

# VIRGINIA ARBOVIRAL ACTIVITY IN 2005

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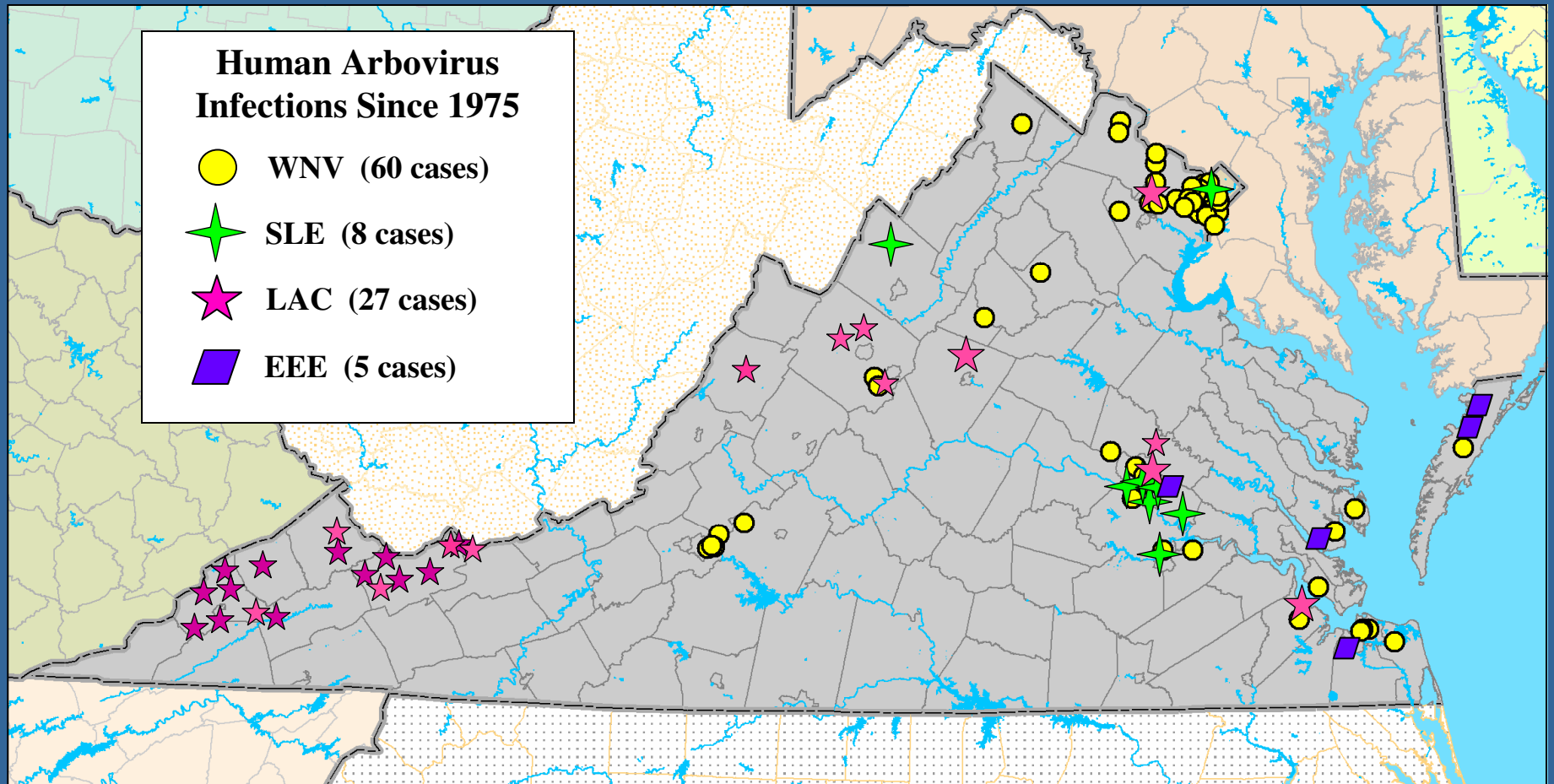


**30 YEAR HISTORICAL  
PERSPECTIVE OF  
HUMAN ARBOVIRAL  
INFECTIONS IN  
VIRGINIA**

# Human Arbovirus Cases Recorded in Virginia Since 1975 (number of cases per 5 - year period)

	1975 to 1979	1980 to 1984	1985 to 1989	1990 to 1994	1995 to 1999	2000 to 2004	30 YEAR TOTAL
Eastern Equine Encephalitis (EEE)	2			1	1	1	5
LaCrosse Encephalitis (LAC)			1	1	12	9	23
St. Louis Encephalitis (SLE)	5			1	1	1	8
West Nile Virus (WNV)						60	60

