

Solano County Mosquito Abatement District

2019 ANNUAL REPORT

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Letter from the District Manager

On behalf of the Board of Trustees and the staff of the Solano County Mosquito Abatement District, it is my pleasure to present to you the 2019 Annual Report.

Our Mission: The Solano County Mosquito Abatement District (SCMAD) is a special district responsible for mosquito abatement throughout the incorporated and unincorporated areas of Solano County, which covers 909 square miles. Within this area SCMAD contends with an extremely diverse range of aquatic habitats and temperature regimes. There are 23 species of mosquitoes known to be found within the SCMAD boundaries; 12 of which are important either as disease vectors (i.e., capable of transmitting disease) or pests. The function of the SCMAD is to control all mosquitoes that may bring disease or harassment to humans and domestic animals. At the SCMAD, we accomplish this function by evaluating and selecting the most effective and economical management techniques that result in the least possible damage to non-target organisms or to the environment. The SCMAD deploys a variety of preventative management techniques to control mosquitoes including natural, physical, and chemical control measures. We emphasize these preventative measures, principally the natural and physical control methods; however, chemical control is also integrated with other measures when necessary.

Trustees and Staff: The Solano County Mosquito Abatement District (SCMAD) has a full time staff of 9 employees. Biologist Waite Colbaugh left the district after two years of service to relocate his family to Arkansas. March 1, 2019, the district hired Bret Barner as the new district biologist. Bret is a welcomed addition to our staff and brings with him experience and innovation in the vector control field that translates well in his position as district biologist.

Trustee Glen Graves (Suisun) left the district in February 2019, with Trustee Marlon Osum being appointed by the city of Suisun to the SCMAD Board of Trustees on February 5, 2019. Trustee Jim McPherson (Rio Vista) left the district in April 2019 and Trustee Ronald Stevenson was appointed by the city of Rio Vista on June 6, 2019. Trustee Daniel Glaze was appointed to the SCMAD Board of Trustees on August 1, 2019 by the city of Vallejo as a replacement of Larry Petrie who passed away. I want to say "Thank you" to Trustees Graves and McPherson for your service to the SCMAD and to the citizens of Solano County.

Virus Activity: West Nile virus (WNV) has been detected in Solano County Since 2004 and is currently the SCMAD's largest public health concern. As with 2018, in 2019 the district experienced low WNV activity with 1 human case (travel related), 5 mosquito samples and 4 sentinel chickens testing positive for WNV, while no dead birds tested positive. The district had three human dengue fever cases and one human malaria case, with all cases reported as travel related in 2019.

Invasive Mosquitoes: There are currently two non-native mosquito species in California at this time, *Aedes albopictus* (the Asian Tiger mosquito) was first discovered in California in 2001 arriving in a shipment of Lucky Bamboo from China, and *Aedes aegypti* (the Yellow Fever mosquito) was discovered for the first time in California during 2013. In 2019 *Aedes aegypti* was detected for the first time in the neighboring counties of Solano including Stanislaus, San Joaquin, Placer and Sacramento counties. These mosquitoes are competent vectors of yellow fever, dengue, chikungunya and Zika virus. Anticipating the arrival of *Aedes aegypti*, the SCMAD has begun a surveillance program specifically targeting these two invasive mosquito species utilizing specialized traps and targeting historical "first detection" environments.

The SCMAD Board of Trustees and staff are committed to suppressing both disease carrying and nuisance mosquitoes with the most ecological friendly and cost effective methods available. I want to thank the SCMAD trustees and staff for their continued dedication to mosquito control and making Solano County a healthier place where it's citizens and visitors can live, work and visit.

Respectfully,



Richard Snyder
District Manager

Independent Special District

The Solano County Mosquito Abatement District is an independent special district and is not a part of the Solano County governmental system. Rather, each city within the District's jurisdiction appoints a trustee to represent their community on the Solano County Mosquito Abatement District's Board of Trustees; in addition to the Trustees that represent the municipalities, the county at large is also given a representative trustee position called the Trustee-at-Large.

Independent special districts are formed by residents and sanctioned by the State of California Government Code to provide local services.

2019 Board of Trustees

President: Charles Tonnesen (Fairfield)
Vice President: Mike White (Benicia)
Secretary: Ronald Schock (*Trustee-at-Large*)
Trustee: Joe Anderson (*Dixon*)
Trustee: Ron Stevenson (*Rio Vista*)
Trustee: Marlon Osum (*Suisun*)
Trustee: Robert C. Meador (*Vacaville*)
Trustee: Daniel Glaze (*Vallejo*)

Solano County Mosquito Abatement District Staff

Administration

Manager: Richard Snyder
Administrative Assistant: Tami Wright

Biology/Laboratory

Biologist: Bret Barner

Operations

Mosquito Control Technicians:

Ian Caldwell
Gary Dula
Mike Gray
Damon Gray
Mark McCauley
David Murrietta
Brian Slover

Mission Statement

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The function of the SCMAD is to control all mosquitoes that may bring disease or harassment to humans and domestic animals. At the SCMAD, we fulfill this function by evaluating and selecting the most effective and economical management techniques that result in the least possible damage to non-target organisms and to the environment. SCMAD deploys a variety of preventive management techniques to control mosquitoes including natural, physical, and chemical control measures. We also emphasize preventive measures, principally natural and physical control methods; however, chemical control is also integrated with other measures when necessary.

History of the SCMAD

The Solano County Mosquito Abatement District (SCMAD) was founded in 1930 in order to control the *Aedes* mosquitoes that were being produced in the 184 square mile Suisun Marsh. It was formed according to guidelines set forth by the Mosquito Abatement Act of 1915 and the California Health and Safety Code.

Because both the SCMAD and the mosquitoes within its boundaries have both evolved over the decades, the SCMAD now works diligently to contend with the 23 species of mosquitoes known to reside within the 909 square miles of Solano County throughout the year.



Working with the Public

Solano County's mosquito control technicians work diligently to monitor and suppress mosquito populations within Solano County's 909 mi² boundaries. However, it is nearly impossible to predict the mosquito population trends with a degree of certainty; the SCMAD relies on information and service requests from the public. Information from the public allows the SCMAD to pinpoint mosquito breeding areas and assists us in allocating our resources to respond effectively and efficiently. In 2019 SCMAD's mosquito control technicians responded to approximately 1,109 service requests. During service requests, SCMAD technicians conduct habitat evaluation and make treatment applications if necessary. **If you would like to make a service request you can do so by calling the SCMAD at (707) 437-1116 or by placing an online service request at <https://www.solanomosquito.com/contact-us>.**

Mosquito Biology & Development

Of the 23 different species of mosquitoes that are known to occur in Solano County, each species has a specialized set of environmental preferences. While all of the mosquitoes in Solano County share the same basic requirement for standing water to complete their life cycle, some species within the county can complete their lifecycle very quickly

with only a small amount of water. Only a bottle cap full of water present for a period of 10 days is all that is required to produce the next generation of mosquitoes. This makes identifying and abating the breeding sources of these mosquitoes challenging.

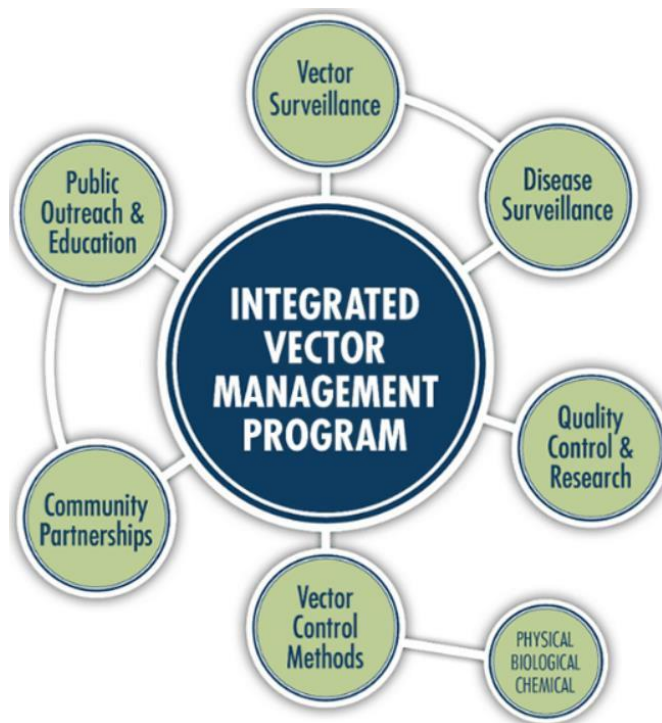
All mosquito species have a four-stage lifecycle (eggs, larvae, pupae, and adult.) For mosquitoes, this is a process referred to as complete metamorphosis. Adult male and female mosquitoes feed primarily on nectar from flowers; the female mosquito requires blood meals in order to produce viable eggs. It is during this egg production period that both humans and domestic animals in Solano County are bitten, causing not only a nuisance but also a means of disease transmission.

MOSQUITO ABATEMENT METHODS

It is the goal of the SCMAD to cause a significant interruption in the mosquito lifecycle whenever possible in order to reduce the overall mosquito population in Solano County. Keeping the mosquito population at low levels not only reduces the nuisance to our community but also reduces the likelihood of arbovirus transmissions, such as West Nile virus, from spreading to members of the public.

To achieve this goal the SCMAD utilizes an **Integrated Vector Management (IVM) Program**. IVM is a rational decision-making process to optimize the use of resources for vector control. The goal of IVM is to improve the efficacy, cost-effectiveness, ecological soundness and sustainability of disease-vector control. Additionally, when compared to traditional pest control methods, IVM is a more environmentally conscious method of mosquito control. The SCMAD's IVM program integrates biological and disease surveillance information into selecting the appropriate abatement method.

