

DELTA MOSQUITO & VECTOR CONTROL DISTRICT

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REPORT OF THE MANAGER SEPTEMBER 2021

I. Water and Weather

Temperatures cooled for the month of September. The Delta Mosquito and Vector Control District (DMVCD) Weather Station reported an average high temperature of 92.6°F with an average low of 62.5°F and 0.03 inches of rainfall. The National Oceanic and Atmospheric Administration 1981-2010 seasonal averages for high and low temperatures in September were 87.7°F and 60.3°F respectively, with average rainfall of 0.15 inches.

Water storage at Pine Flat Reservoir increased slightly to 199,046 acre-feet by the end of the month. By September 30, 2021, Pine Flat Reservoir's inflow had decreased to 237 cubic feet per second (CFS) and its release increased slightly to 260 CFS. The Lake Kaweah Reservoir ended the month with less water than the previous month, with 21,039 acre-feet on September 30, 2021. Lake Kaweah's inflow fluctuated dramatically at the end of the month, with the reading from September 30, 2021, showing -20 CFS and its release was decreased to 45 CFS.

II. Narrative

Continuous treatment of storm drains systems continued during the month of September throughout the Districts' jurisdiction. Approximately, 7,543 storm drains were treated with a 30-day residual Methoprene product. Sites include street drains, parking lots, parks, apartment complexes, and schools. In addition, operations have begun to use a longer residual product to treat only problematic storm drains with a longer residual product treating an additional 584 storm drains.

On September 2, 2021, the District teamed up with Southern California Edison (SCE) to inspect electrical utility vaults for mosquito breeding sources. During the inspection, 22 of the 23 vaults were found to be dry and one filled with water. We will continue to work with SCE in the future to investigate additional utility vaults.

Larviciding aerial treatment for the Kaweah River Rock Plant Continued for the month of August, with the fifth treatment occurring on September 14, 2021. During the application, 8 acres were treated with an insect growth hormone regulator, Methoprene.

Due to high mosquito counts in the rural portion of the District, we continued large *Bacillus thuringiensis israelensis (Bti)* applications to reduce the mosquito populations near dense corn crops in the northern region of Visalia. On September 11, 2021, the District conducted an adult mosquito application to reduce the viral transmission and high abundance covering approximately 3.24 square miles in the Peral area.

Due to high viral activity operations, we conducted an adult mosquito treatment on September 14, 2021. The treatment was conducted on the Southwest section of Visalia covering approximately 406 acres of land.

Due to high *Aedes aegypti* abundance, the District conducted a trial application technique called Wide Area Larvicide (WAL). The WAL is a technique to target *Aedes aegypti* and its cryptic breeding locations. The application technique consists of about 6-8 applications. The first WAL application was conducted on August 5, 2021, in the Southeast area of Visalia between Tulare Avenue and E. Walnut Avenue, covering over a 40-acre area. As of September 23, 2021, the District has completed its 6th application on site. The District is currently evaluating if additional treatments are needed.

On September 30th, the District released four urban seasonal employees due to the decrease of mosquito abundance. The District appreciates their work effort in protecting public health this season.

Routine mosquito surveillance continued throughout September. A total of 56,998 mosquitoes were collected across 1,138 trap nights. The District-wide average of 50.1 mosquitoes per trap night for September is 161.5% higher than the previous 5-year average of 19.2 and 113.6% higher than the 2020 average of 23.4 mosquitoes per trap night. The top three mosquito species caught were *Culex quinquefasciatus* at 86%, followed by *Aedes aegypti* at 7.9% and *Culex tarsalis* at 3.2%.

Mosquito-borne disease testing for West Nile virus (WNV), St. Louis Encephalitis virus (SLEV), and Western Equine Encephalitis virus (WEEV) continued throughout September. The DMVCD tested 1,136 mosquito samples and 0 bird carcasses in September with 109 mosquito samples positive for WNV and 4 samples positive for SLEV. These were the first SLEV detections of the year. So far in 2021, 275 mosquito samples out of 2,778 samples tested were positive for WNV, while 4 were positive for SLEV (Table 1). The WNV positive samples were collected from Dinuba, Exeter, Farmersville, Peral, Traver, Visalia, Woodlake, and along the Kings River (Table 2). The SLEV positive samples were collected from Dinuba, Pearl, and Visalia.

2021 Year-To-Date Arbovirus Detections						
SAMPLE	WNV	SLEV	WNV SLEV	&	WEEV	TOTAL
Mosquitoes	275	4		0	0	279
Dead Birds	5	0		0	0	5
TOTAL	280	4		0	0	284

Table 1. Detections of West Nile virus (WNV), St. Louis encephalitis virus (SLEV), and Western equine encephalitis virus (WEEV) within the District in 2021.

