

AGENDA
1098th MEETING OF THE BOARD OF TRUSTEES
OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT
JANUARY 12TH, 2022

TIME: 5:00 P.M.
PLACE: 23187 Connecticut Street, Hayward, CA 94545 & by teleconference
TRUSTEES: P. Robert Beatty, President, City of Berkeley
Subru Bhat Vice-President, City of Union City
Victor Aguilar, Secretary, City of San Leandro
Cathy Roache, County-at-Large
Tyler Savage, City of Alameda
Preston Jordan, City of Albany
Shawn Kumagai, City of Dublin
Courtney Welch, City of Emeryville
George Young, City of Fremont
Elisa Márquez, City of Hayward
Steven Cox, City of Livermore
Eric Hentschke, City of Newark
Jan O. Washburn, City of Oakland
Andrew Mingst, City of Piedmont
Julie Testa, City of Pleasanton

1. Call to order.
2. Roll call.
3. President Beatty invites any member of the public to speak at this time on any issue relevant to the District (each individual is limited to three minutes).
4. Introduction of new Board Members from the cities of Alameda & Emeryville (Information only)
5. Approval of the minutes of the 1096th Regular Meeting held November 10th, 2021 (**Board action required**).
6. Resolution 1098-1 Authorizing Remote Teleconference Meetings of the Legislative Bodies of the Alameda County Mosquito Abatement District Pursuant to Brown Act Provisions (**Board action required**)
7. Election of Board Officers. Gavel transfer from President Beatty to the newly elected President. (**Board action required**)
8. Review of 2022 Board Meeting dates (**Possible Board action required**)
9. Review Finance Committee membership and appointing a Chair (**Board action required**)
10. Review of quote and awarding of contract for the purchase of a 2022 Argo Frontier Amphibious All-Terrain Vehicle (**Board action required**)
11. Presentation on universal anti-mosquito saliva vaccine by Laboratory Director Dr. Eric Haas-Stapleton (Information only).

12. ACMAD awarded the Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association (Information only).

13. Financial Reports as of December 31st, 2021: (Information only).

- a. Check Register
- b. Income Statement
- c. Investments, reserves, and cash report
- d. Balance Sheet

14. Presentation of the Monthly Staff Report (Information only).

15. Presentation of the Manager's Report (Information only).

- a. Trustee Anniversary Recognitions
- b. MVCAC annual: February 7th-9th 2022, Sacramento Convention Center
- c. No, genetically engineered mosquitoes aren't about to be released in Berkeley, by Kate Darby Rauch. December 13, 2021, *Berkeleyside*.
<https://www.berkeleyside.org/2021/12/13/genetically-engineered-mosquitoes-not-coming-to-berkeley>
- d. Meet the mosquitofish: California scientists debate whether it's menace or messiah, by Zack Savitsky. January 4th, 2022, *East Bay Times*
- e. ACMAD Employee Association Memorandum of Understanding negotiations to begin in February
- f. CSDA Virtual Special District Leadership Academy: four two half-day virtual modules beginning in February and ending in May
- g. Required trainings due: AB1234: Trustee Roache; AB1825: Trustees Marquez & Testa

16. Board President asks for reports on conferences and seminars attended by Trustees.

17. Board President asks for announcements from members of the Board.

18. Board President asks trustees for items to be added to the agenda for the next Board meeting.

19. Adjournment.

RESIDENTS ATTENDING THE MEETING MAY SPEAK ON ANY AGENDA ITEM AT THEIR REQUEST.

Please Note: Board Meetings are accessible to people with disabilities and others who need assistance. Individuals who need special assistance or a disability-related modification or accommodation (including auxiliary aids or services) to observe and/or participate in this meeting and access meeting-related materials should contact Ryan Clausnitzer at least 48 hours before the meeting at 510-783-7744 or acmad@mosquitoes.org.

IMPORANT NOTICE REGARDING COVID-19 AND TELECONFERENCED MEETINGS:

Based on the mandates by the Governor in Executive Order 33-20 and the County Public Health Officer to shelter in place and the guidance from the CDC, to minimize the spread of the coronavirus, please note the following changes to the District's ordinary meeting procedures:

- The District offices are not open to the public at this time.
- The meeting will be conducted via teleconference using Zoom. (See Executive Order 29-20)
- All members of the public seeking to observe and/or to address the local legislative body may participate in the meeting telephonically or otherwise electronically in the manner described below.

HOW TO OBSERVE THE MEETING:

Telephone: Listen to the meeting live by calling Zoom at **(669) 900-6833**

Enter the **Meeting ID# 823 1772 1101** followed by the pound (#) key.

Computer: Watch the live streaming of the meeting from a computer by navigating to <https://us02web.zoom.us/j/82317721101>

Mobile: Log in through the Zoom mobile app on a smartphone and enter **Meeting ID# 823 1772 1101**

HOW TO SUBMIT PUBLIC COMMENTS:

Before the Meeting: Please email your comments to acmad@mosquitoes.org, write "Public Comment" in the subject line. In the body of the email, include the agenda item number and title, as well as your comments. If you would like your comment to be read aloud at the meeting (not to exceed three minutes at staff's cadence), prominently write "Read Aloud at Meeting" at the top of the email. All comments received before 12:00 PM the day of the meeting will be included as an agenda supplement on the District's website under the relevant meeting date and provided to the Trustees at the meeting. Comments received after this time will be treated as contemporaneous comments.

Contemporaneous Comments: During the meeting, the Board President or designee will announce the opportunity to make public comments and identify the cut off time for submission. Please email your comments to acmad@mosquitoes.org, write "Public Comment" in the subject line. In the body of the email, include the agenda item number and title, as well as your comments. Once the public comment period is closed, all comments timely received will be read aloud at the meeting (not to exceed three minutes at staff's cadence). Comments received after the close of the public comment period will be added to the record after the meeting.

