

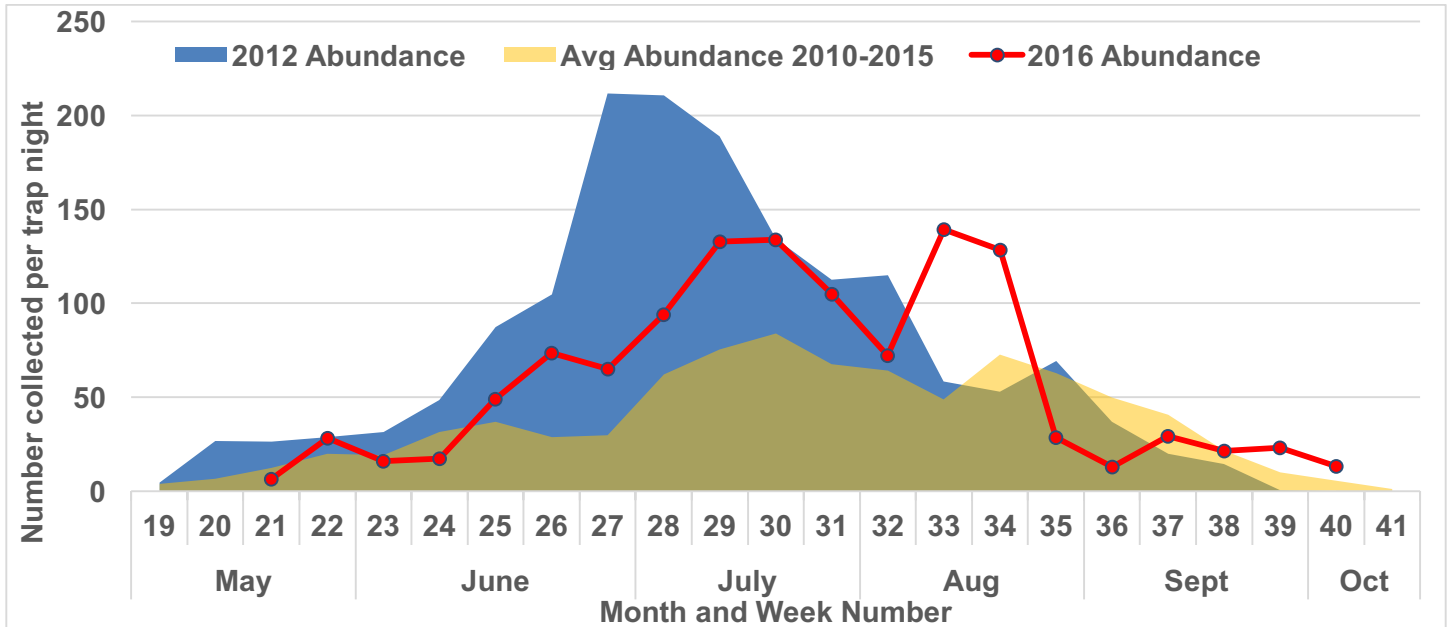
NORTH SHORE MOSQUITO ABATEMENT DISTRICT 2016 Surveillance Summary