# Geographic Distribution of Human Arbovirus Cases Recorded in Virginia Since 1975



# ARBOVIRAL ACTIVITY IN VIRGINIA IN 2005

# Arboviral Activity Detected in Virginia in 2005

## Mosquito Surveillance

312 WNV positive mosquito pools

131 EEE positive mosquito pools

## Wild Avian Surveillance

16 WNV positive birds

## Sentinel Chicken Surveillance

6 flocks, 7 birds WNV positive

27 flocks, 97 birds EEE positive

## Equine Surveillance

1 WNV positive equine (Pr. William Co.)

6 EEE positive equines (Chesapeake - 4, Suffolk -1, Sussex Co.- 1)

## Human Case Surveillance

4 La Crosse positive cases (Fairfax Co., Albemarle Co., Henrico Co.,  
Isle of Wight Co.)

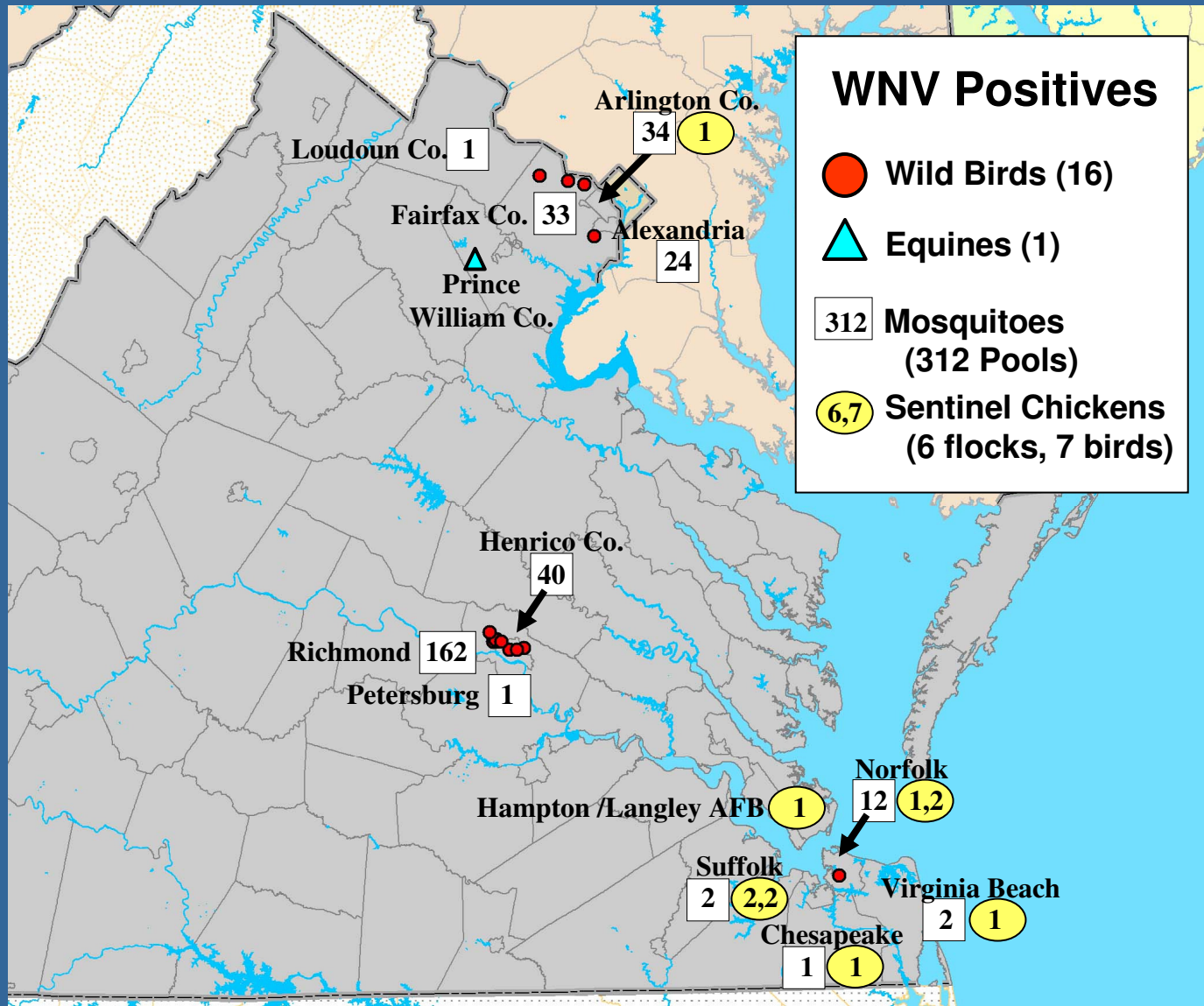
# WEST NILE VIRUS IN VIRGINIA IN 2005

## Virginia WNV Positive Totals, 2001 through 05:

	2001	2002	2003	2004	2005
<b>1. Humans:</b>	0 cases	<b>29 cases</b> (2 deaths)	<b>26 cases</b> (1 death)	<b>5 cases</b> (1 death)	0 cases
<b>2. Birds:</b>	212	<b>932</b>	<b>1,041</b>	25	16
<b>3. Sentinel Chickens:</b>	1 flock 1 bird	<b>6 flocks</b> <b>10 birds</b>	<b>21 flocks</b> <b>54 birds</b>	<b>18 flocks</b> <b>29 birds</b>	<b>6 flocks</b> <b>7 birds</b>
<b>4. Horses:</b>	6	<b>48</b>	<b>234</b>	15	1
<b>5. Mosquito Pools:</b>	1	<b>223</b>	<b>432</b>	<b>430</b>	<b>313</b>