The vector control methods of IVM can be broken into 3 main method types: Physical Control, Biological Control, and Chemical Control. Each of these is explained, along with their role at the SCMAD, later in this report.



Physical Control

The most effective method of controlling mosquitoes is to drain or eliminate stagnant standing water where mosquitoes may breed; this method of physically manipulating mosquito breeding habitat is referred to as "Physical Control." Physical controls can be broken into two different types: source elimination/reduction and source maintenance.



Source Elimination/Reduction

This type of physical control eliminates a larval habitat by modifying the landscape to allow for better drainage of precipitation or stopping a source of regular precipitation. Habitat modification or elimination can be as complex as adding drainage canals to a marsh or as simple as cleaning gutters, flushing dog water bowls frequently, or covering a pool/spa that is in disrepair. While the SCMAD does not conduct those more complex types of habitat modification or land management strategies promoting a habitat that is not conducive to mosquito breeding (such as ditching and vegetation management), we do work closely with landowners to promote this method of mosquito control on their own properties.



Source Management

When a source of mosquitoes cannot be eliminated completely, source management is a practice that can reduce the population of mosquitoes. Source management often includes water management, vegetation management, as well as infrastructure maintenance, such as flood gate maintenance. This method of habitat reduction is often employed at duck clubs when lowlands are flooded to create a desirable duck habitat prior to duck hunting season. Source Management requires more labor hours to monitor for mosquito larvae and to apply a chemical treatment when necessary.

Physical control may not always be a practical method of mosquito abatement due to the practical limitations of source size, logistical hurdles, or cost. For this reason, the SCMAD utilizes biological and chemical methods to prevent mosquitoes from completing their lifecycle.



Biological Control Methods

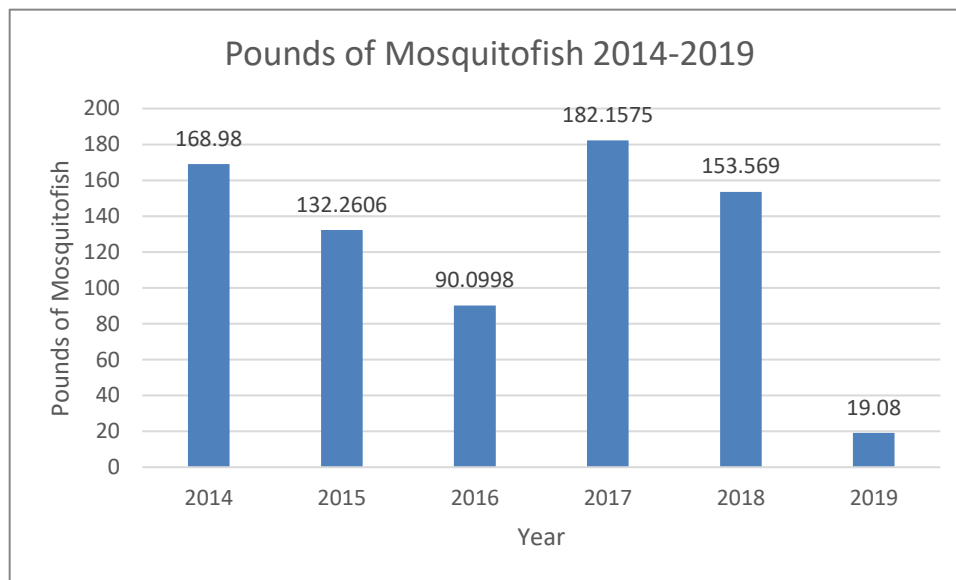
When a water body does not drain regularly or is permanent but not suitable for physical control, such as source elimination, reduction, or maintenance, it may be selected as a candidate for biological control. Biological Control is when control of the mosquito population is accomplished by introducing/increasing the predator population in the mosquitoes' ecosystem.

At the SCMAD we breed and purchase live mosquitofish that are dispensed to the public free of charge for use on private properties in Solano County. Mosquitofish are commonly stocked in places like ornamental ponds, cattle troughs, stagnant swimming pools, and

large fountains. The SCMAD staff will also stock the mosquitofish in other environments, including golf courses, country club ponds, water treatment facilities, and stock ponds, that do not have a population of predatory fish.

Mosquitofish are ideally suited for biological control because they are small (under 2.5 in length) and able to reproduce quickly. These fish have also been observed eating up to two times their body mass in mosquito larvae per day. Mosquitofish are also extremely resilient to harsh environmental conditions and can be successfully stocked where other aquatic predators might not survive. Stocking mosquitofish in a permanent water feature can mean months or even years of effective mosquito control.

The SCMAD Mosquitofish program has become very popular with the public. In 2019 the SCMAD staff went to farmers markets and other special events across the county to educate the public about mosquito control programs in Solano County. The SCMAD took this opportunity to distribute mosquitofish to the public while they were at the events. In 2019 the SCMAD distributed an estimated 19.08 lbs. of mosquitofish throughout Solano county providing long lasting, pesticide free mosquito abatement to an estimated 76.3 acres.



Chemical Control Methods

When physical and biological control methods are not viable options to reduce the mosquito population, the SCMAD can select a chemical control method to reduce the number of mosquitoes to acceptable levels. The SCMAD works diligently to select and use all of our chemical pesticides in a manner that poses the lowest possible risk to both the public and the environment.

The chemical pesticides used by the Solano County Mosquito Abatement District can be classified into two different categories: larvicides and adulticides.

Larvicides

Larvicides are insecticides that target mosquitoes in the larval stage of their lifecycle. Larvicides are by far the most heavily used form of insecticide used by the SCMAD, although adulticide applications treated a greater area per application. Most larvicides used by the SCMAD contain the active ingredient Methoprene. Methoprene is frequently used as a public health pesticide because it poses a very low risk to residents and their animals, while at the same time reducing the amount of biting adult mosquitoes that emerge from an aquatic environment.

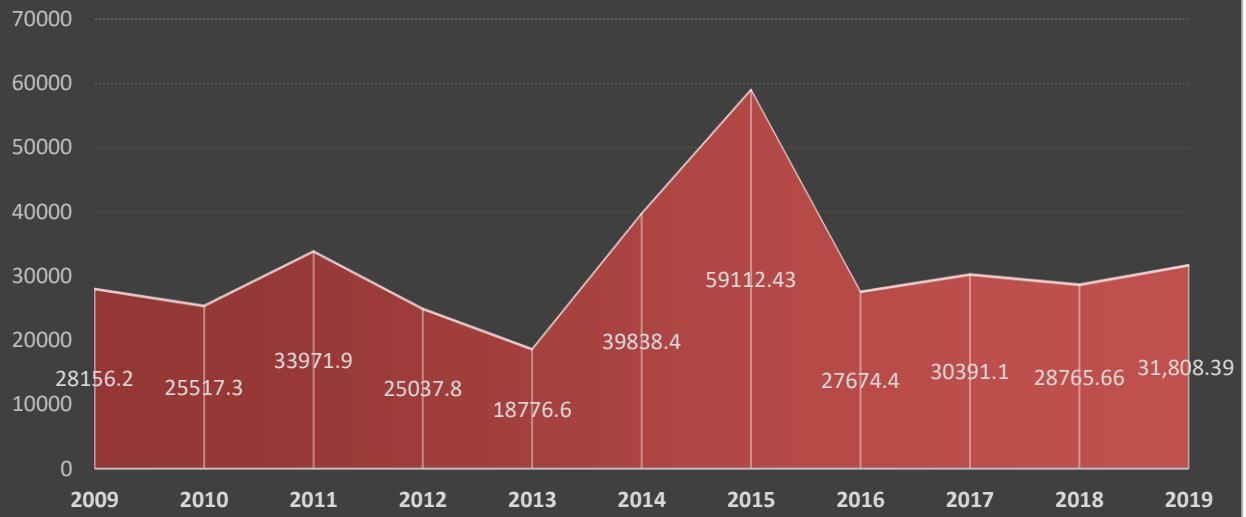
In 2019 the SCMAD deployed larvicides by ATV, hand, and even aircraft. Larvicides are important in controlling the mosquito populations that develop in the tidal marshes in late winter, spring and summer. The SCMAD also uses larvicides to control mosquito populations that develop in the fall when duck clubs are flooding prior to duck hunting season.