Date of Report: 11/2/2016

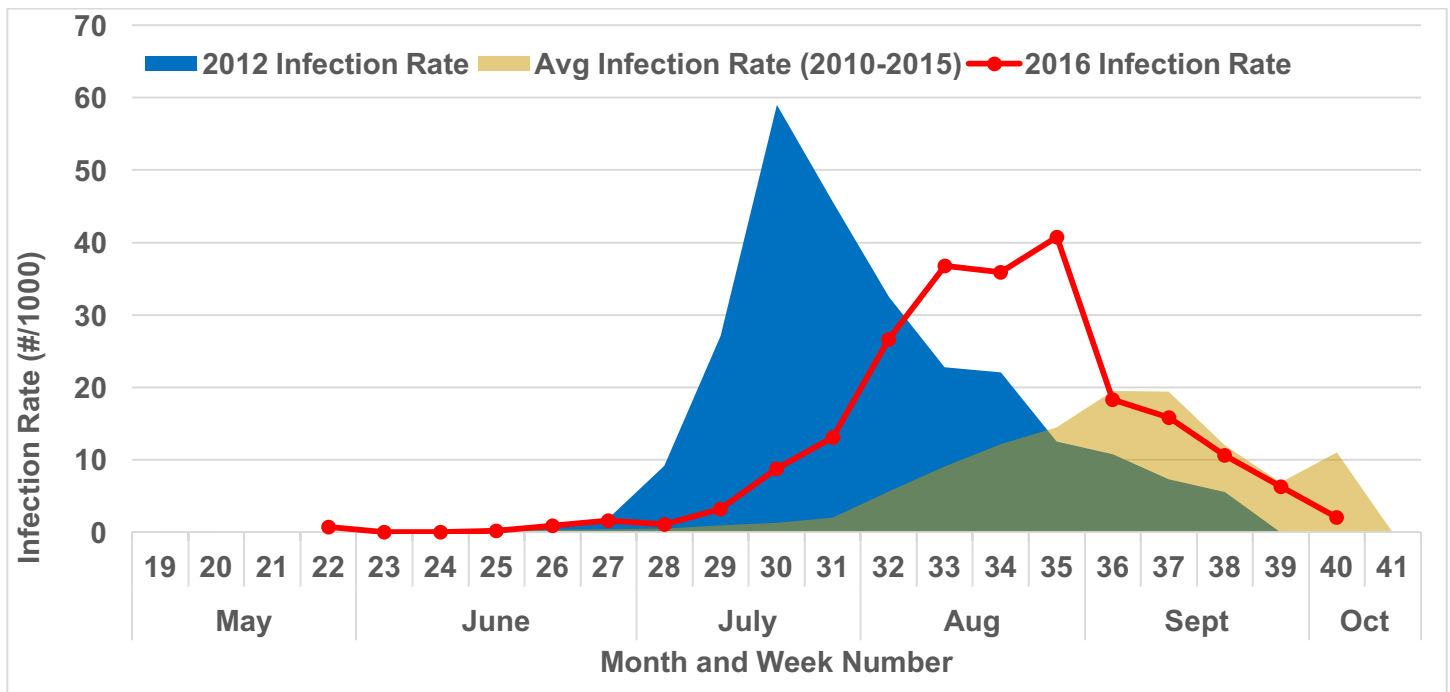
West Nile Virus Surveillance

NSMAD maintains CDC gravid traps placed at 19 locations throughout the District to sample mosquitoes responsible for transmitting West Nile Virus (WNV). Mosquitoes are collected 24 hours a day, seven days a week and are identified; counted to estimate relative abundance; and *Culex pipiens* mosquitoes are tested in batches of up to 60 specimens using the RAMP WNV assay to estimate WNV infection rate. Collections for WNV surveillance started May 16, 2016 (week 21). In the graphs below, 2016 surveillance results are shown as the red line, results obtained during 2012 (the most recent WNV outbreak year with 20 human cases in the District) are shown in the blue area, results obtained between 2010 and 2015 (excluding 2012) represent non-outbreak years (2-4 cases per year) and are shown in the tan shape area.