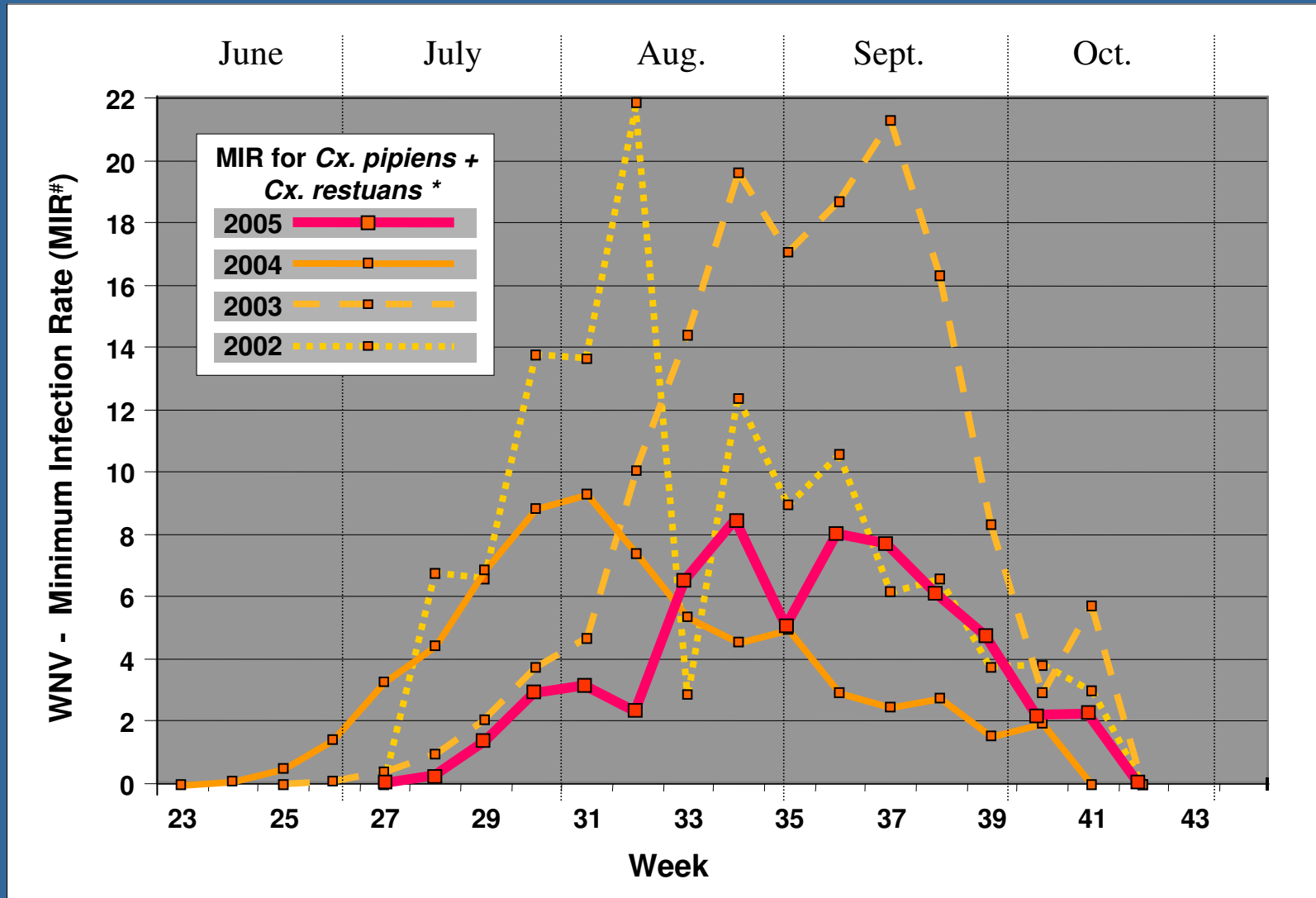
# WNV activity detected in Virginia in 2005



## Mosquitoes Tested for WNV in Virginia in 2005 (from a total of 10,362 pools, 343,901 mosquitoes submitted for testing)

