VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 32: August 5 to August 11, 2012

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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.)/10	**Coastal**	na	0	6	2		
Green Bank (Burlington Co.)/25	**Coastal**	4.53	0.04	(20) 19	(5) 4		
Corbin City (Atlantic Co.)/25	**Coastal**	1.00	0.40	134‡	(10) 9		
Dennisville (Cape May Co.)/50	**Coastal**	7.14	0.04	91	10	1	10.99
Winslow (Camden Co.)/50	**Inland**	3.16	0.62	1674	37	6	3.58
Centerton (Salem Co.)/50	**Inland**	3.22	0.54	333	13	1	3.00
Turkey Swamp (Monmouth Co.)/46	**Inland**	2.26	0.54	507‡	15		
Glassboro (Gloucester Co.)/50	**Inland**	0.71	0.04	146‡	10		

*Including trial run last week in May. ‡ Adjusted.

Remarks: The number of positive pools at the traditional resting box sites remains at 8. No new pools at these sites were detected.

To date 2910 *Cs. melanura* from 100 pools have been tested from the traditional resting box sites, with two additional pools in the system to be tested. Eight positive pools have been detected at these sites, for an MFIR of 2.75. A total of 13 positive pools have been detected in New Jersey, with an additional five positive pools in traps set by individual counties for an MFIR of 1.04 (see below). Overall MFIR value for the state is 1.69. All positive pools have been in *Culiseta melanura*.

Two hundred fifty-six additional pools containing 4788 *Cs. melanura* have been tested from other county trapping sites using other traps in addition to resting boxes. Two additional positive pools, for a total of 5 positive pools were detected this past week. One pool came from Gloucester County, where three previous pools had already been detected and the second pool came from Burlington County. Dissemination of EEE virus throughout southern New Jersey, while remaining yet in the enzootic vector, is apparent.

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**, Other	3029 (66)	1	0.33
Cape May	Gravid, RB	394 (78)		
Cumberland	CO_2, Gravid, RB	224 (19)		
Gloucester	CO_2, **RB**	982 (72)	4	4.07
Monmouth	Gravid	9 (2)		
Ocean	CO_2, Gravid, RB	82 (16)		
Salem	CO_2	3 (3)		
TOTAL		**4788 (256)**	**5**	1.04

Horses and Humans: A presumptive positive horse with an unusually early onset date of 25 May has been reported for Burlington County. The horse was reportedly vaccinated in early May. A second horse has been reported, also from Burlington County. Date of onset was 22 July, with the horse euthanized on the same date and no reported vaccination history.

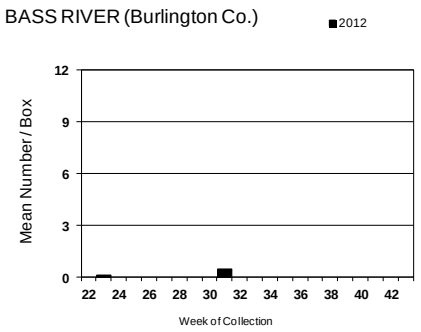
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

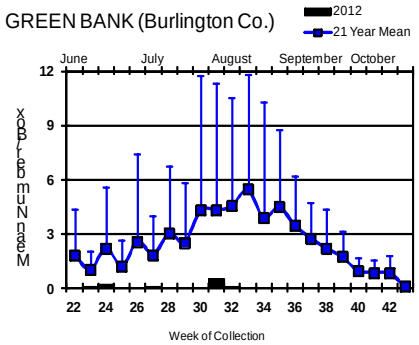
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	7	35		
Aedes canadensis canadensis	8	239		
Aedes cantator	36	472		
Aedes japonicus	18	72		
Aedes mitchellae	4	60		
Aedes sollicitans	5	17		
Aedes sticticus	1	8		
Aedes triseriatus	4	4		
Aedes trivittatus	1	2		
Aedes vexans	4	65		
Anopheles bradleyi	23	74		
Anopheles crucians	3	37		
Anopheles punctipennis	18	72		
Anopheles quadrimaculatus	17	54		
Coquillettidia perturbans	61	1575		
Culex erraticus	104	3776		
Culex pipiens	391	4286		
Culex restuans	4	56		
Culex salinarius	107	422		
Culex sp.	131	4432		
Psorophora columbiae	1	5		
State Total	**948**	**15763**		