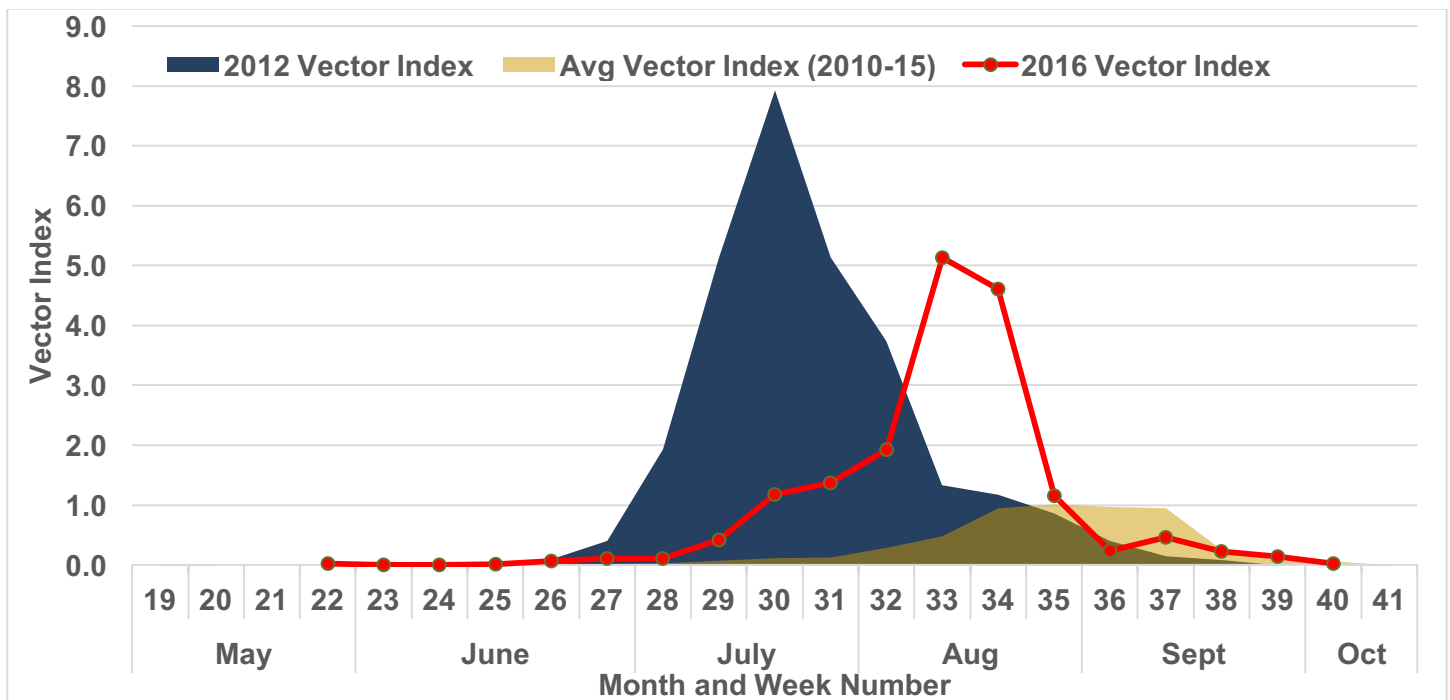
Vector Species Abundance: *Cx. pipiens* abundance in gravid traps was intermediate between average levels and 2012 levels from week 25 through week 31. There was a late season peak in abundance lasting two weeks (weeks 33-34) which declined sharply to below-average levels by week 35 and remained at those levels for the remainder of the season. WNV surveillance ended Sept. 30, 2016.



WNV Infection Rate: WNV infection in *Cx. pipiens* (shown as the Maximum Likelihood Estimate of the Infection Rate per 1000 mosquitoes) was first detected during week 22. The infection rate remained at approximately average levels until week 30 when it first exceeded 5/1000, a level which has been associated with increased risk of human infections previously in NSMAD. The mosquito infection rate continued to rise for several weeks, peaked during weeks 33-35, then declined rapidly to approximately average levels and remained at these levels through the rest of the season.



WNV Vector Index: The Vector Index combines the *Cx. pipiens* abundance and infection rate data to produce an estimate of the number of number of WNV infected mosquitoes in the area, which helps us identify human WNV risk. In the NSMAD surveillance program, a vector index >1 is associated with increased risk, particularly if it occurs early in the season. During 2016, the Vector Index exceeded 1.0 at week 30 and remained at above average levels through week 35



WNV Surveillance Summary: West Nile virus activity in 2016 was higher than the average level observed during non-outbreak years. Though WNV activity in mosquitoes approached levels seen in 2012, it did not reach the peak level seen that year. Also, the increased activity occurred several weeks later and lasted a shorter duration than during 2012.

As of the date of this report, the [Illinois Department of Public Health](#) is reporting 136 human WNV cases have occurred statewide, 90 of which are from Cook County. Of the human cases reported in Cook County, three are from communities served by the NSMAD. Symptom onsets of the three cases in the NSMAD occurred during weeks 33, 35 and 40.

WNV testing summary: During 2016, a total of 75,184 mosquitoes were tested in 1,513 batches. Of these, 485 batches were positive for evidence of WNV using the RAMP assay.