	Mosquito Species	Pools Tested	Mosquitoes Tested	PCR Positive	PCR Equivocal	TC + PCR Positive
1	<i>Cs. mel.</i>	2,241	100,279	1		2
2	<i>Cx. pip.</i>	1,676	43,086	78	1	
3	<i>Cx. pip./res.</i>	1,395	41,266	201	3	
4	<i>Cx. res.</i>	1,577	39,894	27		
5	<i>Ae. albo.</i>	847	17,105	5	2	1
6	<i>Cx. sal.</i>	411	15,176			1
7	<i>Cx. err.</i>	272	8,895			1
8	<i>Cq. per.</i>	141	5,546			1
9	<i>An. cru.</i>	49	1,910			
10	<i>Ae. vex.</i>	43	1,601			
11	<i>Cx. spp.</i>	64	1,592			
12	<i>Oc. atl./tor.</i>	38	1,437			
13	<i>An. qua.</i>	35	1,327			
14	<i>Oc. jap.</i>	89	542			
15	<i>Oc. inf.</i>	12	463			
16	<i>Oc. tris.</i>	20	331			
17	<i>An. cru./bra.</i>	6	300			
18	<i>Oc. cana.</i>	6	211			
19	<i>Oc. tae.</i>	3	123			
20	<i>An. punc.</i>	1	26			
21	<i>Ps. cyan.</i>	1	17			
	<b>TOTAL</b>	<b>8,927</b>	<b>281,127</b>	<b>312</b>	<b>6</b>	<b>6</b>

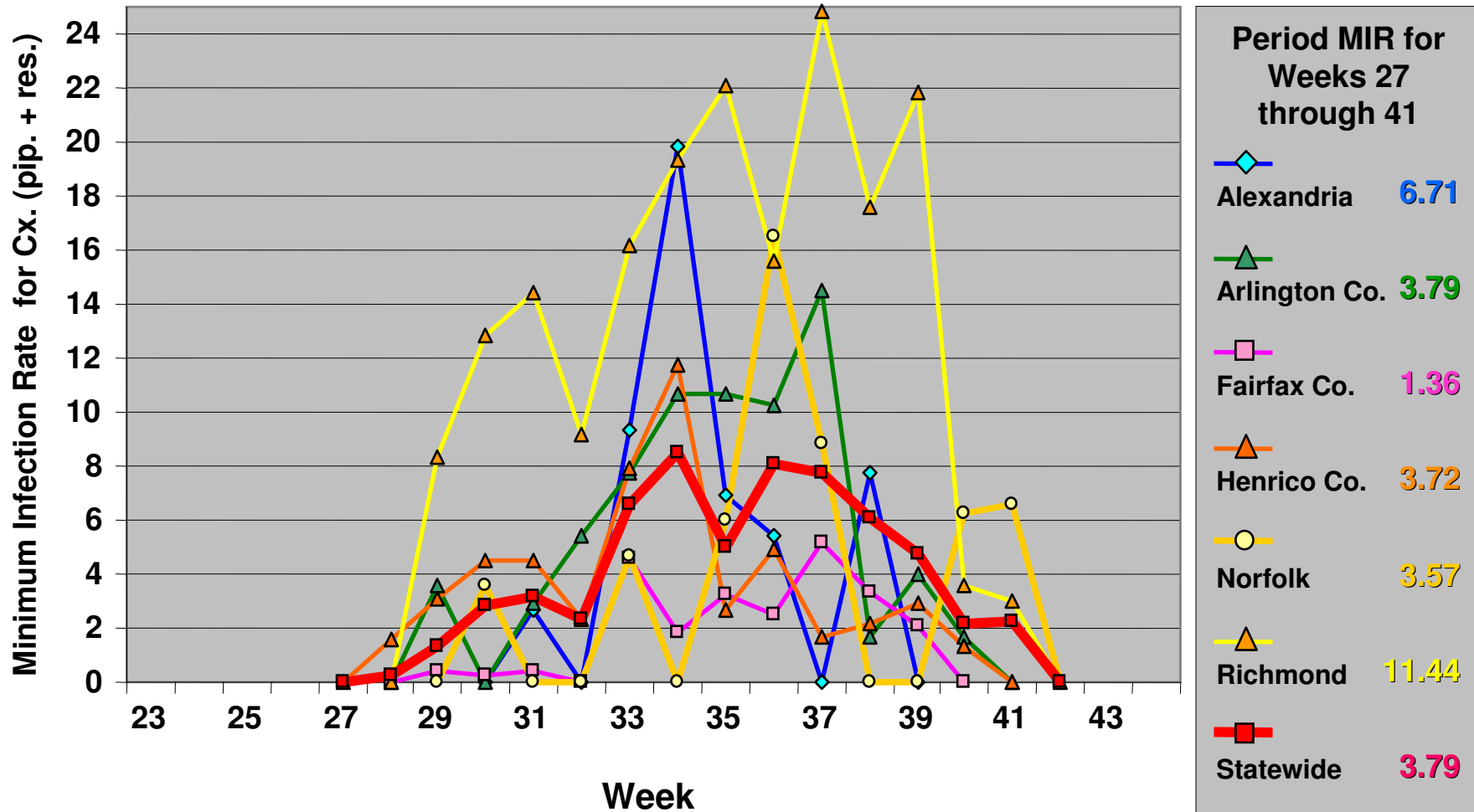
# Weekly WNV minimum (mosquito) infection rate (MIR) for *Cx. (pipiens + restuans)* in Virginia on weeks 23 - 44 of 2002 through 2005.