MINUTES

1097th MEETING OF THE BOARD OF TRUSTEES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT

December 8th, 2021

TIME: 5:00 P.M.
PLACE: *Zoom Teleconference Only*
TRUSTEES: P. Robert Beatty, President, City of Berkeley
Subru Bhat, Vice-President, City of Union City
Victor Aguilar, Secretary, City of San Leandro
Cathy Roache, County-at-Large
Wendi Poulson, City of Alameda
Preston Jordan, City of Albany
Shawn Kumagai, City of Dublin
City of Emeryville, vacant
George Young, City of Fremont
Elisa Márquez, City of Hayward
Steven Cox, City of Livermore
Eric Hentschke, City of Newark
Jan O. Washburn, City of Oakland
Andrew Mingst, City of Piedmont
Julie Testa, City of Pleasanton

1. Board President Beatty called the regularly scheduled Board meeting to order at 5:06 P.M.
2. Trustees Beatty, Bhat, Aguilar, Roache, Poulson, Young, Márquez, Cox, Hentschke, and Washburn were present at the District. Trustees Jordan, Kumagai, and Testa were present on the Zoom conference. Trustee Mingst was absent.
3. Board President Beatty invited members of the public to speak on any issue relevant to the District. David Alvey of Maze & Associates was present to give the Draft Annual Comprehensive Financial Report for Fiscal Year 2020-21. Accounting Associate Michelle Robles, retired District Manager John Rusmisel, and Field Operations Supervisor Joseph Huston were present. Information Technology Director Robert Ferdan was present for technical support and Vector Biologist Jeremy Sette was present to record the minutes. No public comments were submitted.
4. Approval of the minutes of the 1096th meeting held November 10th, 2021.
Motion: Trustee Marquez moved to approve the minutes.
Second: Trustee Washburn
Vote: motion carries: unanimous. Trustee Jordan noted a spelling error addressing Council member Hahn's correct spelling. The General Manager replied that he will make a correction.

5. Resolution 1097-1 Authorizing Remote Teleconference Meetings of the Legislative Bodies of the Alameda County Mosquito Abatement District Pursuant to Brown Act Provisions.

Discussion:

The General Manager fielded the following discussion. The General Manager clarified that the Resolution allows the hybrid meeting option and must be approved at each meeting, as long as the Governor's orders continue. President Beatty asked if the Board was voting for either hybrid or fully remote (the resolution does not require specificity). Trustee Márquez noted that hybrid meeting allows the most flexibility. Secretary Aguilar clarified that he was agreeing on voting yes until the Governor's order changes. Trustee Hentschke asked if the Board would vote each month for hybrid meetings (yes).

Motion: Trustee Roache moved to approve Resolution 1097-1.

Second: Trustee Cox

Vote: motion carries: unanimous.

6. Presentation of the Draft Annual Comprehensive Financial Report for Fiscal Year 2020-21 by Maze & Associates.

Discussion:

The General Manager gave a background of the audit and introduced David Alvey of Maze & Associates who presented the audit and fielded the following discussion. Trustee Marquez asked what the general timeline is to conduct a special district's audit (depends on the complexity of the district, but typically divided in two phases). President Beatty asked if Trustee Jordan could comment on his experience with Maze & Associates and he replied that the conversation was helpful to understand the process of internal controls and sampling techniques from a scientific perspective and noted that ACMAD was one of the most transparent organizations he has worked with and was proud to represent it. The General Manager thanked Accounting Associate Michelle Robles for her excellent financial work, especially relating to the audit. Trustee Jordan noted that Albany was excluded from the audit map (Albany will be added to the map once taxes are collected from the city).

Motion: Trustee Hentschke moved to approve the Annual Comprehensive Financial Report for Fiscal Year 2020-21.

Second: Secretary Aguilar

Vote: motion carries: unanimous.

7. Appointment of members to an ad-hoc Salary Committee.

Discussion:

The General Manager gave a background of the ad-hoc Salary Committee. The General Manager noted that, traditionally, Vice-President Bhat, the likely President, would be elected as a chair of this committee. Field Operations Supervisor provided the District's tradition of having 3-4 members on each side of the negotiation. The General Manager explained his role as broker and gave an upcoming timeline. Trustee Márquez, Jordan and Cox volunteered to be members.

Motion: President Beatty moved to elect Trustees Bhat, Marquez, Jordan, and Cox to the Salary Committee.

Second: Trustee Marquez

Vote: motion carries: unanimous.

8. Ad-Hoc Nominating Committee (Testa, Cox, Beatty) nominates a slate of 2022 District Officers for Board approval.

Discussion:

Trustee Testa reported that the Nominating Committee met and agreed to elect Trustees Bhat, Aguilar and Roache as 2022 Board President, Vice-President and Secretary,

respectively. Trustee Testa thanked the outgoing President for his service. Vice-President Bhat thanked the Nominating Committee, and specifically Trustee Testa, for their work.

Motion: Trustee Washburn moved to approve the slate of upcoming Board officers: Trustees Bhat, Aguilar and Roache as 2022 Board President, Vice-President and Secretary, respectively.

Second: Trustee Hentschke

Vote: motion carries: unanimous.

9. District Transparency Certificate of Excellence awarded to ACMAD.

Discussion:

The General Manager gave credit to Public Outreach Coordinator, Judith Pierce, for her work relating to the Transparency Certificate of Excellence and announced he was proud of this ongoing achievement.

10. Financial Reports as of November 30th, 2021.

Discussion:

The General Manager presented the Financial Reports and fielded the following discussion. The General Manager gave a background of check-signing and asked if any Trustees expressed interest in signing checks, to let him know. Trustee Cox asked if some departments tend to use a bulk of their budget at certain times of the year (yes, due to the seasonal nature of mosquito work). Secretary Aguilar asked for clarification regarding the credit card numbers in the prior year balance sheet (will look into and clarify).

11. Presentation of the Monthly Staff Report.

Discussion:

Field Operations Supervisor Joseph Huston presented the Operations Report. The General Manager gave credit for a job well done to Huston for passing the Agricultural Department inspection and noted the trainings Huston led recently with staff. Huston remarked on the positive relationship ACMAD has with the Department of Pesticide Regulation and the County Agricultural Commissioner. Trustee Roache noted that her department also regulates cities who handle pesticides. The General Manager presented the remaining Staff Report and fielded the remainder of the discussion. The General Manager gave credit to Information Technology Director Robert Ferdan for his remarkable presentation to Assemblymember Quirk during that visit and President Beatty explained the background of the gathering, expressed his appreciation of VectorSurv and commented on how it related to his West Nile virus-related lecture. Secretary Aguilar asked which day the gathering occurred (November 8th).