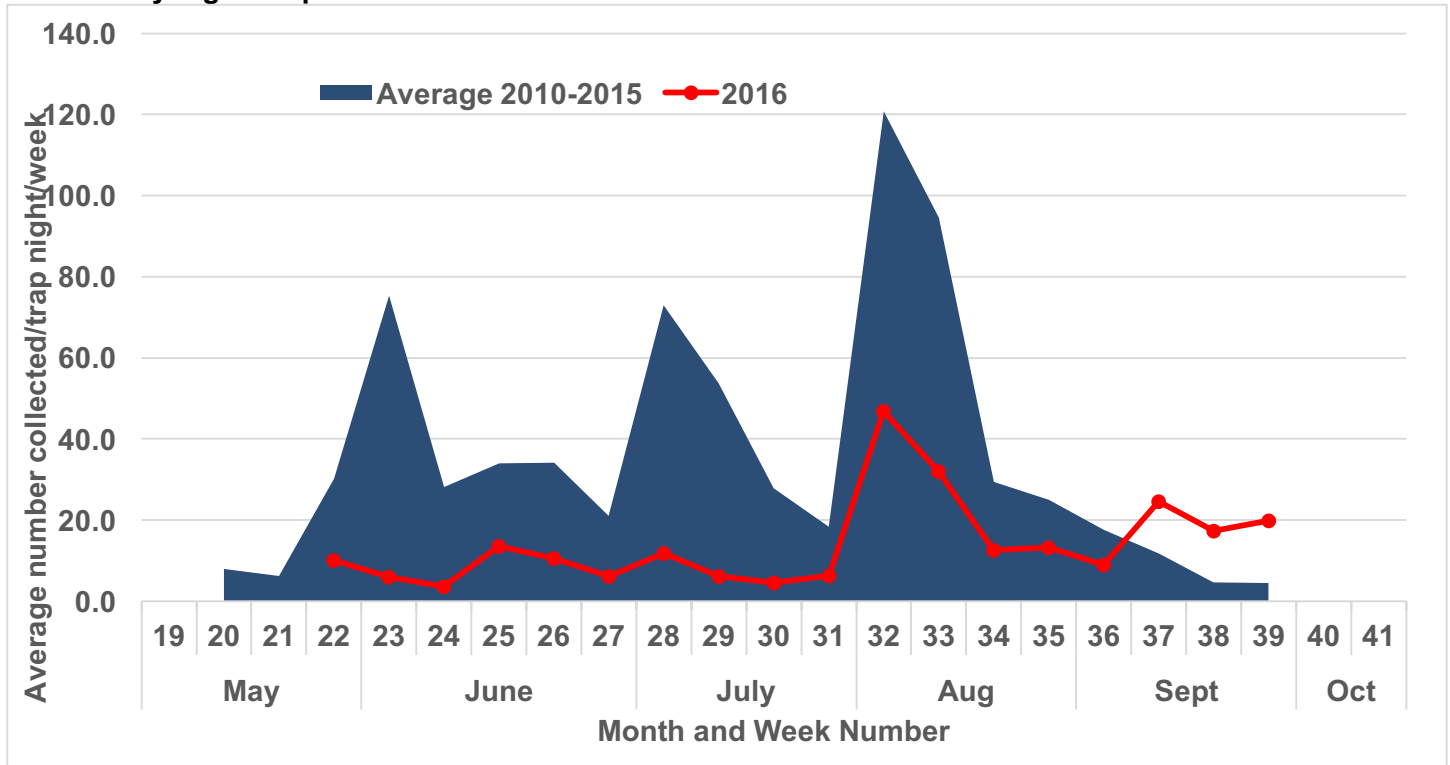
Municipality	Batches Tested Season Total	
	# WNV+	# Tested
Evanston	130	365
Glencoe	30	116
Glenview/Golf	68	189
Kenilworth	17	68
Lincolnwood	19	74
Morton Grove	9	66
Niles	13	43
Northbrook	29	72
Northfield	17	67
Skokie	106	279
Wilmette	23	79
Winnetka	24	95
Total	485	1513

Nuisance Mosquito Surveillance

New Jersey Light Traps are placed in nine locations throughout the district to sample biting adult mosquitoes that affect quality of life. Specimens are collected four nights per week, identified, and counted to provide an estimate of the biting mosquito abundance in the district. This information is used to determine pest mosquito levels and to plan larval and adult control activities. The graph below shows the average number of mosquitoes (all species) collected per trap night, per week, in the blue area while the red line indicates the number collected during 2016.

