		
	Aedes vexans	5	14		
	Anopheles punctipennis	5	16		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	1	5		
	Culex erraticus	1	6		
	Culex restuans	2	2		
	Culex spp.	52	1101	1	0.908
	Culiseta melanura	18	300		
	Psorophora columbiae	3	68		
	Psorophora ferox	6	44		
Morris		**191**	**8533**	**4**	**0.469**
	Culex spp.	191	8533	4	0.469
Ocean		**167**	**2299**	**2**	**0.870**
	Aedes albopictus	42	361		
	Aedes canadensis canadensis	13	393		
	Aedes cantator	2	33		
	Aedes japonicus	20	69		
	Aedes triseriatus	1	2		
	Aedes vexans	7	14		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	1	2		
	Culex salinarius	3	13		
	Culex spp.	60	1376	2	1.453
	Culiseta melanura	16	33		
Passaic		**111**	**3960**	**3**	**0.758**
	Aedes albopictus	9	37		
	Aedes japonicus	10	133		
	Aedes triseriatus	5	9		
	Aedes trivittatus	1	50		
	Aedes vexans	1	50		
	Anopheles punctipennis	1	1		
	Culex spp.	82	3678	3	0.816
	Psorophora ferox	2	2		
Salem		**114**	**1632**		
	Aedes albopictus	14	71		
	Aedes japonicus	12	61		
	Aedes sticticus	1	2		
	Aedes triseriatus	8	17		
	Anopheles bradleyi	2	8		
	Anopheles punctipennis	2	5		
	Anopheles quadrimaculatus	8	26		
	Coquillettidia perturbans	2	31		
	Culex erraticus	1	1		
	Culex pipiens	2	2		

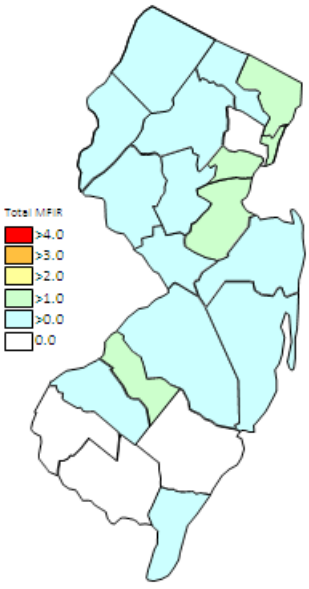
	Culex restuans	1	1		
	Culex spp.	26	648		
	Culiseta melanura	24	648		
	Psorophora columbiae	7	72		
	Psorophora ferox	4	39		
Somerset		**153**	**4353**	**3**	**0.689**
	Aedes albopictus	7	51		
	Aedes japonicus	15	147		
	Aedes vexans	2	16		
	Culex spp.	129	4139	3	0.725
Sussex		**135**	**5983**	**2**	**0.334**
	Aedes japonicus	3	90		
	Culex spp.	131	5863	2	0.341
	Culiseta melanura	1	30		
Union		**111**	**6413**	**18**	**2.807**
	Aedes albopictus	4	39		
	Aedes japonicus	3	68		
	Culex spp.	104	6306	18	2.854
Warren		**162**	**8571**	**4**	**0.467**
	Aedes canadensis canadensis	1	13		
	Culex spp.	161	8558	4	0.467
Grand Total		**3117**	**97136**	**119**	**1.225**



Cumulative WNV activity in 2012.



WNV activity to 3 August 2013.



WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) to 3 August 2013.

New Jersey will be selectively testing for SLE this year. SLE has had previous activity in New Jersey, most notably in 1964 and 1975 (CDC's SLE website), the latter prompting the surveillance reporting by Rutgers. SLE is a flavivirus and has a similar transmission pattern to West Nile, with *Culex* species as the predominant vectors.

No pools have been detected positive for SLE in 2013.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**17**	**630**		
	Aedes albopictus	1	27		
	Aedes japonicus	1	8		
	Culex pipiens	15	595		
Cape May		**82**	**782**		
	Culex pipiens	82	782		
Grand Total		**99**	**1412**		

La Crosse Encephalitis (LAC) through 3 August 2013.

New Jersey will be selectively testing for La Crosse (LAC) virus this year. New Jersey has had 3 cases of this encephalitic disease since 1964 (see CDC's LAC website). The mortality is low but like other encephalitides, LAC can have both personal (lasting neurological sequelae) and economic impacts. LAC is a bunyavirus with a transmission cycle involving mosquitoes such as *Aedes triseriatus* and small mammals such as squirrels and chipmunks. LAC can not only infect *Aedes albopictus* but transovarial transmission was also demonstrated. (Tesh and Gubler 1975 Laboratory studies of transovarial transmission of La Crosse and other arboviruses by *Aedes albopictus* and *Culex fatigans.* American Journal of Tropical Medicine and Hygiene 24(5):876-880).

No pools have been detected positive for LAC in 2013.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**2**	**2**		
	Aedes triseriatus	2	2		
Salem		**6**	**15**		
	Aedes triseriatus	6	15		
Grand Total		**8**	**17**		