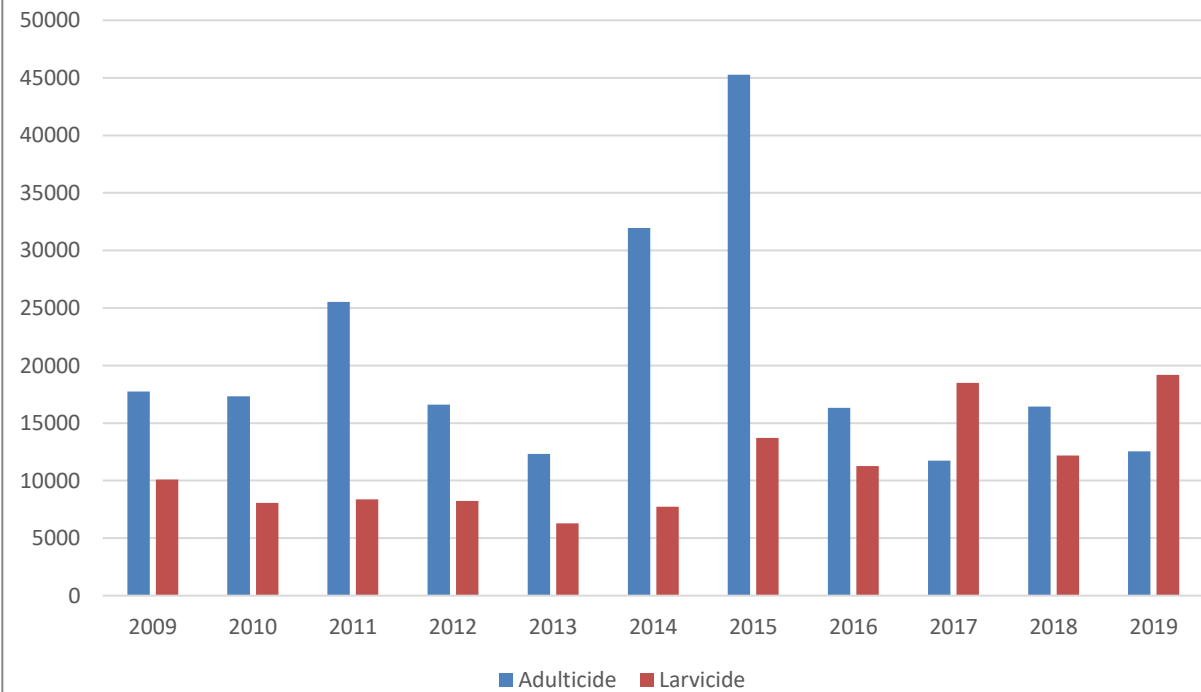
Adulticides

Adulticides are chemical pesticides that target mosquitoes in their adult life stage. Adulticides utilized by the SCMAD are effective in rapidly reducing the adult mosquito population in a specific area for a short period of time; however, if the mosquito habitat is not abated adulticide treatments will not provide long lasting results. Adulticides used by the Solano County Mosquito Abatement District are not target-specific and could affect the beneficial insect population. For this reason, the SCMAD generally only applies adulticides in/around areas that have known arbovirus activity to reduce the risk of arbovirus transmission. To date in Solano County adulticides are ONLY deployed by ground vehicles or using a hand applicator. The SCMAD has never applied adulticides using aircraft.

Total # of Acres Treated with Pesticide 2009-2019



Total Acres Treated 2009-2019 Larvicide Vs. Adulticide



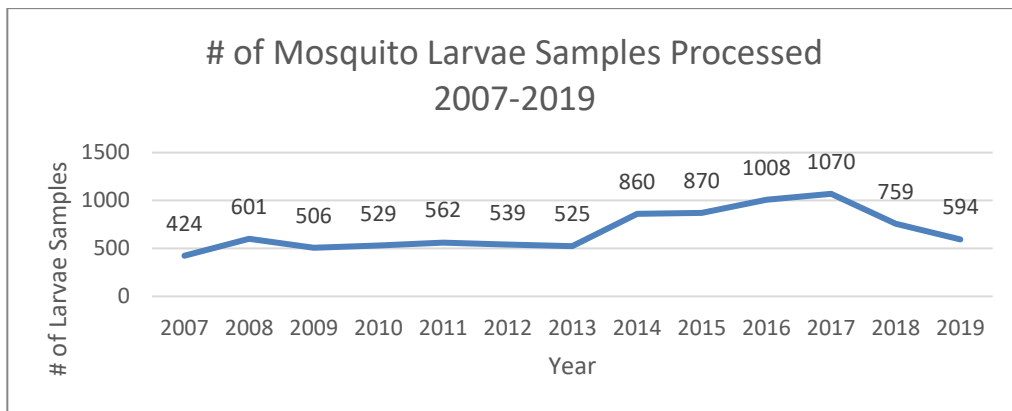
2019 MOSQUITO SURVEILLANCE



In 2019 the SCMAD used a variety of surveillance techniques to monitor and lower the mosquito population for both public nuisance and public health reasons. Mosquito surveillance yields a cornucopia of data that is useful for district staff. For example, the species and abundance of adult mosquitoes trapped in a specific time period could yield valuable information about where the mosquitoes are breeding, what flight range the mosquitoes have, and whether the public is at risk of disease transmission. While a larvae mosquito sampling could give us information about when the next generation of mosquitoes might emerge, their potential population size if unabated, how far they could travel, whether the species is a known vector of disease, and if pesticides applied are effective.

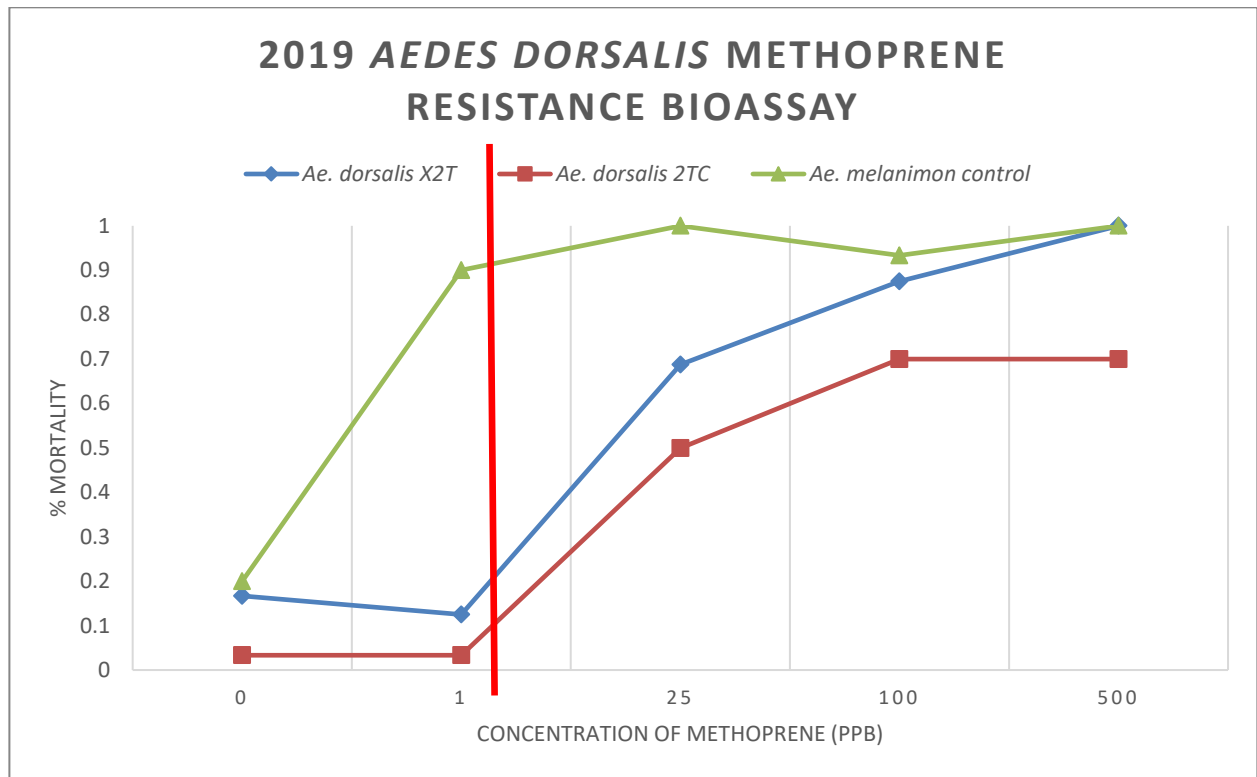
Larval Surveillance

In an effort to identify mosquito breeding sources and plan abatement efforts, the SCMAD technicians collect larval samples from aquatic habitats as a response to service requests or from known breeding sources. These samples are brought back to the SCMAD Laboratory where the specimens are inspected and all mosquito larvae are identified to species. This population data allows the SCMAD to assess the upcoming risk to the public and the future adult mosquito population if unabated. Larval surveillance is crucial to not only achieving mosquito control before the mosquito population emerges as biting adults, but it also allows us to monitor our pesticides effectiveness. In 2019, the SCMAD Laboratory processed 594 mosquito larvae samples.



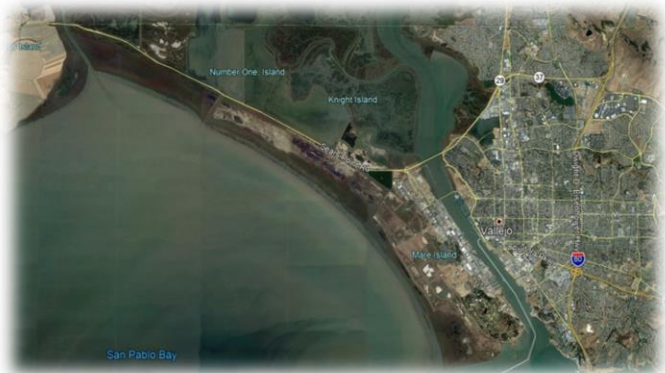
Larvicide Resistance Monitoring

Larvicides are an important component of the SCMAD's abatement strategy in Solano County's managed wetlands and marshes. The SCMAD Biologist conducts larvicide resistance studies on habitats that have been recently treated. These studies are conducted through both post treatment sampling of field collected larvae as well as in the laboratory via biological assessments (bioassays) in which a genetic population of mosquitoes is strategically exposed to various known concentrations of an active ingredients. Through the careful monitoring of the mosquito population response to the corresponding dosage rates, results can be interpreted and then applied to the field. Data from these experiments are an important component in decisions made by the SCMAD staff when deciding types of insecticides to use or purchase, as well as what dose will be used in certain areas of the county.