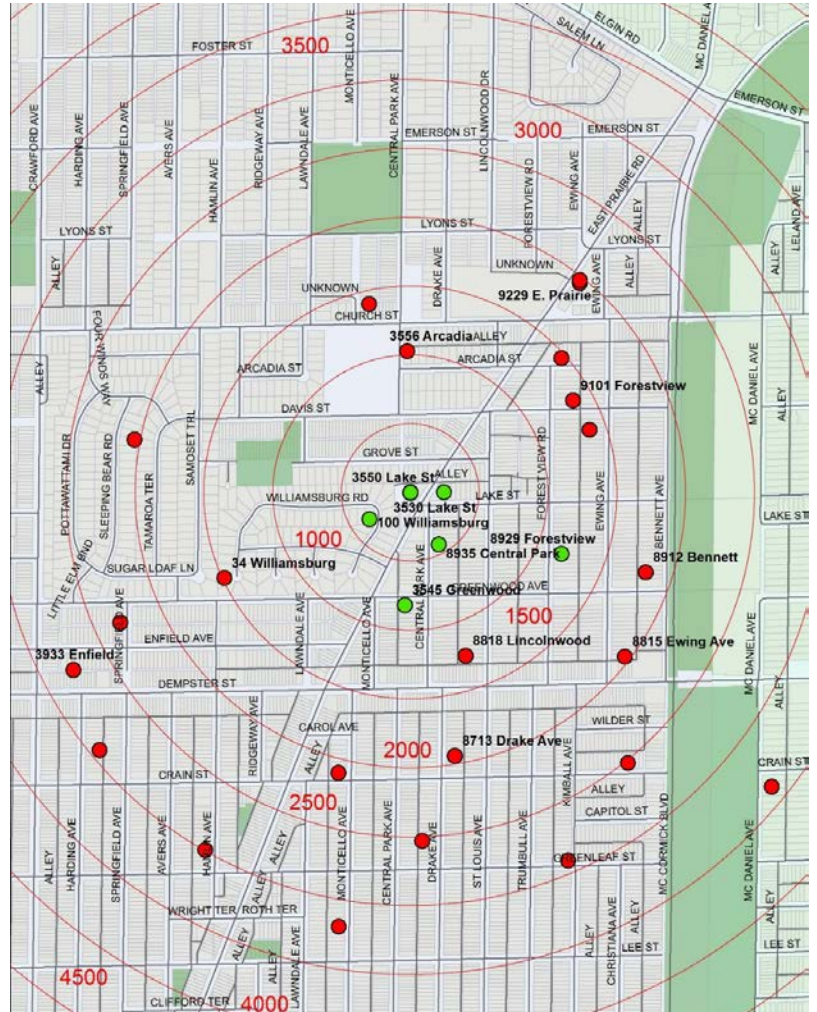
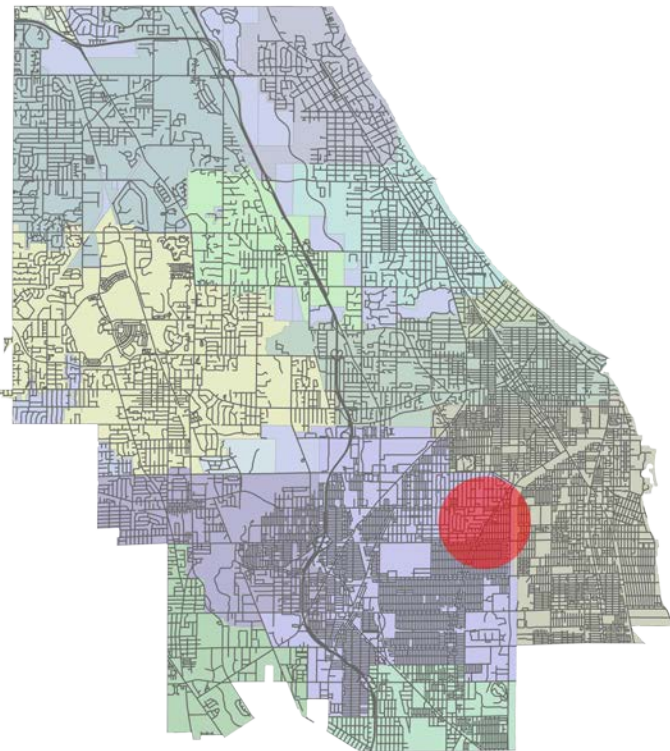
Sampling using New Jersey Light Traps began May 23 (week 22). For much of the season, nuisance mosquito abundance was relatively low compared to historical averages. There were small, local increases in abundance as a result of local rainfall patterns. A large peak occurred during weeks 32-33, following a heavy, widespread rainfall. There was a small, late-season peak during weeks 37-39.