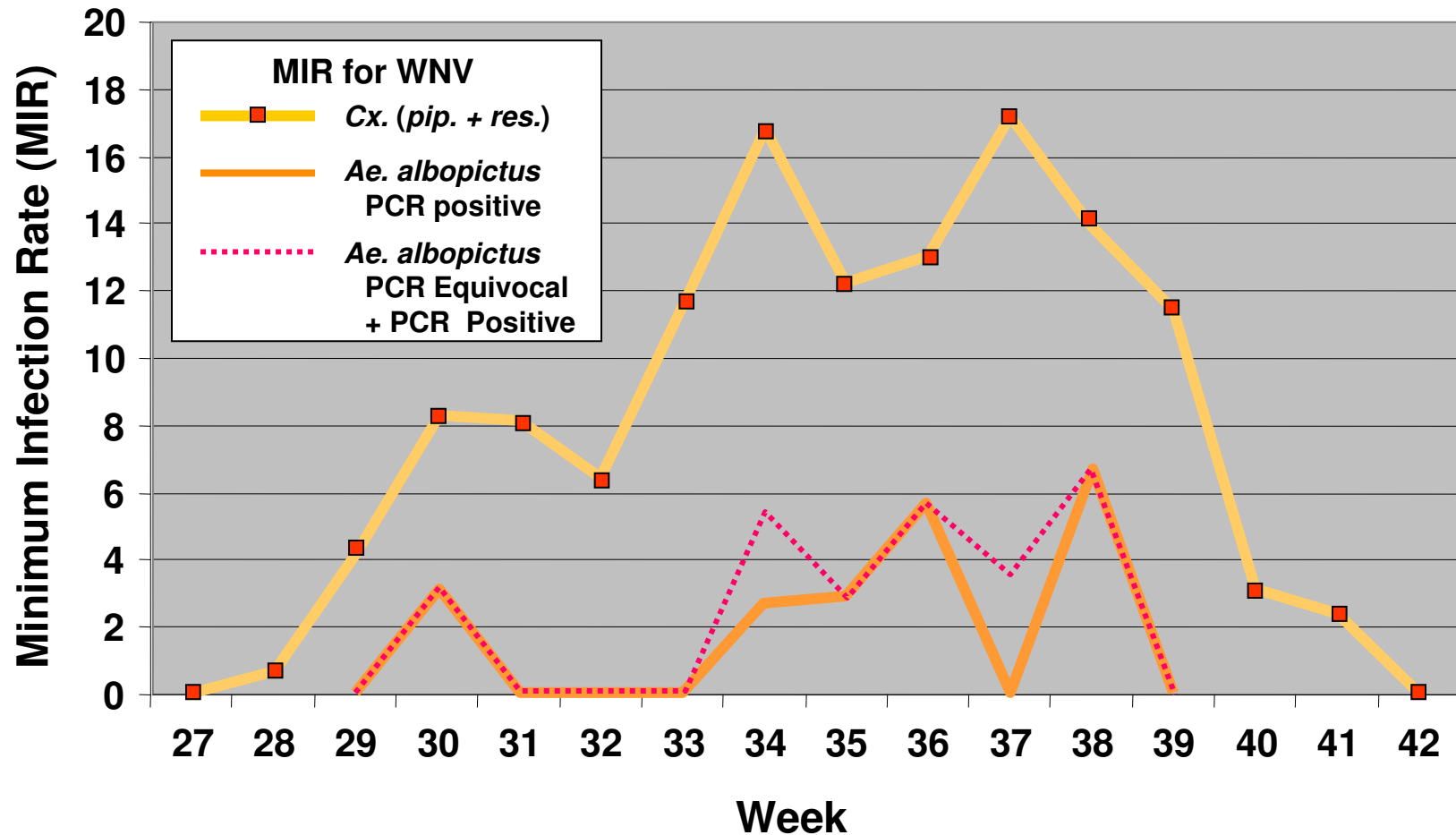
# MIR = The minimum number of WNV positive mosquitoes in 1,000 tested .

\* *Culex (pipiens + restuans)* data are from Northern Virginia, the Richmond Area and Tidewater Area jurisdictions.

**Weekly WNV minimum (mosquito) infection rate (MIR) for *Cx. (pipiens + restuans)* in Virginia jurisdictions that had significant levels of WNV activity during weeks 23 - 44 of 2005.**



# WNV detected in *Cx. (pipiens + restuans)* and *Ae. albopictus* in Richmond City and Henrico County\*, Virginia in 2005



\* MIRs are calculated from combined data from WNV active areas of Richmond City and Henrico Co.