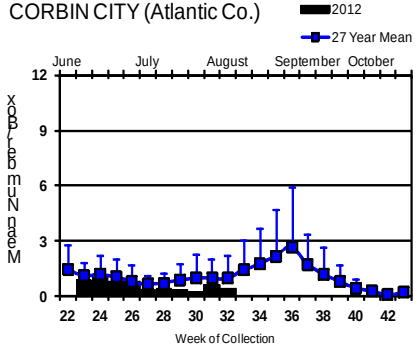
The table to the left indicates non-*Cs. melanura* mosquitoes tested for EEE. An additional 20 species of mosquitoes have been tested with no detection of EEE.

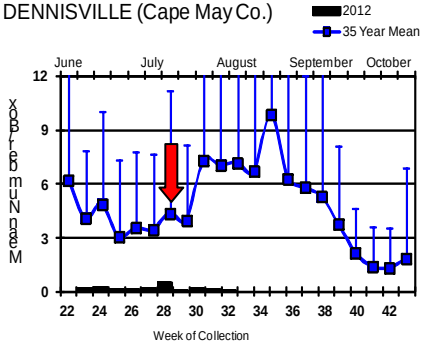
Culiseta melanura Population Graphs

Coastal

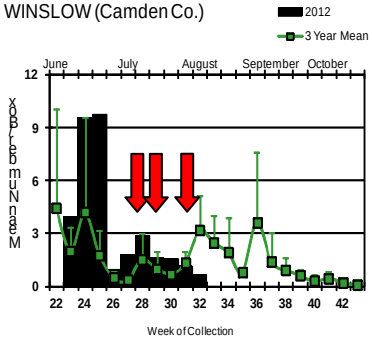


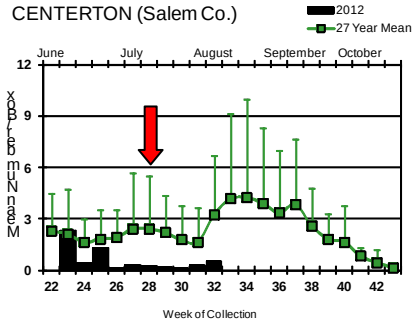


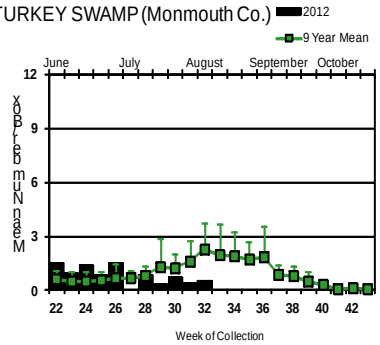


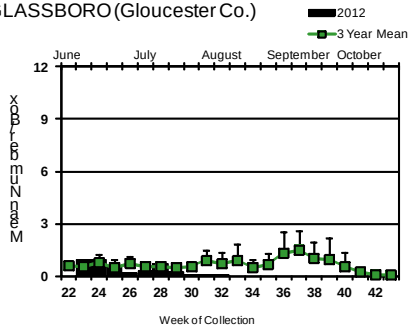


Inland









Populations of *Culiseta melanura* at all sites are now at or below historical levels. Detection of virus, however, continues at other sites within the southern portions of the state.

= Positive pool(s) detected.

EEE in US (2012 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 5(AL) 16(FL) 5(GA) 14(LA) 22(MS) 8(NC) 2(NJ) 1(NY) 6(SC)
- mosquito pools: 1(LA) 66(MA) 13(NJ)
- sentinel: 32(FL) 2 wild(ME) 3(NC)
- human: 1(FL) 1(MA)

West Nile Virus

West Nile in US (2012 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					4
Alaska					
Arizona	1	15/17	2	1	4/7
Arkansas					3/6
California	567/648	921/1136	48/76	4	11/18
Colorado		31/35		2/5	2/3
Connecticut		93/135		0	0
Delaware	2/4				
DC					
Florida	0		60/83	0	1/4
Georgia	0	29	0	0	4
Hawaii					
Idaho		6/12		0	1
Illinois	26/35	1175/1691		0	2/6
Indiana	1	226/234		3	2/4
Iowa		0	0	2	3
Kansas					3/8
Kentucky				1	1
Louisiana		1516/1755	53/69	13/16	14/39
Maine					
Maryland		1			
Mass.		51/80		0	0
Michigan	1	1/4		1	7/10
Minnesota	3/5	4/13		1/2	1/7
Mississippi		43/44		1/2	34/59
Missouri		18		1	1/2