New Jersey Light Trap Collections



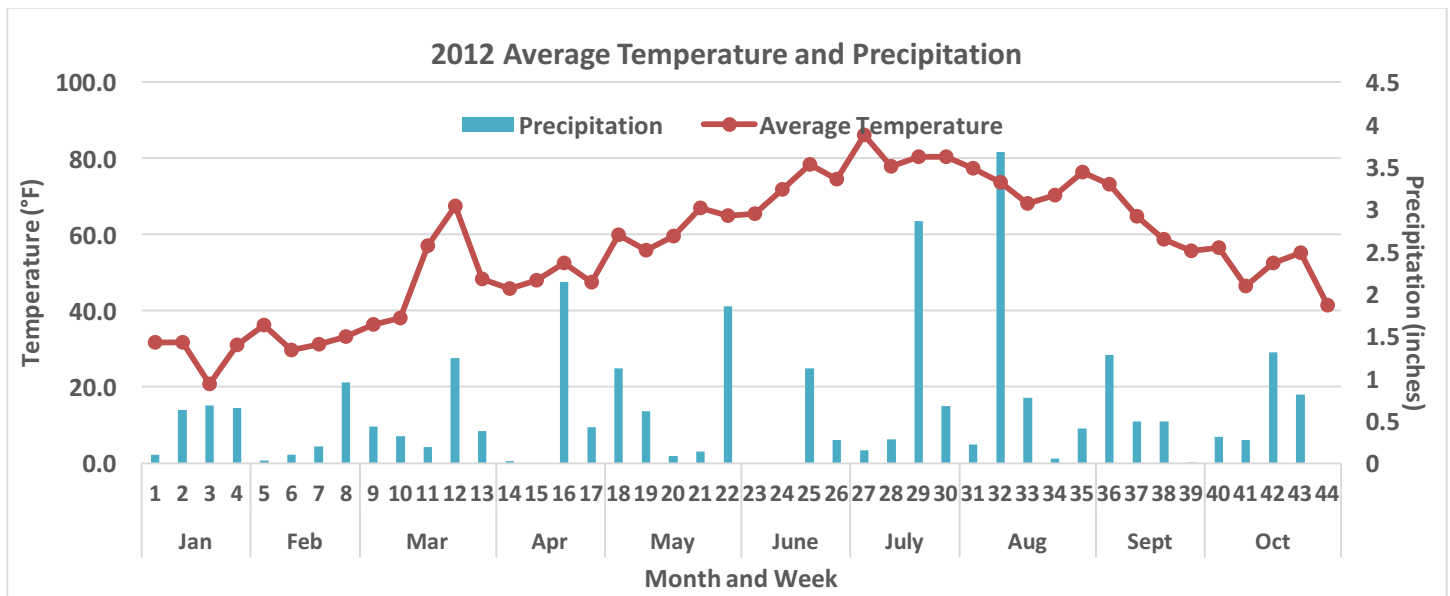
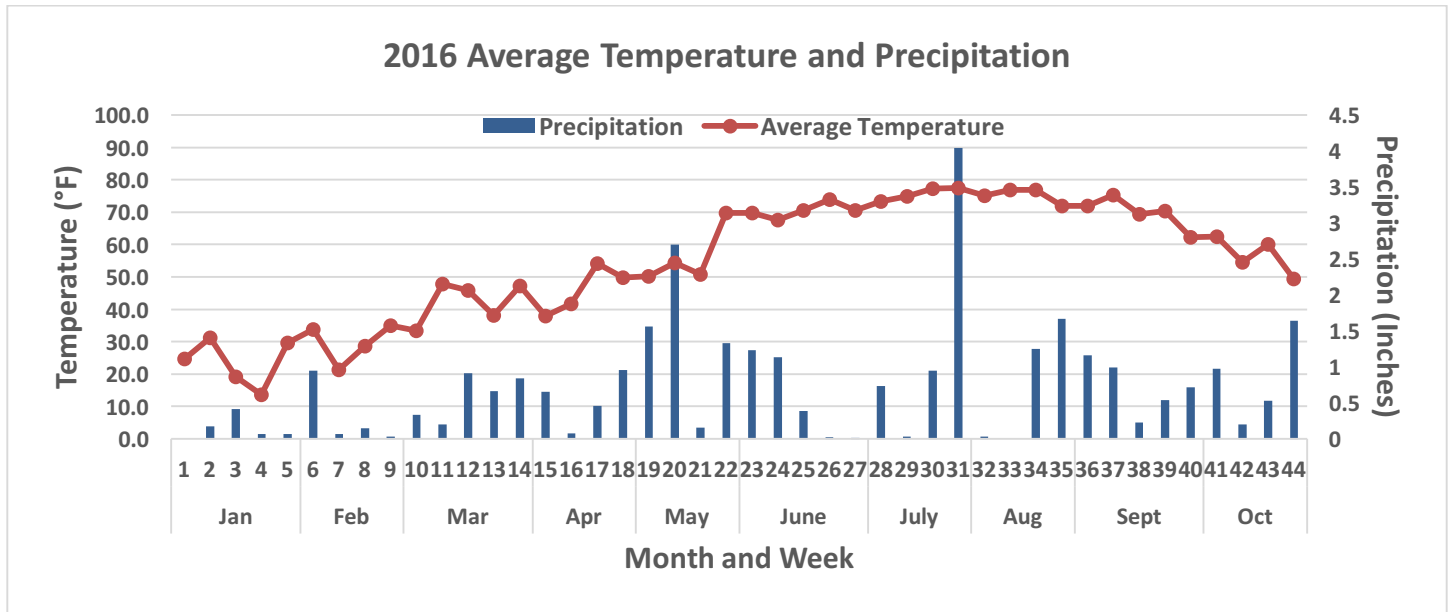
Aedes albopictus in NSMAD