12. Presentation of the Manager's Report.

Discussion:

The General Manager presented the Manager's Report and fielded the following discussion. The General Manager asked if any Trustees were interested in attending the 2022 MVCAC to let him know. The General Manager introduced former District Manager John Rusmisl who provided his personal and professional perspective on Medicare Plan B in relation to current District retirees. Rusmisl introduced ideas for discussion relating to reimbursement for District retirees for the Board to consider. President Beatty asked if the Board would survey other Districts and return with answers by next month. Trustee Washburn asked if any changes would be included in the next MOU (not as an Employee Association negotiation ask, necessarily, but if changed, those changes would be added into the MOU document). Trustee Marquez suggested putting an item relating to this topic in March 2022. Secretary Aguilar asked if liabilities would be included (yes) and if a public hearing would be

required (all regular board meetings are posted and open to the public). The General Manager asked if any Trustees had a recommendation on who would be interested in the vacant Emeryville Board seat. Vice-President Bhat clarified that Trustees can request to be reappointed to the Board by their cities for four years instead of only two, if they desire. Secretary Aguilar commented that he had someone in mind for Emeryville that he would relay that to the General Manager after the meeting.

13. Board President Beatty asked for reports on conferences and seminars attended by Trustees. Trustee Washburn commented on his work with master gardeners. Vice-President Bhat mentioned his planning meeting with the MVCAC.
14. Board President Beatty asked for announcements from the Board. The General Manager noted that he would like to cancel the February 2022 meeting, due to coinciding with the 2022 MVCAC conference which will be an action item included in the January 2022 agenda.
15. Board President Beatty asked trustees for items to be added to the agenda for the next Board meeting. None.
16. The meeting adjourned at 6:15 P.M.

Respectfully submitted,

Approved as written and/or corrected
at the 1098th meeting of the Board of
Trustees held January 12th, 2022

Subru Bhat, President
BOARD OF TRUSTEES

Cathy Roache, Secretary
BOARD OF TRUSTEES

RESOLUTION NO. 1098-1

A RESOLUTION OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT AUTHORIZING CONTINUED REMOTE TELECONFERENCE MEETINGS OF THE LEGISLATIVE BODIES OF THE ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT PURSUANT TO BROWN ACT PROVISIONS

WHEREAS, on March 4, 2020, the Governor of the State of California issued a Proclamation of a State of Emergency due to COVID-19. Such Proclamation remains and is in effect as of the date of this Resolution, as are the facts, circumstances, and emergency under which it was issued; and

WHEREAS, the Alameda County Mosquito Abatement District (“District”) ordinarily holds its regular meetings on the second Wednesday of the month at 5 p.m. at the Board Room, 23187 Connecticut Street, Hayward, California 94545; and

WHEREAS, the District officially closed its public facilities as of March 16th, 2020 due to the coronavirus pandemic, making the Board Room unavailable to the public; and

WHEREAS, on March 30, 2020 the District’s Board President issued a Declaration altering the regular meeting location to be held via teleconference only pursuant to Executive Order N-29-20.

WHEREAS, the Health Officer of the County of Alameda (“Health Officer”) have issued various health orders and updates designed to slow the spread of COVID-19 (including variants thereof) such as vaccinations, quarantines, face covering requirements, and social distancing recommendations designed to protect public health; and

WHEREAS, on September 20, 2021, Health Officer issued recommendations for safely holding public meetings, including strongly recommending teleconferencing meetings as those meetings present the lowest risk of transmission of SARS-CoV-2, the virus that causes COVID-19, and further recommended social distancing and face masking of all attendees; and

WHEREAS, as of January 5, 2022 approximately 15-20% of County residents remain unvaccinated or partially vaccinated. The Health Officer recommend social distancing for those who are not fully vaccinated and further recommend avoiding crowded places, close contact settings, and confined places with poor airflow; and

WHEREAS, COVID-19 continues to spread, the Delta variant (a highly-infectious COVID- 19 strain) is prevalent in the Bay Area. COVID-19 poses imminent health and safety concerns. The risk of exposure to COVID-19 depends on the likelihood of coming into close physical contact with people who may be infected and through contact with contaminated surfaces and objects. The severity of the illness varies. Per the US Centers for Disease Control and Prevention about 14% of the cases are severe (meaning, they required hospitalization), with an infection that affects both lungs and has the potential to lead to severe medical complications (such as respiratory failure, shock, or multiorgan dysfunction) that can cause death in some people. The number of cases of infections and deaths occurring locally can be determined by viewing the dashboards of the Health Officer; and

WHEREAS, on June 11, 2021, the Governor issued Executive Order N-08-21, which placed an end date of September 30, 2021 on such authority; and

WHEREAS, due the rise in COVID-19 cases, including due to the Delta variant, the District continues to be deeply concerned about protecting the health and safety of attendees, particularly given that even fully vaccinated people have contracted the Delta variant, people may contract and transmit the virus before knowing they are infected and/or if they are asymptomatic; meetings of the District can last several hours, the District has a large board of Trustees, its meeting facilities are limited in space with seats that are close together, and have restricted air flow; and

WHEREAS, the California State legislature adopted AB 361 as an urgency measure that was signed by the Governor on September 16, 2021. AB 361 amends the Brown Act to allow local governments to use teleconferencing and virtual meeting technology as long as there is a gubernatorial “proclaimed state of emergency” upon the local legislative body finding that State or local officials have imposed or recommended measures to promote social distancing or that meeting in person would present imminent risks to the health or safety of attendees; and

WHEREAS, the Board desires to continue holding public meetings of the District using teleconferencing and virtual meeting technology in order to avoid the imminent risk to the health and safety of attendees; and

WHEREAS, the District found that conducting its meetings using virtual meeting technology allowed the equivalent, if not improved, access to the meetings for Trustees, staff, and the public based on the ease of use and flexibility of technology. This experience has been confirmed by the Little Hoover Commission, which evaluated the effectiveness of remote meetings statewide; and

WHEREAS, the Board held a duly noticed public meeting on October 13th, 2021; and

WHEREAS, at such public meeting, the Board considered all pertinent oral and written information, exhibits, testimony, and comments received during the public review process, including, without limitation, information received at the public hearing, the oral report from District staff, the written report from staff, this Resolution, and all other information on which each of the Trustees has based their decision (collectively, “Remote Meeting Information”); and

WHEREAS, the Board found that a state of emergency remained active due to the coronavirus pandemic, which affects the ability of attendees to meet safely in person; and

WHEREAS, the Board desires to make the findings necessary to continue to meet remotely in light of the fact that there remains a significant portion of the population that is not eligible for vaccination or booster shots and that even fully vaccinated people may contract and transmit the virus and it is not possible to socially distance within the District’s Board meeting room.