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana		1/2			
Nebraska	3/5	80/94			3/13
Nevada					
New Hampshire		1/26		0	0
New Jersey	34/43	391/491		1	1
New Mexico				5	2
New York		334/470			1/4
North Carolina					
North Dakota	0	0		2/3	1
Ohio		413/532			1/2
Oklahoma		26		1	14/31
Oregon	1	32	0	0	0
Pennsylvania	41/51	1468/1665		2/3	4
Rhode Island		1/2		0	0
South Carolina	1/4	1		1/2	1/7
South Dakota	1	34/57		2	9/31
Tennessee	0	345/430		0	2
Texas	40/59	667/828		6/10	197/351
Utah		1/5	0	0	1
Vermont				0	0
Virginia					
Washington	0	½		0	0
West Virginia		79/93			
Wisconsin	3	0		0	0
Wyoming		9		1	0

* 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 13 August 2012

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	545	4006	1	0.250
Aedes atlanticus	4	6		
Aedes canadensis canadensis	60	1551		
Aedes cantator	65	874		
Aedes grossbecki	2	2		
Aedes japonicus	336	1857	4	2.154
Aedes mitchellae	4	60		
Aedes sollicitans	9	29		
Aedes sticticus	7	124		
Aedes taeniorhynchus	15	196		
Aedes triseriatus	164	362		
Aedes trivittatus	6	10		
Aedes vexans	61	555		
Anopheles bradleyi	40	370		
Anopheles crucians	3	37		
Anopheles punctipennis	70	283	1	3.534
Anopheles quadrimaculatus	78	243		
Coquillettidia perturbans	78	1811		
Culex erraticus	112	3852		
Culex pipiens	876	23380	70	2.994
Culex restuans	252	1487	1	0.672
Culex salinarius	136	609		
Culex sp.	2242	87981	408	4.637
Culex territans	26	43		0.000
Culiseta melanura	375	7746	6	0.775
Culiseta minnesotae	1	2		
Orthopodomyia signifera	10	10		
Psorophora columbiae	3	30		
Psorophora ferox	8	54		
Psorophora howardii	1	1		
State Total	**5589**	**137571**	**491**	**3.569**

Remarks: To date, there have been 137,571 mosquitoes tested in 5,589 pools from 29 species. Currently, 491 positive pools have been detected in *Aedes albopictus, Ae. japonicus*, *Anopheles punctipennis, Culex pipiens,* Mixed *Cx.* species, *Culex restuans,* and *Culiseta melanura*. Mixed Culex pools continued to increase in positive pools from 332 to 408, with MFIR values increasing from 4.058 to 4.637.