**EASTERN EQUINE  
ENCEPHALITIS  
IN VIRGINIA IN 2005**

# Virginia EEE Positive Totals, 2000 through 05:

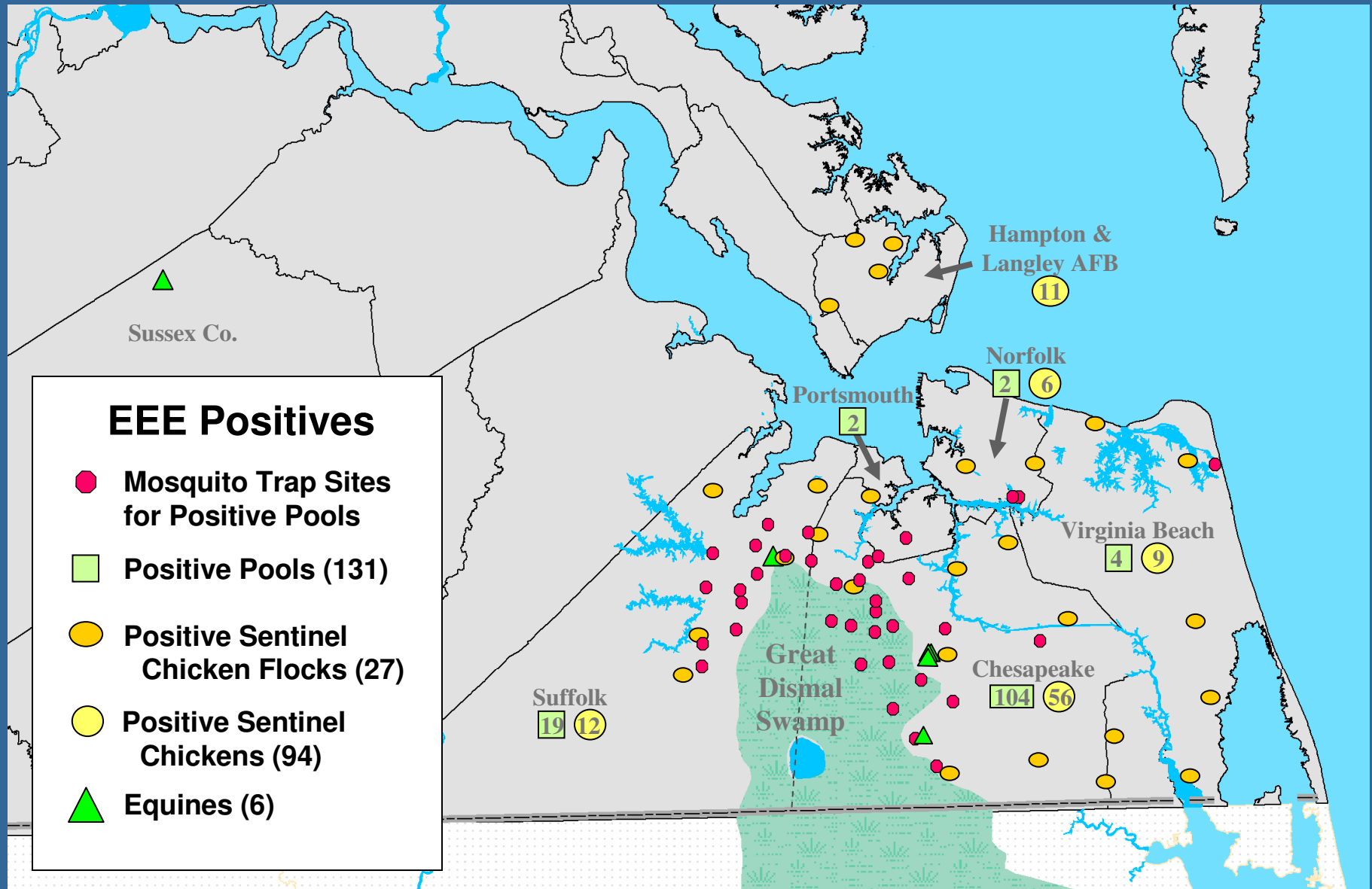
	2000	2001	2002	2003	2004	2005
<b>1. Humans:</b>	0 cases	0 cases	0 cases	<b>1 case</b> (1 death)	0 cases	0 cases
<b>2. Sentinel Chickens:</b>	4 flocks 6 birds	2 flocks 4 birds	1 flock 1 bird	<b>10 flocks</b> <b>27 birds</b>	12 flocks 16 birds	<b>27 flocks</b> <b>94 birds</b>
<b>3. Horses:</b>	9	7	0	9	7	6
<b>4. Mosquito Pools:</b>	4	30	10	<b>43</b>	<b>53</b>	<b>131</b>

## Mosquitoes Tested for EEE in Virginia in 2005 (from a total of 10,362 pools, 343,901 mosquitoes submitted for testing)