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the District as follows:

Section 1. Recitals. The Board hereby finds and determines that the foregoing recitals are true and correct; the recitals are hereby incorporated by reference into each of the findings as

though fully set forth therein. The recitals and the information below constitute findings in this matter, and together with the Remote Meeting Information, serve as an adequate and appropriate evidentiary basis for the findings and actions set forth herein.

Section 2. AB 361 Findings. The Board, on behalf of itself and its legislative bodies, hereby further finds the following: A state of emergency in California remains active due to the coronavirus pandemic, which continues to directly impact the ability of attendees to meet safely in person. Federal, state, and/or local officials have imposed and/or recommended measures to promote social distancing and use face coverings in indoor settings to help stop the spread of the virus. They have strongly recommended public agencies hold their meetings online because doing so presents the lowest risk of transmission of SARS-CoV-2, the virus that causes COVID-19. COVID-19 continues to pose an imminent risk to the health and safety of attendees to meet in person because it can be contracted and transmitted by people without symptoms and regardless of vaccination status and has the potential to lead to severe disease and death.

Section 4. Remote Meetings. Meetings of the District and its legislative bodies will continue to be conducted remotely using teleconferencing for the next 30 days in compliance with AB 361.

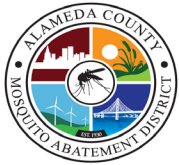
Section 5. CEQA. This action does not constitute a “project” within the meaning of Public Resources Code Section 21065, 14 Cal Code Reg. Section 15060(c)(2), 15060(c)(3), and/or 15378 because it has no potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. In addition, this action is categorically exempt pursuant to Section 15061(b)(3), “Review for Exemptions” of the CEQA Guidelines because there is no possibility that it may have a significant effect on the environment, and no further environmental review is required. No unusual circumstances exist and none of the exceptions under CEQA Guidelines Section 15300.2 apply. This determination reflects the Board’s independent judgment and analysis.

DULY AND REGULARLY ADOPTED by the District’s Board of Trustees this 12th day of January, 2022 by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

President, Board of Trustees,
Alameda County Mosquito Abatement District

ATTEST: _____
Secretary of the Board of Trustees, Alameda County
Mosquito Abatement District



ACMAD Calendar 2022

January

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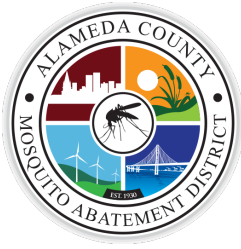
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- Board Meetings
- Holidays
- MVCAC Annual Conference
- AMCA Annual Conference
- CSDA Annual Conference



23187 Connecticut Street
Hayward, CA 94545

T: (510) 783-7744
F: (510) 783-3903

acmad@mosquitoes.org

Standing Finance Committee Assignments for 2022

Board of Trustees

President

P. Robert Beatty

Berkeley

Vice-President

Subru Bhat

Union City

Secretary

Victor Aguilar

San Leandro

Cathy Roache

County at Large

Tyler Savage

Alameda

Preston Jordan

Albany

Shawn Kumagai

Dublin

George Young

Fremont

Courtney Welch

Emeryville

Elisa Márquez

Hayward

Steven Cox

Livermore

Jan O. Washburn

Oakland

Eric Hentschke

Newark

Andrew Mingst

Piedmont

Julie Testa

Pleasanton

Ryan Clausnitzer

General Manager

Background:

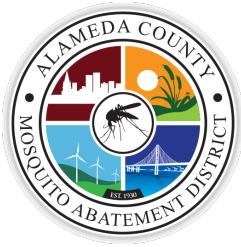
Per District policy 109.2, "*Finance committee members shall serve terms that are coterminous with that of the Board President*". In November of 2021, the Board adopted section 109.2(d) to District Policy which states that the Finance Committee will "*annually select a Chair from among its members that will report out to the full Board at a posted meeting.*"

Financial Committee

Purpose: The Finance Committee is a standing committee tasked with reviewing the annual budget, assessing the District's long-term capital needs, making recommendations for designating reserves and evaluating the allocation of the OPEB Trust.

Membership: Bhat, Aguilar, Jordan, Young

ACTION: Appoint a Finance Committee Chair for 2022.



23187 Connecticut Street
Hayward, CA 94545

T: (510) 783-7744
F: (510) 783-3903

acmad@mosquitoes.org

Board of Trustees

President

P. Robert Beatty

Berkeley

Vice-President

Subru Bhat

Union City

Secretary

Victor Aguilar

San Leandro

Cathy Roache

County at Large

Tyler Savage

Alameda

Preston Jordan

Albany

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George Young

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Jan O. Washburn

Oakland

Eric Hentschke

Newark

Andrew Mingst

Piedmont

Julie Testa

Pleasanton

Ryan Clausnitzer

General Manager

Vehicle Replacement Purchase Approval and Capital Asset Disposition

One of our four Argo all-terrain vehicles (ATV) used in salt marsh mosquito control, E23, requires substantial engine repair and is nearing the end of its depreciation schedule, according to the District's 2019 Capital Asset Improvement Plan. While some work will be done to repair this 2013 Argo for auction, staff is recommending replacing this essential piece of equipment with a new 2022 Argo Frontier 700 8X8 Ca Emissions/CARB Compliant to be used by staff in operational zone 6 (western Hayward, Union City, Newark, and Fremont).

Funds for this purchase would be taken from the repair & replace reserve account. As there is only one dealer for the Argo, this bid is sole-source for Liewer Enterprises, Inc.

Quote:

LIEWER ENTERPRISES, INC. dba ARGO ADVENTURE
34402 290th St., Burke, S.D. 57523

2022 Argo Frontier 700 8X8
Ca Emissions/CARB Compliant

Quote #10286

\$27,030.34

Recommendation:

It is the recommendation of the Mechanical Specialist to replace Argo ATV # E-23, which will auctioned off after repair at a later date, with a new Argo from Liewer Enterprises, Inc.