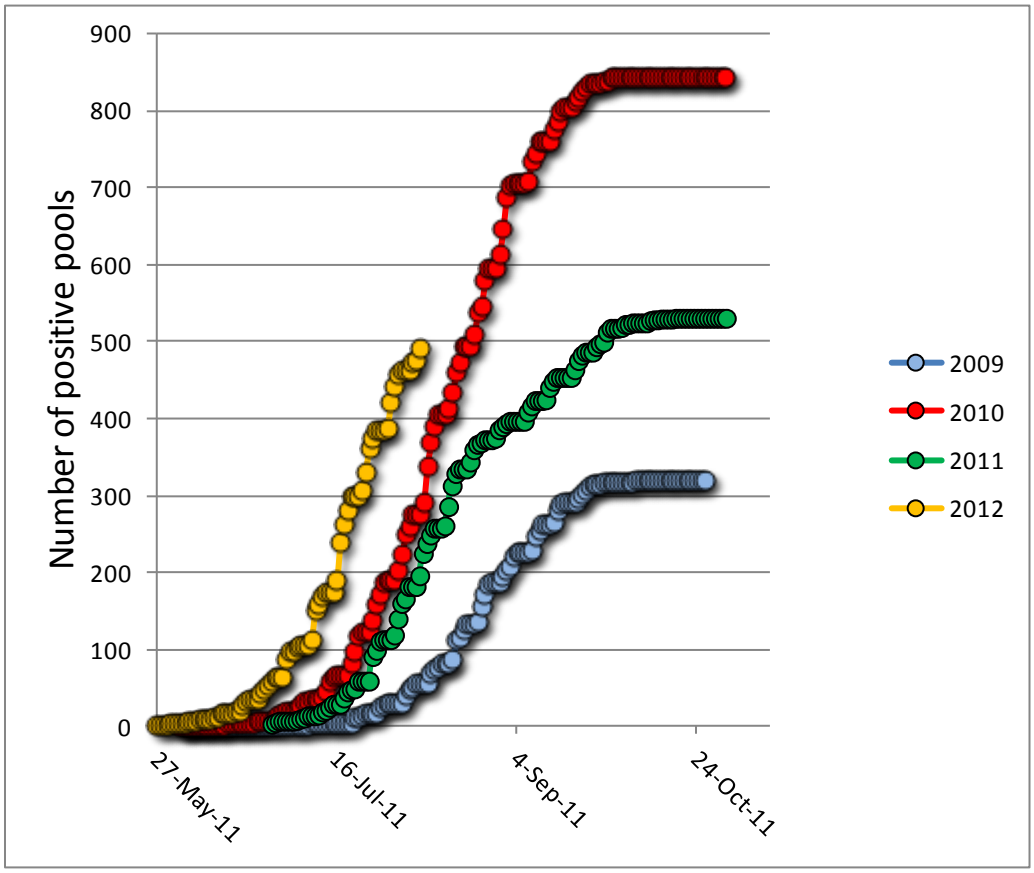
Humans, Horses and Wild Birds: One human case (19 year old female) has been reported in Monmouth County, with onset of symptoms on 12 July and possible acquisition in Ocean County. See http://www.state.nj.us/health/cd/westnile/techinfo.shtml for further information.
One WNV positive 11 yo quarter horse was reported from Salem County, with onset of symptoms on 4th August. The horse was put down the same day. Generally horses have either an unknown or no vaccination history, but this horse was reported as vaccinated. See http://www.escrutgers.com/downloads/NJDA_08102012.pdf In the very active year of 2010, the first WNV horse case had an onset date of 17 August.

Bird testing began in mid-April. To date, WNV has been detected in forty-three birds out of 132 tested. WNV was first detected in an American Crow (*Corvus brachyrhynchos*) from Morris County, collected 9 April. To date, testing includes: American Crow (*Corvus brachyrhynchos* 16/21), Fish Crow (*Corvus ossifragus* 11/32), unidentified Crow (*Corvus* spp.

8/16), Blue Jay (*Cyanocitta cristata* 4/10), Hawk/Raptor (1/7) and other avian species (3/45). Counties submitting birds are Atlantic, Bergen, Burlington, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Somerset, Sussex and Warren.

2012 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
491 / 5589 (0.088)	257 / 3668 (0.070)
2012 Positive Birds to date / Total Birds Submitted	This time last year
43 / 132 (0.326)	12 / 57 (0.211)

Activity continues to increase, as seen by plotting cumulative positive pools (graph below).



WNV Results by County through 13 August 2012

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**70**	**1798**	**2**	**1.112**
	Aedes albopictus	9	136		
	Aedes canadensis canadensis	1	2		
	Aedes cantator	1	10		
	Aedes japonicus	5	22		
	Aedes sollicitans	1	9		
	Aedes taeniorhynchus	2	89		
	Aedes triseriatus	2	12		
	Aedes trivittatus	1	2		
	Aedes vexans	3	78		
	Anopheles bradleyi	1	3		
	Anopheles punctipennis	1	15		