Resistance to the active ingredient (A.I) methoprene was suspected in the *Aedes dorsalis* population located southwest of Mare Island, Vallejo (2TC) and northwest along the bay shore towards Skaggs Island Rd. at Highway 37 (X2T). Larvae from this suspect population were collected from these two locations, and another susceptible population of *Aedes melanimon* larvae were collected from Grizzly Island.

In the lab, a serial dilution of methoprene (A.L.L.) was measured to accurately manipulate the field dosage rate, which would then be introduced to each of the replicates within the bioassay.



Larvae from all three populations were allowed to develop into late third instar larvae. Populations that are more resistant need to be exposed to higher dosage rates to accurately assess how resistant they are to a particular A.I., and to assess at which rate the desired effects will be achieved. In the field, a low rate for methoprene (A.L.L.) would be 3.86 ppb, whereas a high rate would be 5.15 ppb (near or equivalent to the maximum label rate for A.L.L.). This is indicated by the vertical red line on the graph above. We chose to use concentrations at 1, 25, 200 and 500 ppb including controls for each population. There were four replicates per treatment, with the exception of the X2T *Aedes dorsalis* population, which was limited by the number of larvae collected in the field prior to the bioassay and therefore had less larvae and less replicates than the other two populations. Results are shown in the graph atop this page.

New Jersey Light Traps

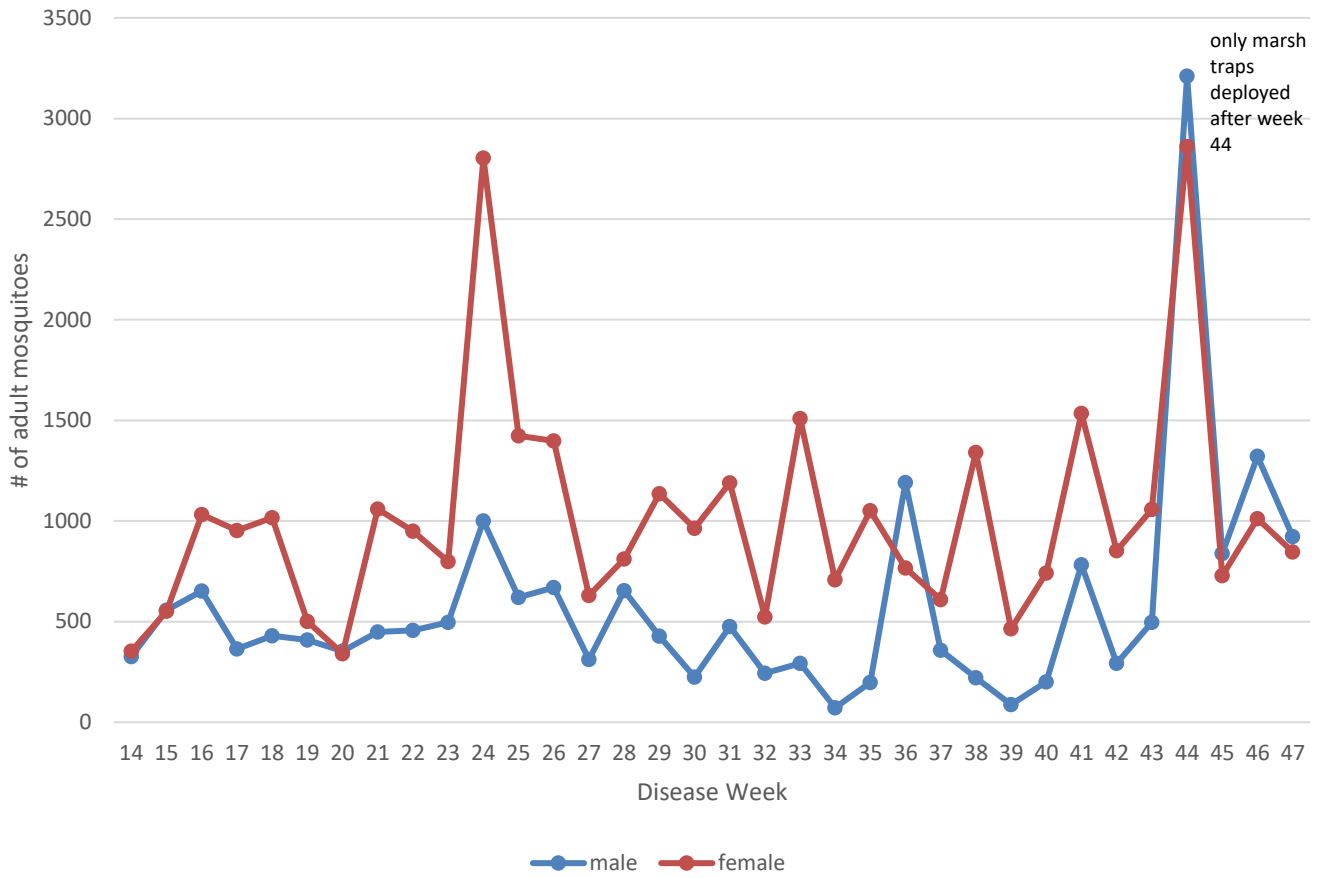
The SCMAD uses New Jersey Light Traps as semi-permanent monitoring stations for mosquito surveillance. The SCMAD deploys these traps for roughly 9 months a year throughout the county by partnering with the local land owners. New Jersey Light Traps use light to attract mosquitoes at night, then trap and kill them. These traps are very effective in providing the SCMAD staff with mosquito diversity and long-term comparable population data used for resource allocation decisions. The trap numbers and locations are roughly the same year to year, which allows the SCMAD to use the data from previous years to compare and identify trends and patterns.



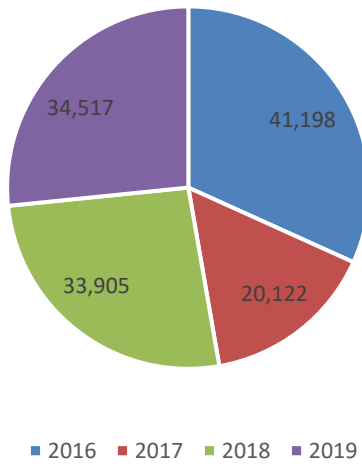
Light traps are a very effective method in measuring the mosquito population overall because they attract a wide range of mosquito species. These traps are also useful in measuring the male adult mosquito population, too. The amount of male mosquitoes captured in a NJLT provides useful information in terms of source proximity to the trap site. Male mosquitoes in general do not fly far from their source of origin. Male mosquitoes are, in general, not strong fliers nor do they possess the need to fly great distances in the way female mosquitoes may to attain a blood meal. Interpreting both the species and sex ratio of the trapped mosquitoes will aid technicians in determining where a particular type of source may be located. In 2019, 29 light traps were collected and reset on a weekly basis from March through November.



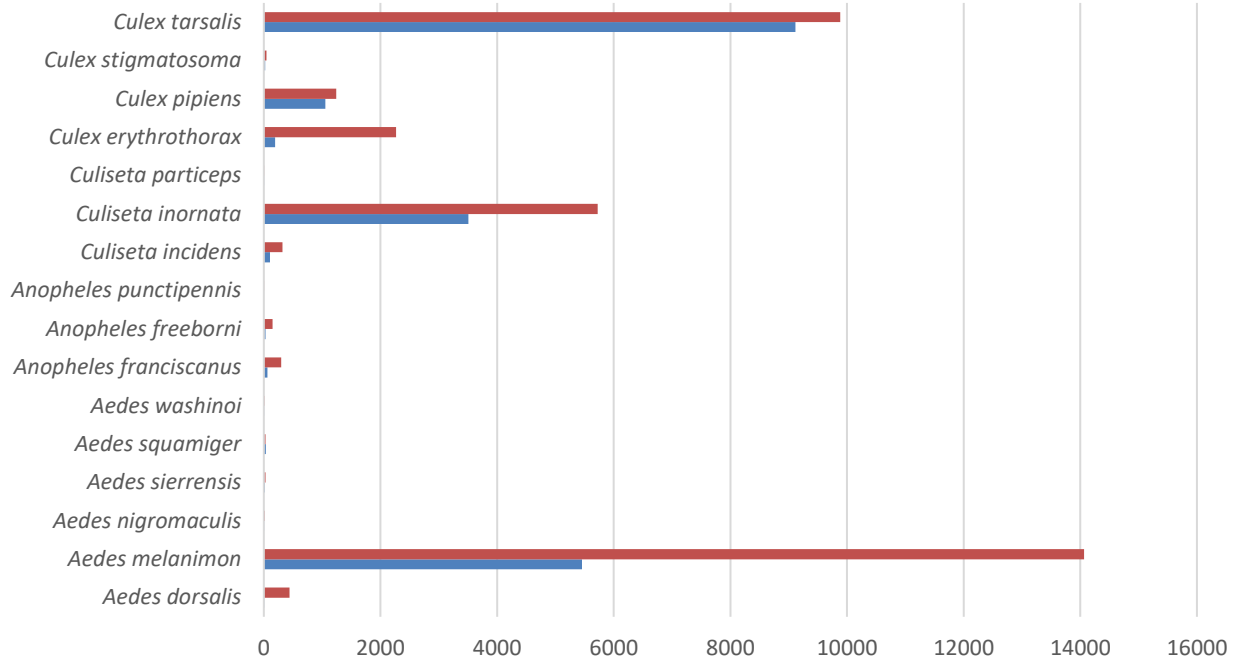
2019 NJLT Abundance by Disease Week 14-47