Prepared by Mark Wieland, Mechanical Specialist

Argo Adventure

Liewer Enterprises Inc.
34402 290th Street
Burke SD 57523
1-888-898-2746
www.ArgoAdventure.com
help@argoadventure.com

QUOTE

#10286

01/04/2022

Bill To:

ALAMEDA COUNTY
MOSQUITO ABATEMENT
23187 CONNECTICUT STREET
HAYWARD CA 94545
United States

Ship To:

Mark Wieland
Alameda County Mosquito
Abatement
23187 Connecticut Street
Hayward CA 94545
United States

QUOTE TOTAL:

\$27,030.34

QUOTE EXPIRES: 01/31/2022

PO / RFQ#	Sales Rep	Quote Expires	Terms	Shipping Method
	Pfeiffelman, Edson	01/31/2022	NET 10	DragonFly Logistics, LLC

Qty	Item	Rate	Amount
1	2DG8BA009NNR46689 2022 ARGO FRONTIER 700 8X8 COLOR: TUNDRA VIN# 2DG8BA009NNR46689 TRANSMISSION: A17580 ENGINE: 2108167873426 38E3470108G1 23HP EMISSIONS: CALIFORNIA CARB - EPA STANDARD FACTORY EQUIPMENT: * BILGE PUMP * BEARING EXTENSIONS F/R * SKID PLATE * 24X10-8 TIRE ON OFFSET STEEL RIMS * BRIGGS 23HP EFI AIR-COOLED GAS ENGINE	\$19,431.00	\$19,431.00
	DISCOUNT - VEHICLE ARGO ADVENTURE VEHICLE DISCOUNT	\$-1,000.00	\$-1,000.00
1	PDI - STD UNIT PDI - STANDARD 6X6 / 8X8 UNIT SET-UP	\$115.00	\$115.00
1	FREIGHT - INBOUND - 8X8 VEHICLE INBOUND FREIGHT (FACTORY TO DEALER) - 8X8	\$1,100.00	\$1,100.00
1	14-10 PRO FRT8X8 24-XT115 ADAIR 14.5" MUD PRO TRACKS -..FRONTIER 8X8 FOR 24X10-8 - XT115 TIRES * Includes mud flaps	\$3,243.59	\$3,243.59
1	900-0036 BRUSH GUARD ACC	\$449.95	\$449.95
1	900-0046-FRT ACC, WARN WINCH 3500 VRX CABLE W/ MOUNT * WIRE HARNESS - FRONTIER	\$770.00	\$770.00
1	900-0046 WINCH ACC, WARN VRX35	\$40.59	\$40.59
1	600-0050 HARNESS, WINCH - FRONTIER (2020+)		\$810.59
1	900-0063 BRAKE COOLING, ACC - FRONTIER	\$229.95	\$229.95



10286

Argo Adventure

Liewer Enterprises Inc.
34402 290th Street
Burke SD 57523
1-888-898-2746
www.ArgoAdventure.com
help@argoadventure.com

QUOTE

#10286

01/04/2022

Qty	Item	Rate	Amount
1	10754C FAN ACC, HOOD	\$409.95	\$409.95
1	127-159 DRIVE BELT, 29.6 x 1116 * spare	\$108.70	\$108.70
2	200-0062-004 BEARING, BALL - 1.375 x 72mm x 43mm	\$38.84	\$77.68
1	810-123 ASM, AXLE FORGED - MID	\$167.96	\$167.96
1	810-122 ASM, AXLE FORGED - FR/RR	\$167.96	\$167.96
1	10002C TIRE, 24 x 10 - 8 XT115	\$214.56	\$214.56
2	10374C BRAKE PADS & PINS - STEER BRAKES	\$134.19	\$268.38
1	M-216 M-216 BRIGGS VANGUARD 23HP EFI - MAINTENANCE KIT	\$40.07	\$40.07
1	842921 FILTER-OIL		
1	845125 FUEL FILTER - BRIGGS Vanguard EFI - 23, 33, 40HP		
1	272490S ELEMENT, FOAM		
1	394018S FILTER, AIR		
2	XC92YC SPARK PLUG XC92YC - CHAMPION		
	DISCOUNT - ACC ARGO ADVENTURE ACCESSORY DISCOUNT	\$-900.00	\$-900.00
6	ACCESSORY INSTALLATION LABOR ACCESSORY INSTALLATION LABOR / PREP	\$100.00	\$600.00
1	SHIPPING - OUTBOUND VEHICLE SHIPPING OUTBOUND (DEALER TO CUSTOMER)	\$1,495.00	\$1,495.00



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QUOTE

#10286

01/04/2022

* Vehicle shipping rates are individually line itemized.

Subtotal	\$27,030.34
Shipping Cost*	\$0.00
Tax (9.75%)	\$0.00

TOTAL \$27,030.34

X _____

CUSTOMER SIGNATURE

NOTES AND TERMS:

ALL CURRENT DISCOUNTS HAVE BEEN APPLIED.

THE UNIT WOULD SHIP TURN-KEY AND READY FOR USE TO YOUR ADDRESS VIA A PRIVATE CARRIER.

ANY CA TAXES OR REGISTRATION FEES ARE THE CUSTOMERS RESPONSIBILITY PER YOUR STATES LAWS.

DEPOSIT: SIGNED GOVERNMENT PURCHASE ORDER

FINAL PAYMENT: CHECK WITHIN 10 BUSINESS DAYS OF THE UNIT ARRIVING AT YOUR AGENCY.