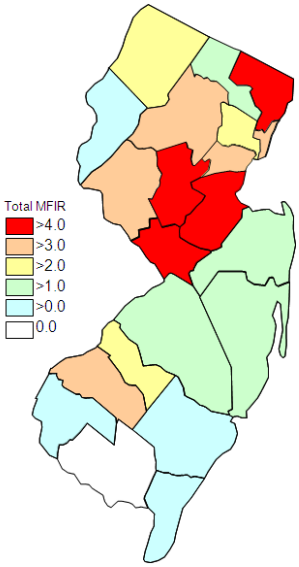
	Coquillettidia perturbans	2	3		
	Culex erraticus	3	34		
	Culex spp.	26	1233	2	1.622
	Culiseta melanura	10	141		
	Psorophora ferox	1	8		
	Psorophora howardii	1	1		
Bergen		**120**	**8285**	**73**	**8.811**
	Aedes albopictus	1	7		
	Aedes japonicus	1	4		
	Culex spp.	118	8274	73	8.823
Burlington		**320**	**10852**	**16**	**1.474**
	Aedes albopictus	10	147		
	Aedes canadensis canadensis	6	214		
	Aedes cantator	2	30		
	Aedes japonicus	21	115	1	8.696
	Aedes mitchellae	4	60		
	Aedes sticticus	1	8		
	Aedes triseriatus	3	3		
	Aedes trivittatus	1	2		
	Aedes vexans	5	72		
	Anopheles bradleyi	2	79		
	Anopheles crucians	3	37		
	Anopheles punctipennis	3	14		
	Anopheles quadrimaculatus	3	11		
	Coquillettidia perturbans	22	936		
	Culex erraticus	4	73		
	Culex pipiens	6	222		
	Culex restuans	3	55		
	Culex salinarius	10	182		
	Culex spp.	138	5468	13	2.377
	Culiseta melanura	72	3119	2	0.641
	Psorophora columbiae	1	5		
Camden		**174**	**6432**	**27**	**4.198**
	Aedes albopictus	9	29		
	Aedes japonicus	12	27	1	37.037
	Aedes triseriatus	2	6		
	Aedes trivittatus	1	2		
	Anopheles punctipennis	1	2		
	Culex spp.	112	4692	25	5.328
	Culiseta melanura	37	1674	1	0.597
Cape May		**1687**	**14742**	**7**	**0.475**
	Aedes albopictus	242	495		
	Aedes atlanticus	2	4		
	Aedes canadensis canadensis	6	65		
	Aedes cantator	39	452		
	Aedes japonicus	74	117		
	Aedes sollicitans	6	18		
	Aedes taeniorhynchus	12	106		
	Aedes triseriatus	89	146		
	Aedes vexans	9	39		
	Anopheles bradleyi	22	70		
	Anopheles punctipennis	14	18		

	Anopheles quadrimaculatus	50	159		
	Coquillettidia perturbans	4	23		
	Culex erraticus	96	3700		
	Culex pipiens	515	7576	7	0.924
	Culex restuans	214	680		
	Culex salinarius	106	290		
	Culex spp.	60	242		
	Culex territans	23	40		
	Culiseta melanura	94	492		
	Orthopodomyia signifera	10	10		
Cumberland		**110**	**1154**		
	Aedes albopictus	10	32		
	Aedes atlanticus	2	2		
	Aedes canadensis canadensis	4	25		
	Aedes cantator	3	11		
	Aedes japonicus	9	28		
	Aedes triseriatus	5	10		
	Aedes vexans	2	6		
	Anopheles bradleyi	4	158		
	Anopheles punctipennis	6	12		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	6	89		
	Culex erraticus	1	5		
	Culex pipiens	14	338		
	Culex restuans	8	86		
	Culex salinarius	8	92		
	Culex spp.	3	13		
	Culex territans	3	3		
	Culiseta melanura	19	224		
	Psorophora ferox	2	19		
Essex		**289**	**5223**	**19**	**3.638**
	Aedes albopictus	40	163		
	Aedes canadensis canadensis	2	2		
	Aedes grossbecki	2	2		
	Aedes japonicus	36	339	1	2.950
	Aedes sticticus	5	113		
	Aedes triseriatus	9	22		
	Aedes vexans	16	220		
	Culex spp.	178	4358	18	4.130
	Psorophora ferox	1	4		
Gloucester		**383**	**13308**	**37**	**2.780**
	Aedes albopictus	20	600		
	Aedes japonicus	5	75		
	Aedes triseriatus	1	7		
	Aedes vexans	1	2		
	Anopheles punctipennis	15	78		
	Anopheles quadrimaculatus	14	44		
	Coquillettidia perturbans	1	2		
	Culex pipiens	244	11372	34	2.990
	Culiseta melanura	82	1128	3	2.660
Hudson		**146**	**9402**	**43**	**4.573**