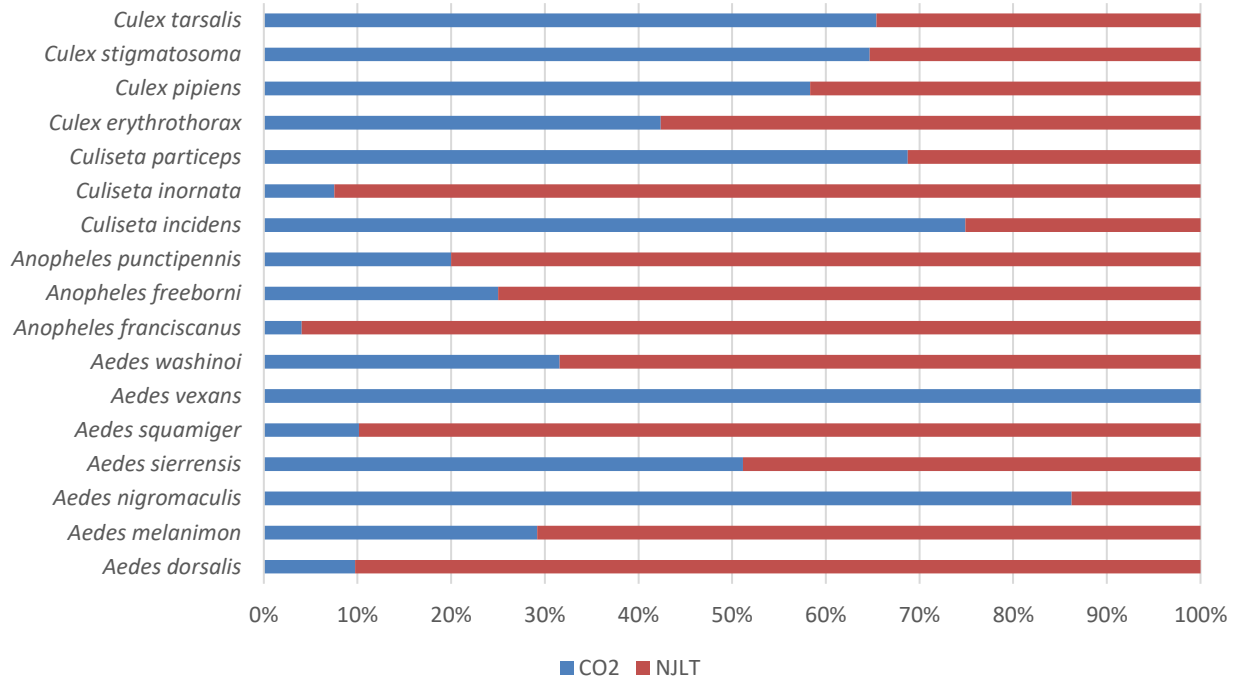
Number of Adult Female Mosquitoes Trapped in Solano County by NJLT 2016-2019



2019 NJLT Species Composition



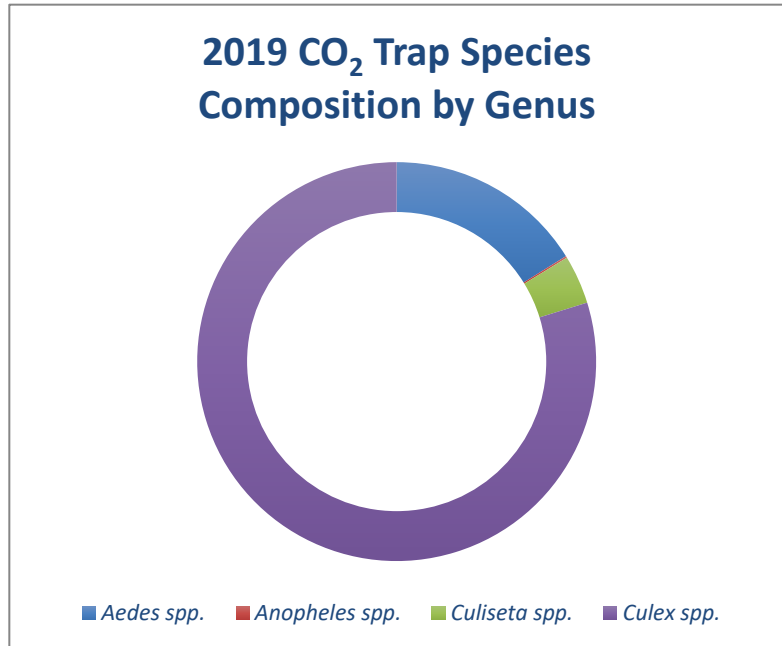
2019 Mosquito Species Proportion Trapped by CO2 Trap vs. NJLT (Male and Female)



CO₂ Mosquito Trapping

CO₂ mosquito traps emit carbon dioxide to attract adult mosquitoes, and these traps yield a very high catch rate. However, due to battery and bait limitations, they can only be deployed for less than 24 hours; adult mosquitoes are still alive and viable for arbovirus testing when these traps are collected the next day; mosquitoes must be fresh in order to test for the viral RNA that is present in an arbovirus-infected mosquito. The mosquitoes that are trapped in CO₂ traps do not yield the same population information as New Jersey Light Traps. Instead, CO₂ traps attract host seeking female mosquitoes. Male mosquitoes are certainly captured by these traps as well, but it is thought that they are attracted to the female mosquitoes that have already been trapped.

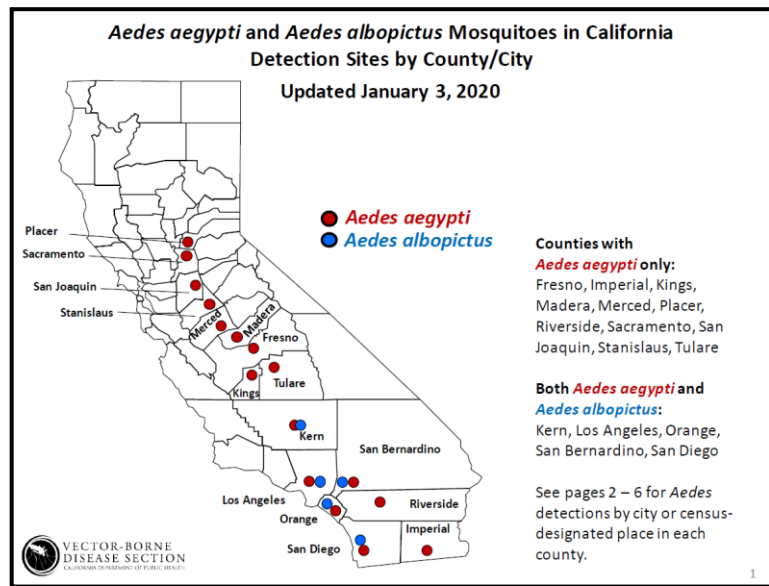
Another theory is that males will swarm around a host animal (or in this cases a CO₂ baited trap) in order to mate with the females that will be attracted to said host. Between May and October 2019, 453 CO₂ mosquito traps were baited and deployed, capturing 51,811 mosquitoes.



Invasive *Aedes* Mosquitoes

SCMAD incorporated two other trap types into the adult mosquito surveillance program. These traps are specifically designed to attract and capture the invasive *Aedes aegypti* (Yellow Fever mosquito) and *Aedes albopictus* (Asian Tiger mosquito). These two mosquito species are introduced to North America and act as highly competent vectors of diseases not transmitted by our any of our current 23 mosquito species. These disease include Yellow Fever, dengue fever, chikungunya virus and Zika virus (associated with microcephaly). *Aedes aegypti* and *Aedes albopictus* were not detected in any larvae samples collected or surveillance traps deployed in 2019, nor have they been detected in Solano County any year prior.

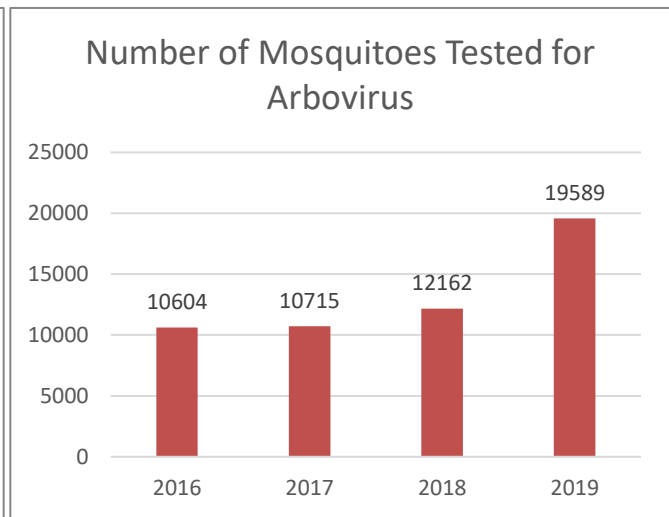
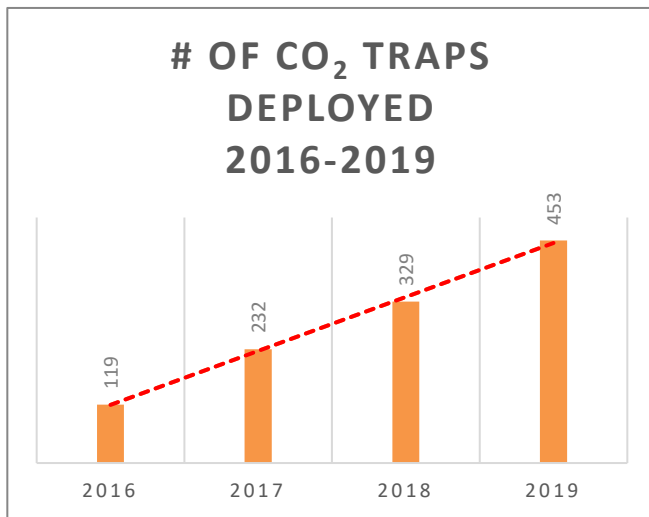
Neighboring counties of Solano including Stanislaus, San Joaquin, Placer and Sacramento counties all made their first detection of *Aedes aegypti* in 2019. Below is an updated distribution made of all counties in California that have one or both of these mosquito species.