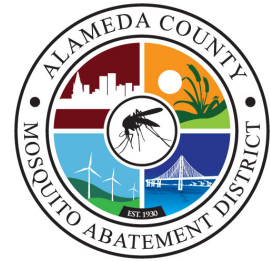


10286

Universal anti-mosquito saliva vaccine

Eric Haas-Stapleton, PhD
Laboratory Director, ACMAD

Alameda County Board of Trustees
January 12, 2022



2

Overview

1. Vaccine development
2. Clinical trial
3. Next steps

NIH RESEARCH MATTERS

June 23, 2020

Universal mosquito vaccine tested



At a Glance

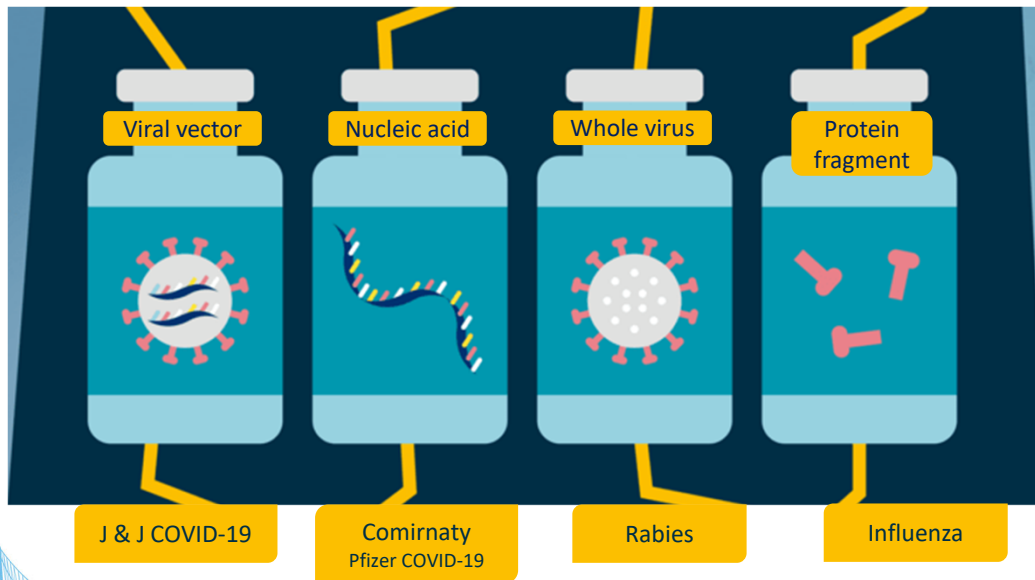
- A small trial showed that a vaccine designed to provide broad protection against mosquito-borne diseases is safe and causes a strong immune response in healthy volunteers.
- More studies are needed to test its effectiveness against specific diseases.

<https://www.nih.gov/news-events/nih-research-matters/universal-mosquito-vaccine-tested>



3

Types of vaccines



Adapted from graphic by Wellcome Trust

4

Mosquito saliva

- Mosquitoes give a bit of spit when taking blood
- Reduces blood vessel constriction, clotting, platelet, and immune response
- Saliva made up of 100+ proteins



5

Extensive research on mosquito saliva

Google Scholar mosquito saliva

Articles About 35,500 results (0.06 sec)

Any time
 Since 2022
 Since 2021
 Since 2018
 Custom range...

Sort by relevance
 Sort by date

Any type
 Review articles

include patents
 include citations
 Create alert

Role of mosquito saliva in blood vessel location
[JM Ribeiro, PA Rossignol...](#) - Journal of Experimental ..., 1984 - journals.biologists.com
 In order to ascribe a blood feeding function to the **saliva** of mosquitoes, we determined whether this secretion may limit the initial probing phase of biting behaviour. The probing of hosts was indeed prolonged when the salivary ducts were severed, but this prolongation ...
 ☆ Save ⓘ Cite Cited by 159 Related articles All 8 versions

The enhancement of arbovirus transmission and disease by mosquito saliva is associated with modulation of the host immune response
[BS Schneider, S Higgs](#) - Transactions of the Royal Society of ..., 2008 - academic.oup.com
 Summary Arthropod-borne (arbo-) viruses have emerged as a major human health concern. Viruses transmitted by mosquitoes are the cause of the most serious and widespread arbovirus diseases worldwide and are ubiquitous in both feral and urban settings ...
 ☆ Save ⓘ Cite Cited by 248 Related articles All 10 versions

[HTML] Mosquito saliva alone has profound effects on the human immune system
[MB Vogt, A Lahon, RP Arya, AR Kneubehl...](#) - PLoS neglected ..., 2018 - journals.plos.org
Mosquito saliva is a very complex concoction of > 100 proteins, many of which have unknown functions. The effects of **mosquito saliva** proteins injected into our skin during blood feeding have been studied mainly in mouse models of injection or biting, with many of ...
 ☆ Save ⓘ Cite Cited by 48 Related articles All 11 versions ⓘ

6

Vaccine against mosquito saliva proteins

- Saliva proteins trigger inflammation
- Immune forms in response to the saliva proteins
- NIH researchers developed and tested vaccine targeting 4 saliva proteins
 - Phase 1 clinical trial



7

Prior success with sandfly saliva vaccine

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HOME > SCIENCE TRANSLATIONAL MEDICINE > VOL. 7, NO. 290 > A SAND FLY SALIVARY PROTEIN VACCINE SHOWS EFFICACY AGAINST VECTOR-TRANSMITTED CUTANEOUS...

RESEARCH ARTICLE | LEISHMANIASIS



A sand fly salivary protein vaccine shows efficacy against vector-transmitted cutaneous leishmaniasis in nonhuman primates

FABIANO OLIVEIRA, EDGAR ROWTON, HAMIDE ASLAN, REGIS GOMES, [...] JESUS G. VALENZUELA [+15 authors](#) [Authors Info & Affiliations](#)

SCIENCE TRANSLATIONAL MEDICINE • 3 Jun 2015 • Vol 7, Issue 290 • p. 290ra90 • DOI: 10.1126/scitranslmed.aaa3043



8

Phase I clinical trial: Methods

- *Anopheles gambiae* saliva vaccine
 - AGS-v: 4 saliva peptides (protein fragment)
- 49 people split into 3 groups:
 - vaccine, vaccine + adjuvant, or placebo
- Mosquito feeding on people 42 days after vaccination
 - lab colony of *Aedes aegypti*

THE LANCET

Log in

ARTICLES | VOLUME 395, ISSUE 10242, P1998-2007, JUNE 27, 2020

Safety and immunogenicity of a mosquito saliva peptide-based vaccine: a randomised, placebo-controlled, double-blind, phase 1 trial

Jessica E Manning, MD • Fabiano Oliveira, MD •

Iliano V Coutinho-Abreu, PhD • Samantha Herbert, MSc •

Claudio Meneses, BS • Shaden Kamhawi, PhD • et al. [Show all authors](#)