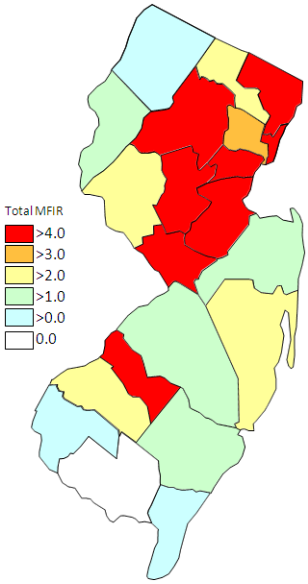
	Culex spp.	146	9402	43	4.573
Hunterdon		**178**	**8850**	**25**	**2.825**
	Culex spp.	178	8850	25	2.825
Mercer		**182**	**4809**	**30**	**6.238**
	Aedes albopictus	35	307		
	Aedes japonicus	32	177		
	Aedes triseriatus	5	11		
	Aedes vexans	1	3		
	Culex erraticus	1	7		
	Culex pipiens	89	3787	29	7.658
	Culex restuans	18	464	1	2.155
	Culex spp.	1	53		
Middlesex		**176**	**6498**	**45**	**6.925**
	Aedes albopictus	13	156		
	Aedes japonicus	15	120		
	Aedes triseriatus	3	14		
	Culex spp.	145	6208	45	7.249
Monmouth		**224**	**3564**	**5**	**1.403**
	Aedes albopictus	36	189	1	5.291
	Aedes canadensis canadensis	9	122		
	Aedes cantator	8	43		
	Aedes japonicus	35	135	1	7.407
	Aedes triseriatus	11	14		
	Aedes vexans	4	6		
	Anopheles punctipennis	7	9		
	Coquillettidia perturbans	3	4		
	Culex erraticus	1	1		
	Culex salinarius	3	14		
	Culex spp.	87	2501	3	1.200
	Culiseta melanura	20	526		
Morris		**245**	**9928**	**42**	**4.230**
	Aedes japonicus	9	112		
	Aedes triseriatus	2	7		
	Anopheles punctipennis	2	65		
	Coquillettidia perturbans	3	149		
	Culex spp.	229	9595	42	4.377
Ocean		**275**	**4938**	**11**	**2.228**
	Aedes albopictus	61	1281		
	Aedes canadensis canadensis	29	1112		
	Aedes cantator	11	327		
	Aedes japonicus	29	130		
	Aedes sollicitans	2	2		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	11	24		
	Aedes trivittatus	1	2		
	Aedes vexans	6	27		
	Anopheles bradleyi	7	39		
	Anopheles punctipennis	2	2		
	Anopheles quadrimaculatus	1	1		

	Coquillettidia perturbans	17	418		
	Culex restuans	1	1		
	Culex salinarius	9	31		
	Culex spp.	69	1456	11	7.555
	Culiseta melanura	16	82		
	Psorophora ferox	2	2		
Passaic		**104**	**2186**	**6**	**2.745**
	Aedes albopictus	12	42		
	Aedes japonicus	24	292		
	Aedes triseriatus	10	25		
	Anopheles punctipennis	3	5		
	Coquillettidia perturbans	1	2		
	Culex spp.	54	1820	6	3.297
Salem		**175**	**1941**	**1**	**0.515**
	Aedes albopictus	19	51		
	Aedes canadensis canadensis	2	6		
	Aedes cantator	1	1		
	Aedes japonicus	6	19		
	Aedes sticticus	1	3		
	Aedes triseriatus	3	3		
	Aedes vexans	10	82		
	Anopheles bradleyi	4	21		
	Anopheles punctipennis	5	7		
	Anopheles quadrimaculatus	7	25		
	Coquillettidia perturbans	17	141		
	Culex erraticus	6	32		
	Culex pipiens	4	26		
	Culex restuans	2	15		
	Culex spp.	65	1113	1	0.898
	Culiseta melanura	18	348		
	Culiseta minnesotae	1	2		
	Psorophora columbiae	2	25		
	Psorophora ferox	2	21		
Somerset		**152**	**3060**	**16**	**5.229**
	Aedes albopictus	9	51		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	12	85		
	Aedes triseriatus	3	39		
	Aedes vexans	1	8		
	Anopheles punctipennis	2	13	1	76.923
	Culex spp.	124	2861	15	5.243
Sussex		**187**	**5965**	**4**	**0.671**
	Coquillettidia perturbans	1	43		
	Culex pipiens	4	59		
	Culex restuans	6	186		
	Culex spp.	169	5665	4	0.706
	Culiseta melanura	7	12		
Union		**199**	**10205**	**77**	**7.545**
	Aedes albopictus	19	320		
	Aedes japonicus	3	42		