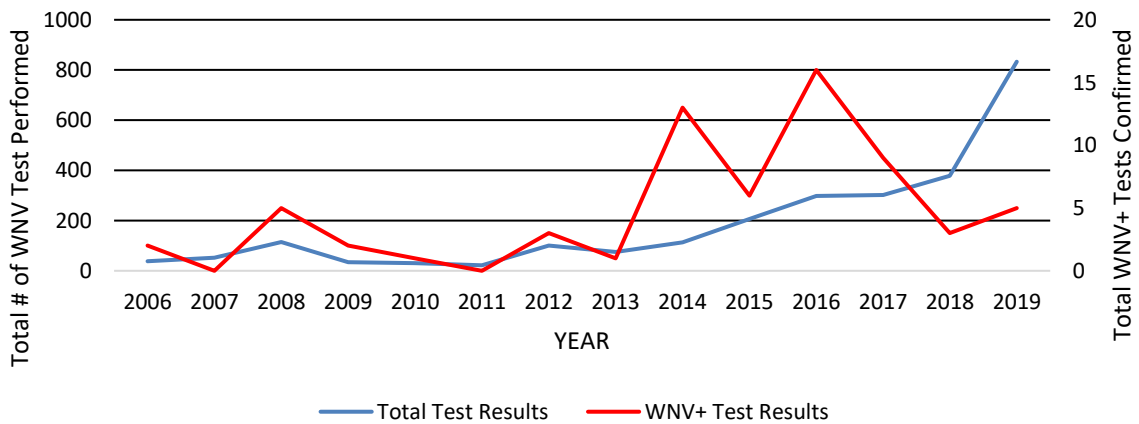
ARBOVIRUS SURVEILLANCE

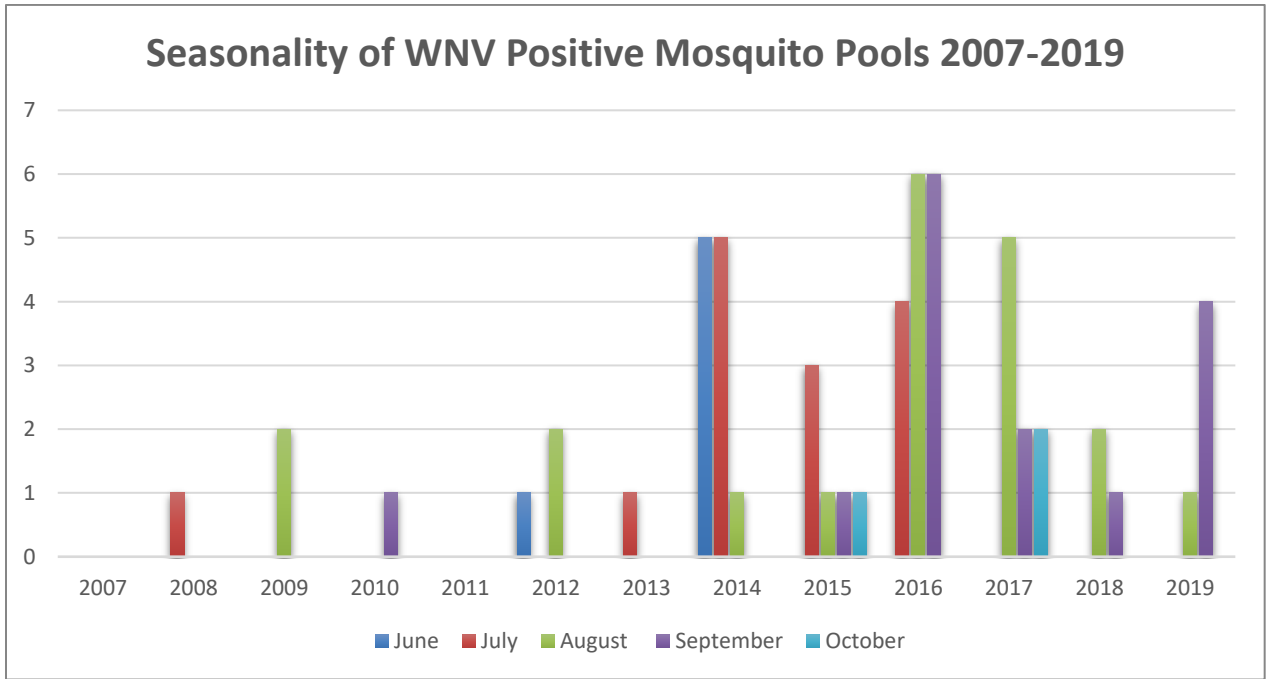
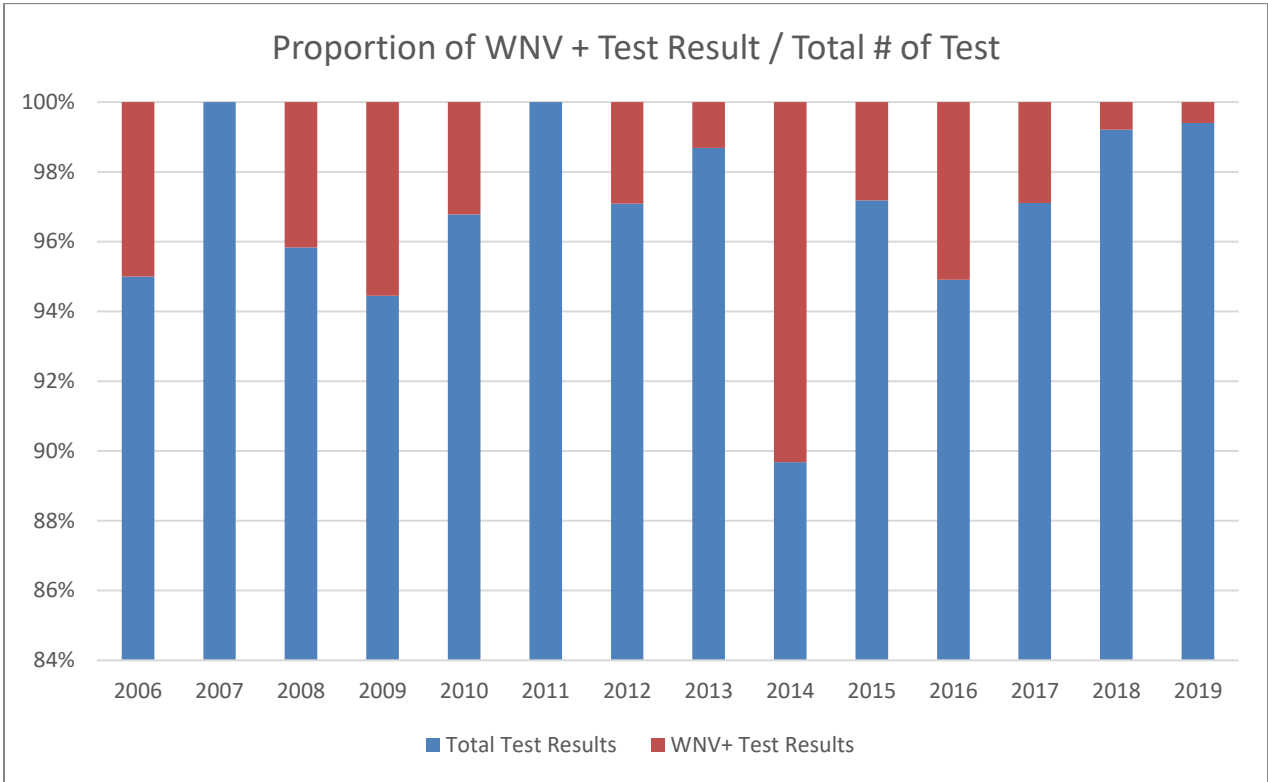
Mosquito Population Testing

A robust mosquito sampling program is very important in order to identify areas where arboviruses are active in order to prevent human transmission from occurring. In 2019, 453 CO₂ traps were deployed, a 38% increase since 2018. In those traps 19,589 mosquitoes were sampled, identified in the SCMAD laboratory, and tested for arbovirus. The purpose of this testing is to identify areas within Solano County where the human population was at risk of contracting mosquito-borne disease, such as West Nile virus. Of the mosquitoes tested, 2 sites were found where the mosquito population was confirmed to host West Nile virus. These sites were identified between the months of August and September when WNV is most active in Solano County. When these areas were identified, mosquito control technicians responded by conducting a habitat assessment and developing and implementing an effective abatement strategy to quickly lower the mosquito population in these areas. Solano County Public Health and the Municipalities City Manager were also notified of the positive results.