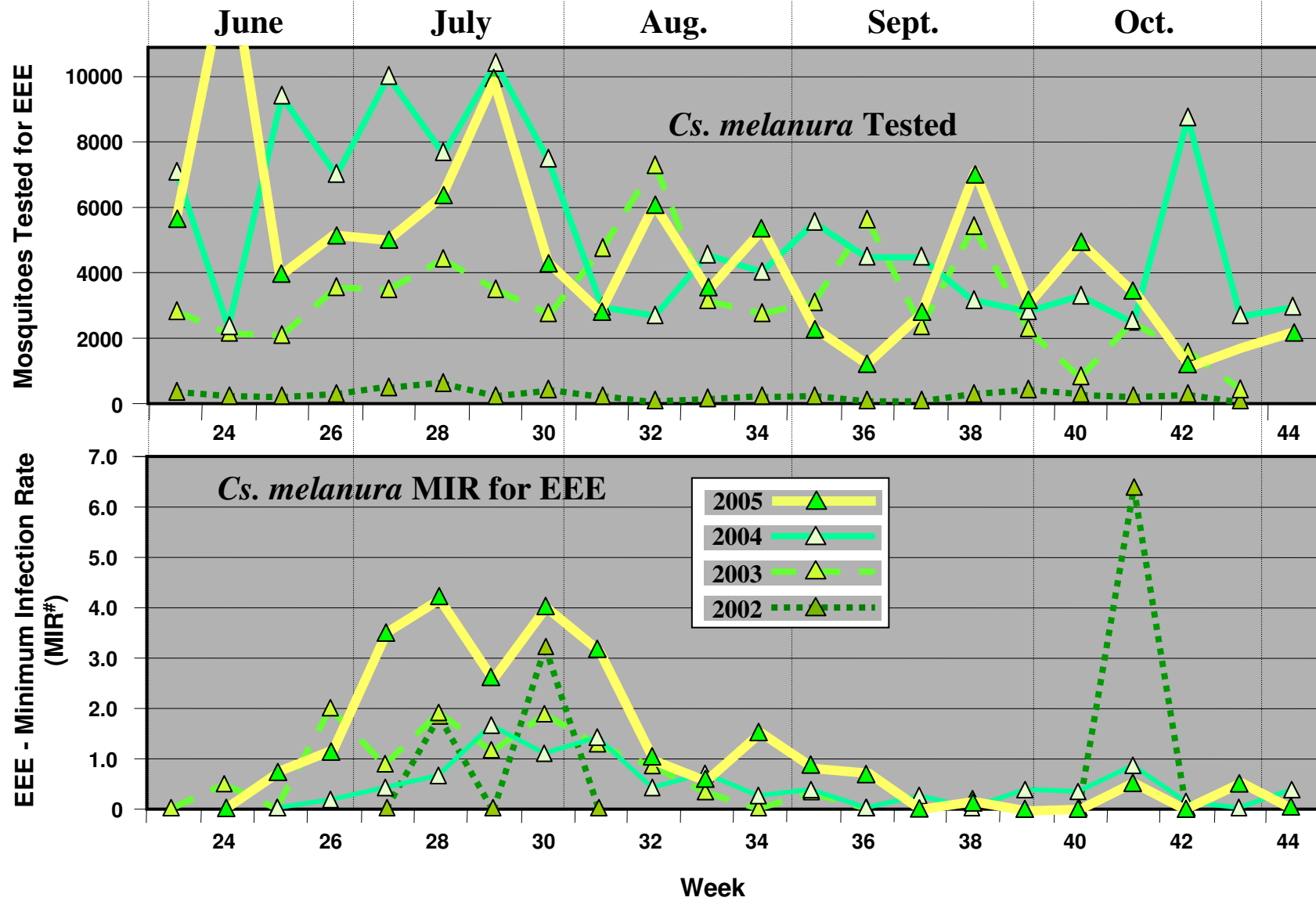
	Mosquito Species	Pools Tested	Mosquitoes Tested	PCR Positive	PCR Equivocal	TC + PCR Positive
1	<i>Cs. mel.</i>	2,750	123,592	130	1	11
2	<i>An. cru.</i>	507	22,166			1
3	<i>Cq. per.</i>	373	15,935			2
4	<i>Cx. sal.</i>	395	14,604			
5	<i>Cx. err.</i>	200	6,651			
6	<i>Ae. albo.</i>	256	5,333			
7	<i>An. qua.</i>	58	2,307			
8	<i>Cx. pip.</i>	69	1,944	1		2
9	<i>Oc. atl./tor.</i>	49	1,838			
10	<i>Ae. vex.</i>	44	1,633			
11	<i>An. cru./bra.</i>	20	993			
12	<i>Ps. col.</i>	21	926			
13	<i>Cx. res.</i>	25	730			1
14	<i>Oc. inf.</i>	12	463			
15	<i>Oc. cana.</i>	6	211			
16	<i>Cx. pip./res.</i>	6	123			
17	<i>Oc. tae.</i>	3	123			
18	<i>Ps. cyan.</i>	1	17			
19	<i>Cx. spp.</i>	1	10			
	<b>TOTAL</b>	<b>4,796</b>	<b>199,599</b>	<b>131</b>	<b>1</b>	<b>17</b>