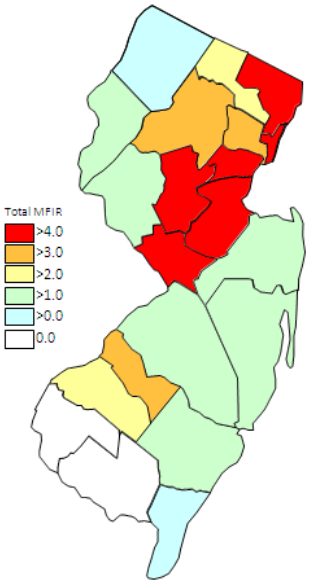
	Aedes triseriatus	1	15		
	Culex spp.	176	9828	77	7.835
Warren		**193**	**4431**	**5**	**1.128**
	Aedes japonicus	8	18		
	Aedes triseriatus	4	4		
	Aedes trivittatus	2	2		
	Aedes vexans	3	12		
	Anopheles punctipennis	9	43		
	Anopheles quadrimaculatus	2	2		
	Coquillettidia perturbans	1	1		
	Culex spp.	164	4349	5	1.150
Grand Total		**5589**	**137571**	**491**	**3.569**



Cumulative WNV activity in 2011.



WNV activity to 13 August 2012.



WNV activity last week, 2012.

Saint Louis Encephalitis (SLE) through 13 August 2012.

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 tested positive for SLE to date in 2012.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**266**	**9092**		
	Aedes albopictus	5	32		
	Aedes canadensis canadensis	6	214		
	Aedes cantator	2	30		
	Aedes japonicus	18	72		
	Aedes mitchellae	4	60		
	Aedes sticticus	1	8		
	Aedes triseriatus	3	3		

	Aedes trivittatus	1	2		
	Aedes vexans	4	65		
	Anopheles bradleyi	1	4		
	Anopheles crucians	3	37		
	Anopheles punctipennis	2	13		
	Anopheles quadrimaculatus	3	11		
	Coquillettidia perturbans	20	892		
	Culex erraticus	3	71		
	Culex pipiens	6	222		
	Culex restuans	3	55		
	Culex salinarius	10	182		
	Culex spp.	115	4567		
	Culiseta melanura	55	2547		
	Psorophora columbiae	1	5		
Camden		**67**	**2315**		
	Aedes albopictus	5	22		
	Aedes japonicus	4	6		
	Aedes triseriatus	1	5		
	Anopheles punctipennis	1	2		
	Culex spp.	56	2280		
Essex		**200**	**3900**		
	Aedes albopictus	23	48		
	Aedes canadensis canadensis	2	2		
	Aedes grossbecki	2	2		
	Aedes japonicus	30	251		
	Aedes sticticus	5	113		
	Aedes triseriatus	9	22		
	Aedes vexans	16	220		
	Culex spp.	112	3238		
	Psorophora ferox	1	4		
Hudson		**74**	**4966**		
	Aedes canadensis canadensis	74	4966		
Grand Total		**607**	**20273**		

La Crosse Encephalitis (LAC) through 13 August 2012.

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 tested positive to date for 2012.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**69**	**115**		

	Aedes triseriatus	69	115		
Cumberland		**5**	**10**		
	Aedes triseriatus	5	10		
Salem		**1**	**1**		
	Aedes triseriatus	1	1		
Union		**1**	**15**		
	Aedes triseriatus	1	15		
Grand Total		**76**	**141**		