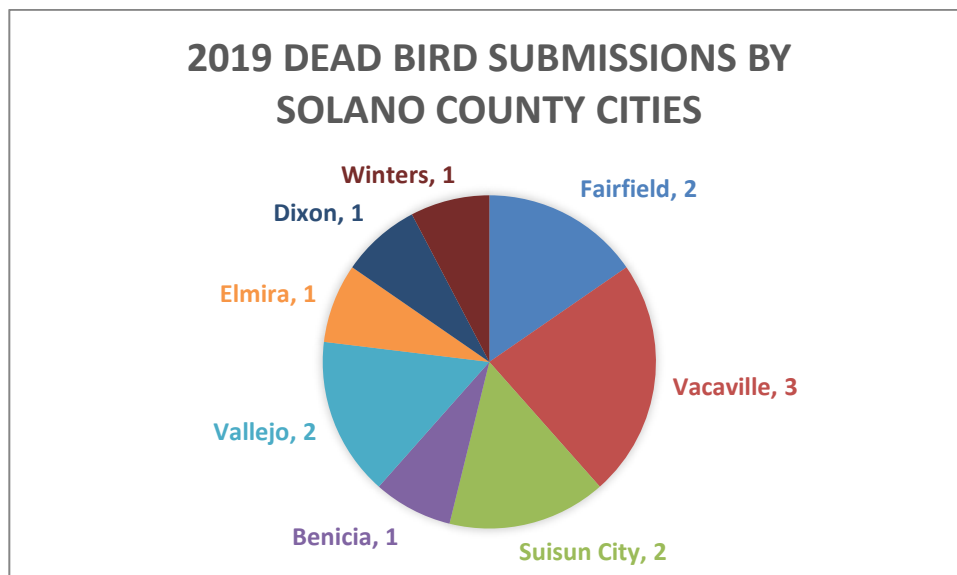
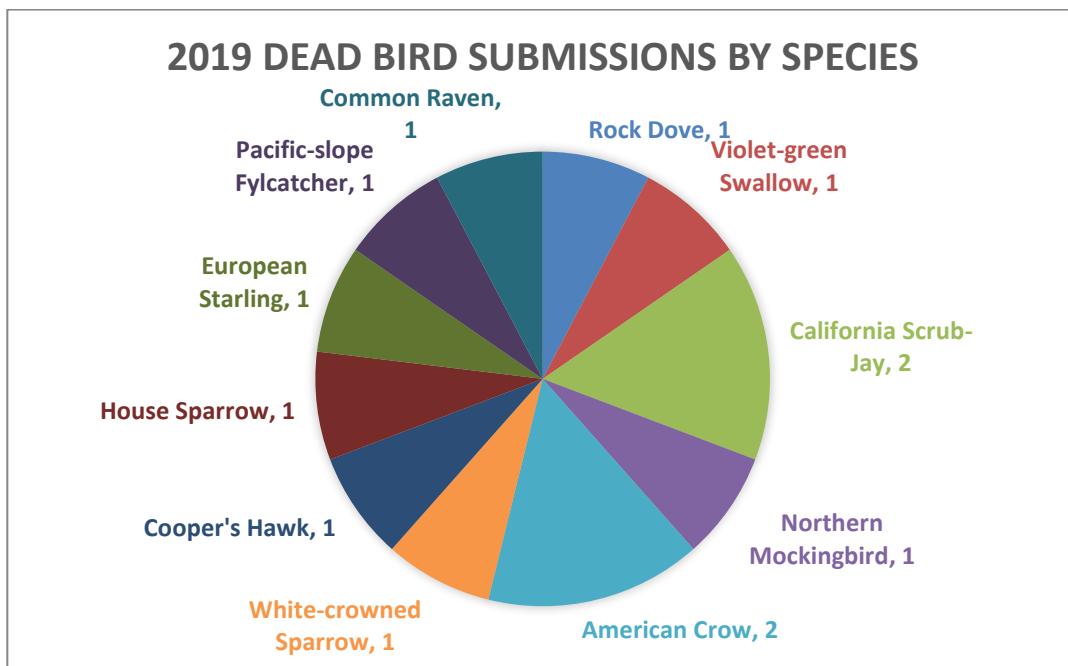
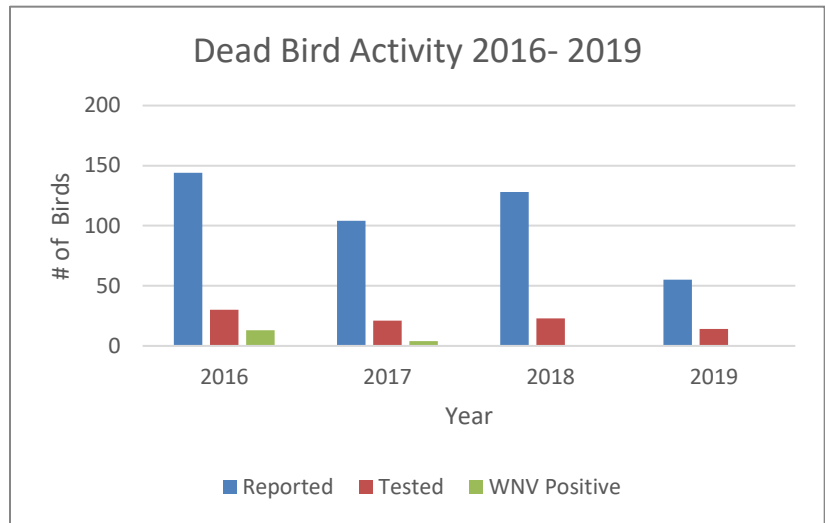
Total WNV Tests VS WNV+ Test Results 2006-2019





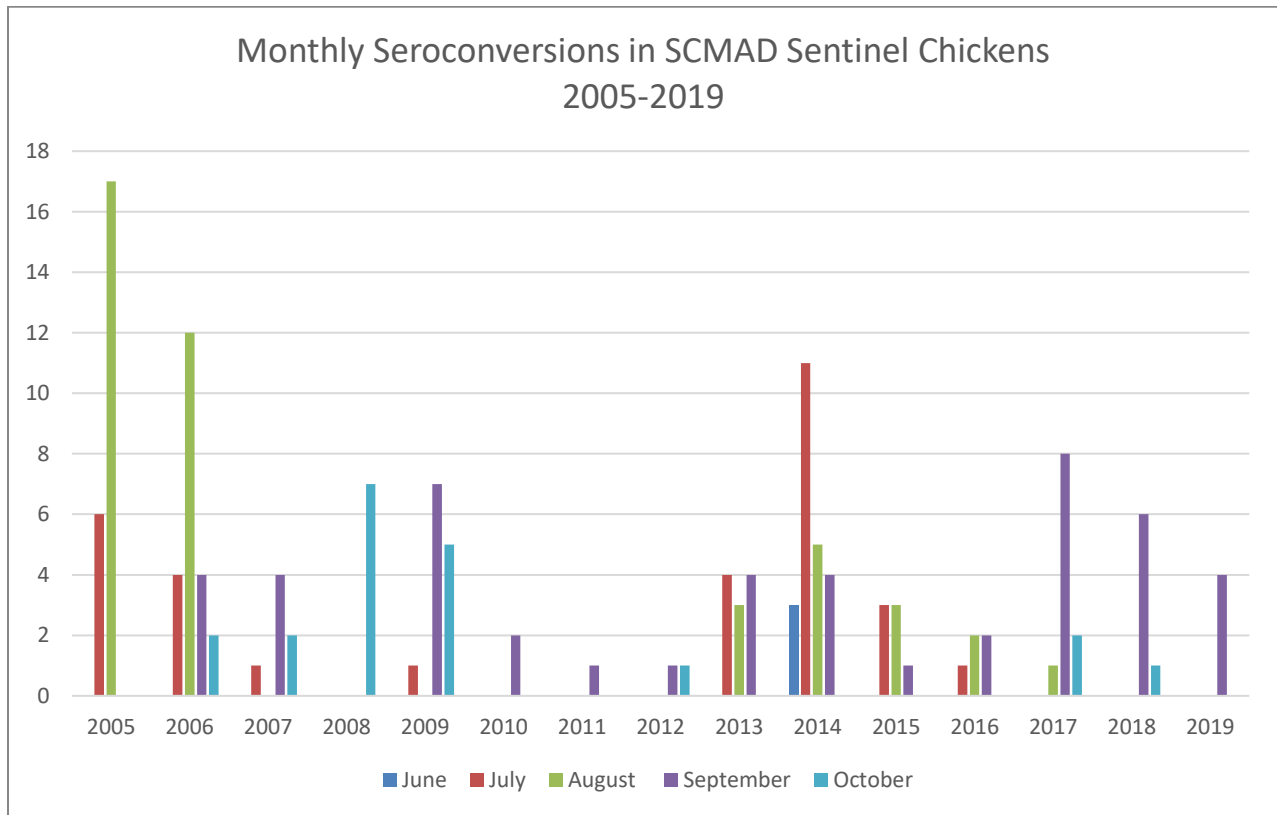
Dead Bird Testing

The Solano County Mosquito Abatement District works with the California Department of Health and University of California Davis to collect and test dead birds within Solano County for arboviruses. The dead birds were reported by calling 1 (877) 968-2473 or reporting them online at http://westnile.ca.gov/report_wnv.php. This year 55 dead birds were reported, 13 dead birds were collected and tested, and no birds tested positive for WNV.