On September 2, 2016 (week 36) two *Ae. albopictus* female mosquitoes were found in one of the CDC Gravid traps in located in Skokie. According to our records, this was the first record of this species occurring in the NSMAD. Following this discovery, BG Sentinel and BG GAT traps were deployed in the area to determine the extent of the distribution of this infestation and to get an indication of their abundance. The maps below show the general area in the District where the *Ae. albopictus* were found, the trap sites at which *Ae. albopictus* were collected (green dots) and where trapping was preformed but none were collected (red dots). By the end of the season, we had trapped out to 3500 feet from the original collection site and found that the *Ae. albopictus* appeared to be limited to an area extending approximately 1200 feet southeast and 800 feet south of the original collection. A total of only 64 *Ae. albopictus* were collected and suggested that this was a relatively low abundance population. We will resume collecting with BG Sentinel and BG GAT traps in the spring of 2017 to determine if this population survived the winter, if so, we will again monitor its distribution and abundance, search for containers holding larvae, and implement expanded community awareness/container removal and control programs.



Weather Monitoring

The graphs below show the weekly precipitation and average temperature for the 2016 season (top graph) and 2012 (bottom graph) through October. Compared to 2012, spring in 2016 was wetter and slightly cooler (average temperatures exceeded 50 degrees in week 11 during 2012 but not until week 17 in 2016) and mid to late summer was hotter during 2012, which likely accounted for the earlier and higher increase in WNV activity during 2012 compared to 2016.



Source: NOAA Station: Chicago Botanical Garden, IL US GHCND:USC00111497

Dave Zazra
 Communications Manager
 dzazra@nsmad.com