Published: June 11, 2020 •

<https://pubmed.ncbi.nlm.nih.gov/32534628/>



9

Phase I clinical trial: Results

- No major adverse reactions to vaccine
 - Primary goal of study ☺
- Those with vaccine + adjuvant:
 - Increased antibodies to vaccine peptides
 - Increased IFN- γ from mononuclear cells (B-, T- and NK-cells)
 - IFN- γ activates immune system macrophages
- Adjuvant required for effective response

THE LANCET

Log in 🔍 ☰

ARTICLES | VOLUME 395, ISSUE 10242, P1998-2007, JUNE 27, 2020

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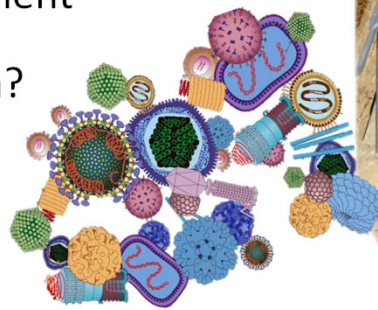
Published: June 11, 2020 ✉

<https://pubmed.ncbi.nlm.nih.gov/32534628/>

10

Next steps

- Determine if saliva vaccine controls arbovirus infection
- Assess efficacy with mosquitoes from a natural environment
- Combination protection?



11

Topical cream reduced local and systemic virus infection

- Imiquimod cream stimulates TLR7 response in skin macrophages
 - TLR7 on macrophages recognize viral RNA
 - Cream used to treat warts and scaly skin
- Applying cream to mosquito bite on mice reduced virus replication





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**Alameda County Mosquito Abatement
California**

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

June 30, 2020

Christopher P. Morill

Executive Director/CEO

Alameda County Mosquito Abatement Dist.
Check Register
For the Period From Dec 1, 2021 to Dec 15, 2021

Filter Criteria includes: Report order is by Date.

Check #	Date	Payee	Amount
2930	12/15/21	Adapco	12,464.16
2931	12/15/21	Airgas	76.41
2932	12/15/21	All Bay Electric	3,500.00
2933	12/15/21	AT&T	142.36
2934	12/15/21	BARTKIEWICZ, KRONICK & SHANAHAN	293.75
2935	12/15/21	Cintas	403.21
2936	12/15/21	Delta Dental	4,588.93
2937	12/15/21	Grainger	48.90
2938	12/15/21	Heluna Health	1,040.00
2939	12/15/21	Hentschke, Eric Armin	100.00
2940	12/15/21	Industrial Park Landscape Maintenance	226.00
2941	12/15/21	MAZE & ASSOCIATES	1,257.00
2942	12/15/21	PFM Asset Management	2,022.08
2943	12/15/21	PG&E	264.98
2944	12/15/21	Robles, Michelle	2,900.30
2945	12/15/21	Testa, Julie	100.00
2946	12/15/21	U.S Bank Corporate Payment System	12,495.39
2947	12/15/21	Verizon	495.88
2948	12/15/21	Veseris	15,170.97
2949	12/15/21	Voya Institutional Trust Company	179.93
2950	12/15/21	Young, George	100.00
ACH	12/15/21	Alameda County Mosquito Abatement Dist (Payroll)	75,980.48
ACH	12/15/21	Aguilar, Victor	100.00
ACH	12/15/21	Beatty, Robert .P	100.00
ACH	12/15/21	Bhat, Subrahmanya Y	100.00
ACH	12/15/21	CalPERS Retirement	14,681.72
ACH	12/15/21	CalPERS 457	3,256.64
ACH	12/15/21	Cox, Steven	100.00
ACH	12/15/21	Jordan, Preston	100.00
ACH	12/15/21	Kumagai, Shawn	100.00
ACH	12/15/21	Marquez, Elisa	100.00
ACH	12/15/21	Poulson, Wendi Lynn	100.00
ACH	12/15/21	Roache, Cathy J Pinkerton.	100.00
ACH	12/15/21	Washburn, Jan	100.00
Total Expenditures - December 15, 2021			152,789.09

Alameda County Mosquito Abatement Dist.
Check Register
For the Period From Dec 16, 2021 to Dec 31, 2021

Filter Criteria includes: Report order is by Date.

Check #	Date	Payee	Amount
2951	12/23/21	Adapco	4,873.00
2952	12/23/21	Bay Alarm	567.87
2953	12/23/21	Cintas	250.59
2954	12/23/21	Clarke	4,515.94
2955	12/23/21	Grainger	204.07
2956	12/23/21	Jarvis, Fay, & Gibson, LLP	144.00
2957	12/23/21	MAZE & ASSOCIATES	1,312.00
2958	12/23/21	Pitney Bowes	95.69
2959	12/23/21	Voya Institutional Trust Company	179.93
2960	12/23/21	WEX Bank	3,258.35
ACH	12/23/21	Alameda County Mosquito Abatement Dist (Payroll)	77,091.59
ACH	12/23/21	CalPERS Health	39,211.35
ACH	12/23/21	CalPERS Retirement	14,486.38
ACH	12/23/21	CalPERS 457	3,250.12
Total Expenditures - December 31, 2021			149,440.88

Alameda County Mosquito Abatement District
Income Statement
December 31, 2021. (6 of 12 mth, 50%)

REVENUES	Actual 2019/20	Actual 2020/21	Current Month	Year to Date 2021/22	Budget 2021/22	Actual vs Budget
Total Revenue	\$ 4,986,220.87	\$ 5,150,753.15	\$ 2,451,707.16	\$ 2,969,358.28	\$ 4,765,864.00	62%