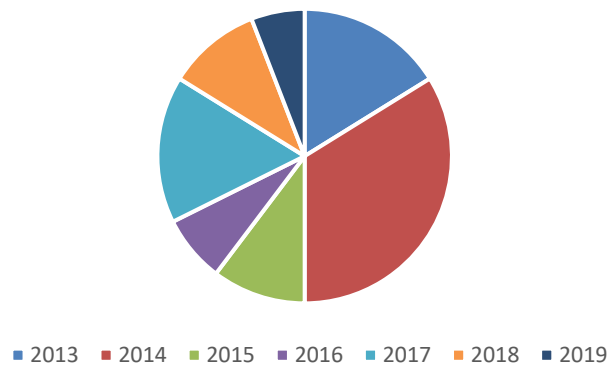


Sentinel Chicken Flocks

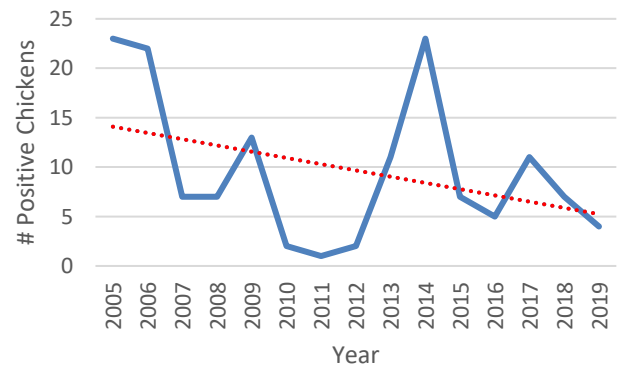
In 2019, the SCMAD operated 3 sentinel chicken flocks, a combined total of 36 chickens, between the months of April and September. Blood samples were taken from the chickens every two weeks and were tested for the presence of arboviruses. Chickens were used because once they become infected with West Nile virus, the virus cannot pass on to future hosts. Out of the 245 samples taken, a total of 4 sentinel chickens tested positive from 2 of the 3 flocks. This information was used to identify areas where the virus was present and to develop/implement abatement strategies.



of WNV + Sentinel Chickens 2013-2019



of WNV Positive Sentinel Chickens 2005-2019

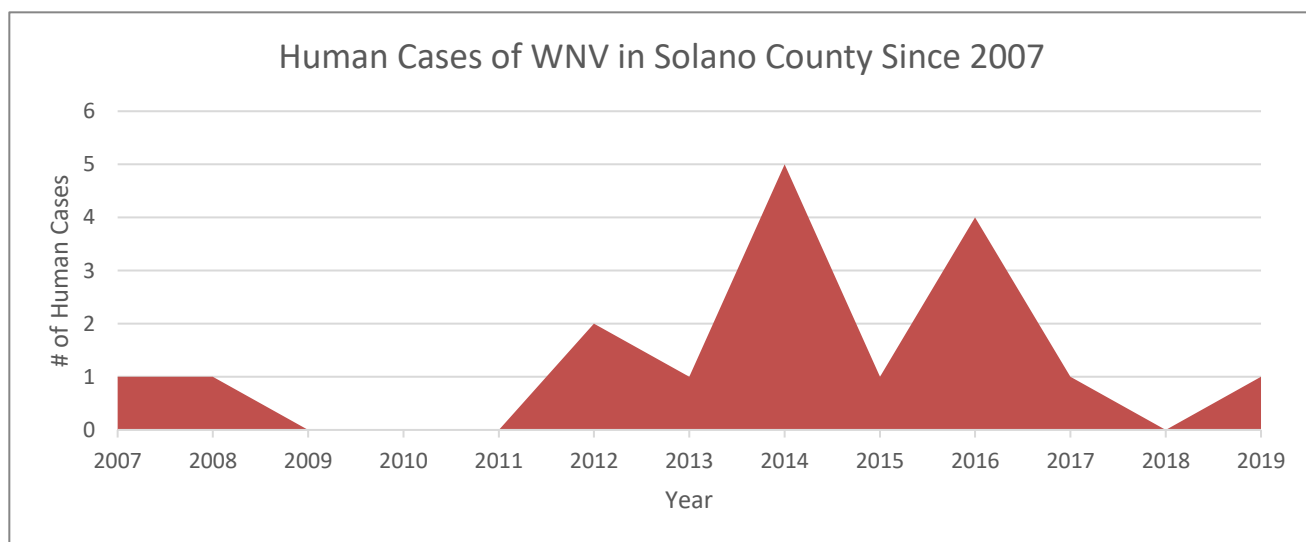


Human Arbovirus Case Response

It is our goal at the SCMAD to identify areas where arbovirus transmission is present and reduce the risk of disease to the residents of Solano County. In the event of a human infection, the occurrence is reported to the Solano County Mosquito Abatement District by the Solano County Public Health Department (SCPHD). All information that is supplied the SCMAD is provided in a manner that is compliant with all HIPAA regulations and guidelines. When possible the SCMAD will collaborate with the SCPHD to determine the likelihood of the disease transmission occurring in Solano county by conducting trapping and habitat surveys. For West Nile virus human case responses, traps are deployed, sampled and tested for West Nile virus. *Culex* spp. are the target vector from these traps.

Mosquito abatements are conducted in areas where arbovirus activity is suspected in order to rapidly reduce the risk to the public. Any areas where arbovirus abatements occur are then monitored for 14 to 21 days to ensure a low risk to the public. In 2019 there were 5 confirmed human cases of arbovirus infections within Solano county, all of which are presumed to be travel-related cases. By comparison, there were no confirmed human cases in 2018.

Other confirmed human cases of mosquito-borne disease in Solano County include one malaria and three dengue fever cases, all of which were travel-related cases (the individual contracted the disease outside of the United States but were symptomatic and/or diagnosed upon returning to the United States). These types of human case responses are similar to West Nile virus human case responses, where traps are deployed and mosquitoes from those traps are sampled; however, malaria is vectored by our *Anopheles* spp., so these mosquitoes are pooled opposed to *Culex* spp. In Zika virus, chikungunya, Yellow Fever or dengue fever human cases, traps are deployed to target invasive *Aedes* spp.



PUBLIC OUTREACH

Public Events

In 2019, the Solano County Mosquito Abatement District conducted presentations and attended several public events to meet and interact with members of the public. We estimate that we engaged with an estimated 4,432 people.

Below is a list of events and presentations that were conducted by SCMAD staff. Presentations are conducted free of charge to the public upon request. To schedule an appointment, please call the Solano County Mosquito.



1. **Mare Island Neighborhood Watch (April 9):** 30 people
2. **Fairfield Earth Day (April 27):** 1000 people
3. **Sweet Pea’s Nursery Garden Fair & Farmer’s Market (April 28):** 100 people
4. **City of Vacaville, Celebrate Seniors (May 15):** 500 people
5. **Benicia Farmers Market**
(June 6): 400 people
(July 11): 400 people
(August 8): 400 people
6. **North Solano County Association of Realtors (July 16):** 80 people
7. **Rolling Hills Neighborhood Network (October 3):** 28 people
8. **Solano County GSD Tree and Landscape IPM Seminar (October 9):** 50 people
9. **Vacaville Kid Fest 2019 (October 19):** 100 people

Advertising

In 2019, the Solano County Mosquito Abatement District launched its new website, as well as several advertising campaigns. In order to educate and conduct outreach to the public bus ads were created and ran on busses in Fairfield, Suisun, and Vacaville. In addition to bus ads newspaper ads were printed in the Vallejo Times Herald, Daily Republic, Vacaville Reporter, the Dixon Independent Voice newspapers and the Leisure Town Newsletter. An article was written in the “How To Guide” of the Vacaville Reporter, which can be accessed online at <http://www.pageturnpro.com/NORCAL-Community-Newspaper-Group/79488-How-To-Guide-2019/default.html#page/1>

The District also aired radio advertisements and radio commercials on KUIC’s local radio station and website. It is our hope that 2019’s advertising campaign will yield positive long-term results, and allow us to interact with more residents of Solano County.



FINANCE

The District Manager, the Board of Trustees and the District's Administrative Assistant manage the budgeting, accounting, and record keeping. The finances are also audited annually by a certified third-party public accountant (Fechter & Company). The SCMAD is committed to the ethical and fiscally responsible management of public funds in its efforts to reduce the risk of disease transmission and nuisance to members of the public in Solano county.

Statement of Financial Position: Fiscal Year 2018-2019

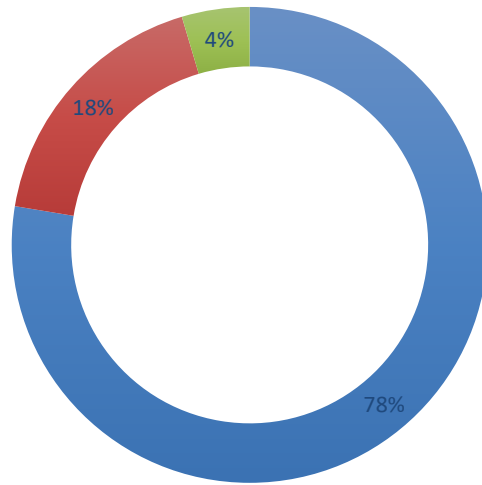
Revenue

Property taxes	\$2,247,826
Other tax revenue	\$515,525
Use of money and property	\$133,271
Miscellaneous	\$3,378
Total Revenues	\$2,900,000

Expenditures/Expenses

Salaries and wages	\$985,329
Employee benefits	\$1,065,944
Pesticides	\$268,540
Aircraft services	\$166,515
Insurance	\$53,800
Structure and grounds maintenance	\$32,843
Property tax administration	\$30,977
Utilities	\$27,403
Motor vehicles and equipment maintenance	\$27,868
Gas and oil	\$22,739
Materials and supplies	\$35,319
Office supplies	\$11,443
Professional services	\$26,167
Memberships	\$16,759
Publishing	\$31,571
Conference	\$4,124
Communications	\$7,511
Continuing education	\$2,709
Travel	\$834
Capital outlay	\$71,212
Total Expenditures	\$2,889,607

SCMAD Revenue Fiscal Year 2018-2019



■ Property taxes ■ Other tax revenue ■ Use of money and property

SCMAD 2019 Expenditures/Expenses



■ Salaries and wages ■ Employee benefits
■ Unfunded liability CALPERS ■ Pesticides
■ Insurance ■ Property tax administration
■ Professional services ■ Motor vehicles and equipment maintenance
■ Structure and grounds maintenance ■ Staff development