# EEE activity detected in Virginia in 2005

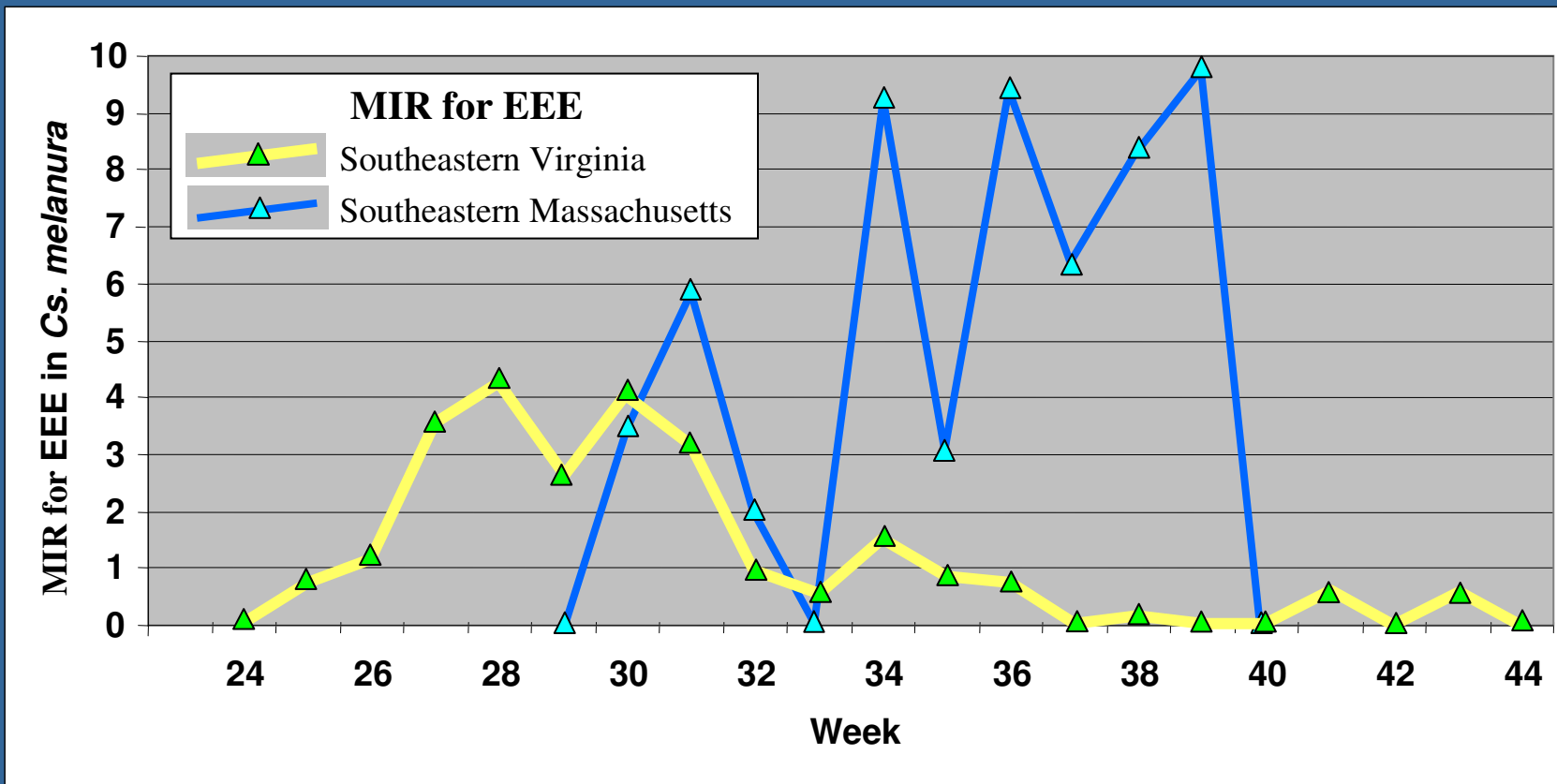


## Number of *Cs. melanura* tested, and weekly minimum infection Rate (MIR#) detected in Virginia's Hampton Roads region in 2005 vs. 2002, 03 and 04.



# MIR = The minimum number of EEE positive mosquitoes present in 1,000 tested.

**Weekly minimum infection rate (MIR) for EEE in *Cs. melanura* in 2005: Virginia's Hampton Roads region, compared to that for southeastern Massachusetts (In 2005 Virginia had no human EEE cases whereas Massachusetts had 4 human EEE cases).**



**Period MIR - for the first ten weeks that positive mosquitoes were detected in each state**

**MIR = 2.32 - southeastern VA**

**MIR = 5.28 - southeastern MA**

## **Acknowledgements:**

### **Laboratories:**

**Norfolk Department of Public Health Laboratory (NDPHL)**  
**Virginia Dept. of Agriculture and Consumer Services (VDACS) - Veterinary Laboratories**  
**Virginia Division of Consolidated Laboratory Services (DCLS) Laboratory**

### **Surveillance Programs:**

**Alexandria Dept. of Health - Vector Control**  
**Arlington County Dept. of Health - Vector Control**  
**Chesapeake Commission for Mosquito Control**  
**Clarke Mosquito Control Company**  
**Fairfax County Dept. of Health - Vector Control**  
**Hampton Vector Control**  
**Henrico County Vector Control**  
**Langley Air Force Base - Vector Control**  
**Loudoun County Dept. of Health**  
**Newport News Vector Control**  
**Norfolk Dept. of Health - Vector Control**  
**Portsmouth Vector Control**  
**Prince William County Vector Control**  
**Suffolk Vector Control**  
**Virginia Beach Vector Control**  
**Virginia Dept. of Health (VDH) - Division of Zoonotic and Environmental Epidemiology**  
**VDH - Regional and District Epidemiologists**