2021 Year-To-Date Arbovirus Detections by City

CITY	WNV	SLEV	WNV SLEV	&	WEEV	TOTAL
Cutler	0	0	0	0	0	0
Dinuba	18	1	0	0	0	19
Exeter	5	0	0	0	0	5
Farmersville	3	0	0	0	0	3
Goshen	0	0	0	0	0	0
Ivanhoe	0	0	0	0	0	0
Kingsburg*	0	0	0	0	0	0
London	0	0	0	0	0	0
N Kings River	1	0	0	0	0	1
Orosi	0	0	0	0	0	0
Peral	33	1	0	0	0	34
Sequoia Fields	12	0	0	0	0	12
S Kings River	12	0	0	0	0	12
Traver	1	0	0	0	0	1
Visalia	193	2	0	0	0	195
Woodlake	1	0	0	0	0	1
TOTAL	279	4	0	0	0	283

* DMVCD only serves a small eastern, southeastern area of Kingsburg. Consolidated MAD serves the city of Kingsburg.

Table 2. Detections of West Nile virus (WNV), St. Louis encephalitis virus (SLEV), and Western equine encephalitis virus (WEEV) by city within the District in 2021.

In September 2021, 33 larval mosquito samples were collected from the field for species identification and larvicide resistance monitoring. No larvicide resistance was observed. The Centers for Disease Control and Prevention (CDC) Bio-bottle Assay tests are ongoing to identify areas with adulticide resistance and the mechanism of resistance throughout the District.

Mosquitofish requests decreased during September. A total of 297 mosquitofish were distributed through 4 technician and 10 homeowner requests. Fry, or young mosquitofish, production increased to 737 fry in September. Flyers for mosquitofish have been placed at various feed store locations throughout the District.

On September 10, 2021, the replacement truck for the one which was totaled was picked up.

Throughout the month, administrative staff viewed a variety of demos on time clock software to make a decision for what to move forward with to replace the outdated system currently in place.

Throughout September, employees who were not fully vaccinated continued to complete the online screening of COVID-19 survey and take paid time off to seek test results when required. The District will continue to be proactive in keeping employees and the public safe. Staff are encouraged to be fully vaccinated and allowed to take work time to do so.

During the month of September, a new business card has been designed using the new logo and name, as well as a new employee badge that will be implemented when the seasonal employees return in 2022. A new district group photo was taken to resemble a district photo that was taken around the 1950's, this will be a new tradition at the beginning of each season.



There were 110 service requests in September:

2021 Service Request Summary

2021	Fish	Inspection	Mosquito	Source	Other	Total
January	0	0	1	2	0	3
February	0	0	0	2	0	2
March	0	0	7	17	3	27
April	19	9	11	26	3	68
May	31	51	4	27	2	115
June	23	88	36	34	1	182
July	14	33	64	46	2	159
August	10	14	94	56	0	174
September	14	1	64	31	0	110
Total	111	196	281	241	11	840

III. Vector and Disease Surveillance

Delta MVCD Summaries

Humans: There was 1 confirmed human case of WNV reported by the local public health department for the month of September. The probable case reported in August was confirmed in early September. The confirmed WNV human case reported in August had a co-infection with SLEV. So far in 2021, there are 2 WNV human cases and 1 WNV/SLEV human case in Northern Tulare County.

Birds: No dead birds were reported to the District in September. In 2021, a total of 5 dead birds were positive for WNV out of 12 dead birds tested.

Mosquitoes: A total of 1,136 mosquito samples were tested of which 109 were positive for WNV and 4 for SLEV. In 2021, a total of 275 mosquito samples were positive for WNV and 4 were positive for SLEV out of 12,778 tested.

State Surveillance:

Humans: A total of 40 new human cases have been reported since the previous report. So far in 2021, 62 human cases of WNV were reported in 17 counties including 6 from Tulare County.

Birds: A total of 131 dead birds have tested positive for WNV since the last report. So far in 2021, 192 WNV positive dead birds have been reported from 18 counties.

Mosquitoes: Since the last report, 1,207 mosquito samples tested positive for WNV and 15 tested positive for SLEV. In 2021, a total of 32,173 mosquito samples were tested for WNV with 2,126 samples positive from 25 counties. A total of 29,837 samples were also tested for SLEV with 34 SLEV positive samples from 7 counties.

IV. Expenditures & Revenues – 2021/22

TOTAL BUDGET \$3,974,072.78

EXPENDITURES – July 1, 2021 – September 30, 2021

Salaries	\$879,705.66
Services & Supplies	\$398,198.52
Tax Admin Fee	\$0.00
Capital	\$113,452.18
Long Term Debt	\$0.00
TOTAL EXPENDITURES	\$1,450,270.39

REVENUE RECEIVED – July 1, 2021 – August 31, 2021

July	\$137.48
August	\$0
September*	
TOTAL REVENUE TO DATE	\$137.48

V. Time Sheet Summary

Month	Available Hrs	Work	Sick Hrs Used	Total Hrs Available for Work	Pct. Of Hrs Avail for Work
July	5,376		119.25	5,256.75	97.79
August	5,808		210.00	5,598.00	96.40
September	5,712		134.50	5,577.50	97.65

The District has a vacation policy that requires 24-hour notice in order to ensure the operational integrity of the workforce. Sick leave for doctor, dentist and/ or family medical necessity also requires advance notice- in so much as it is possible. Illness is unplanned and therefore unscheduled. Attendance records for the current year are shown in the table.

**September Revenue not available from Tulare County as of 10/6/21.*