EXPENDITURES	Actual 2019/20	Actual 2020/21 ¹	Current Month ²	Year to Date 2021/22	Budget 2021/22	Actual vs Budget
Salaries	\$ 1,970,928.74	\$ 2,029,103.97	\$ 169,665.15	\$ 1,046,132.06	\$2,236,282	47%
CalPERS Retirement	\$ 378,832.61	\$ 423,110.21	\$ 17,185.22	\$ 364,334.77	\$473,950	77%
Medicare & Social Security	\$ 29,651.04	\$ 27,866.82	\$ 2,256.42	\$ 15,166.74	\$33,062	46%
Fringe Benefits	\$ 465,466.14	\$ 502,898.39	\$ 43,800.28	\$ 261,784.16	\$579,596	45%
Total Salaries, Retirement, & Benefits	\$ 2,844,878.53	\$ 2,982,979.39	\$232,907	\$1,687,418	\$3,322,890	51%
Clothing and personal supplies (purchased)	\$ 6,213.94	\$ 4,859.20	\$ 365.59	\$ 2,743.93	\$10,000	27%
Laundry service and supplies (rented)	\$ 10,648.44	\$ 9,124.98	\$ 452.51	\$ 4,328.04	\$15,000	29%
Utilities	\$ 25,962.21	\$ 15,421.56	\$ 264.98	\$ 4,308.34	\$17,000	25%
Communications-IT	\$ 80,735.47	\$ 71,771.02	\$ 3,533.77	\$ 29,118.24	\$112,400	26%
Maintenance: structures & improvements	\$ 16,678.86	\$ 20,261.51	\$ 4,032.01	\$ 7,871.94	\$35,000	22%
Maintenance of equipment	\$ 20,599.88	\$ 22,290.34	\$ 290.36	\$ 6,384.13	\$35,000	18%
Transportation, travel, training, & board	\$ 95,813.55	\$ 74,653.03	\$ 11,822.15	\$ 48,743.46	\$127,630	38%
Professional services	\$ 111,224.89	\$ 91,622.03	\$ 5,028.83	\$ 57,922.96	\$203,450	28%
Memberships, dues, & subscriptions	\$ 26,316.50	\$ 22,906.45	\$ -	\$ 19,002.00	\$24,000	79%
Insurance - (VCJPA, UAS)	\$ 134,833.60	\$ 141,650.37	\$ -	\$ 160,197.16	\$150,611	106%
Community education	\$ 23,283.51	\$ 26,317.23	\$ 409.09	\$ 1,631.63	\$39,500	4%
Operations	\$ 179,304.00	\$ 223,362.22	\$ 37,040.68	\$ 62,976.19	\$239,000	26%
Household expenses	\$ 14,817.21	\$ 15,882.05	\$ 803.94	\$ 6,917.72	\$17,350	40%
Office expenses	\$ 13,760.57	\$ 9,747.67	\$ 112.68	\$ 2,707.14	\$12,000	23%
Laboratory supplies	\$ 100,794.23	\$ 64,135.55	\$ 4,928.10	\$ 37,485.03	\$144,000	26%
Small tools and instruments	\$ 2,055.54	\$ 2,189.34	\$ 48.90	\$ 970.49	\$3,000	32%
Total Staff Budget	\$ 863,042.40	\$ 816,194.55	\$ 69,133.59	\$ 453,308.40	\$1,184,941	38%
Total Operating Expenditures	\$ 3,707,920.93	\$ 3,799,173.94	\$ 302,040.66	\$ 2,140,726.13	\$4,507,831	47%

1 - As of June 30, 2021.

2 - Total Operating Expenditures in current month may not match the check register due to accounts receivable and petty cash transactions.

**Alameda County Mosquito Abatement District
Investment, Reserves, and Cash Balance Report
December 31, 2021. (6 of 12 mth, 50%)**

Account #	Investment Accounts	Beginning Balance	Deposits	Withdrawals	Interest Activity	Ending Balance
1004	LAIF	\$ 2,149,552.12	\$ -	\$ (446,000.00)	\$ -	\$ 1,703,552.12
1005	OPEB Fund	\$ 5,210,988.15	\$ -	\$ -	\$ 131,400.96	\$ 5,342,389.11
1006	VCJPA Member Contingency ¹	\$ 373,765.00	\$ -	\$ -	\$ -	\$ 373,765.00
1008	CAMP: Repair and Replace	\$ 1,355,556.32	\$ -	\$ -	\$ 57.94	\$ 1,355,614.26
1009	CAMP: Public Health Emergency	\$ 526,333.15	\$ -	\$ -	\$ 22.50	\$ 526,355.65
1010	CAMP: Operating Reserve	\$ 1,944,745.78	\$ -	\$ -	\$ 83.12	\$ 1,944,828.90
1011	CAMP: Capital Reserve Fund	\$ 30,003.60	\$ -	\$ -	\$ 1.28	\$ 30,004.88
1012	PARS: Pension Stabilization ²	\$ 1,862,397.81	\$ -	\$ -	\$ (14,547.81)	\$ 1,847,850.00
Total		\$ 13,453,341.93	\$ -	\$ (446,000.00)	\$ 117,017.99	\$ 13,124,359.92
		Beginning Balance			Activity	Ending Balance
Cash Accounts				Withdrawals		
1001	Bank of America (Payroll Account) *	\$ 15,464.34			-	\$ 98,156.28
1002	Bank of The West (Transfer Account) *	\$ 293,908.14			-	\$ 313,231.14
1003	County Account	\$ 741,762.37	\$ -	\$ 2,451,133.40	\$ 3,192,895.77	
1013	Petty Cash	\$ 306.04	\$ -	\$ (29.98)	\$ 276.06	
Total		\$ 1,051,440.89	\$ -	\$ 2,451,103.42	\$ 3,604,559.25	

1 - VCJPA Member Contingency balance is as of September 30, 2021.

2- PARS - Pension Stabilization balance is as of November 30, 2021.

* - Ending balance differs from beginning balance due to checks clearing the account.

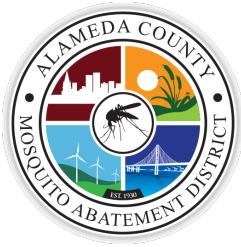
Alameda County Mosquito Abatement
Balance Sheet Comparison
December

ASSETS

	12/31/2021	12/31/2020	12/31/2019
Current Assets			
Bank of America payroll	94,403.53	106,601.42	111,363.12
Bank of the West	394,069.65	316,594.49	389,002.56
County	3,192,895.77	3,074,713.80	2,811,928.42
Cash with LAIF	1,703,552.12	913,610.85	557,570.48
VCJPA- Member Contingency	373,765.00	376,428.00	359,799.00
CAMP - Repair and Replace	1,355,614.26	1,040,591.80	273,834.03
CAMP - Public Health Emergency	526,355.65	526,021.83	522,291.54
CAMP - Operating Reserve	1,944,828.90	1,943,595.45	1,929,812.42
CAMP - Capital Reserve Fund	30,004.88	59,084.87	35,656.79
PARS	1,847,850.00	1,783,821.46	1,622,763.69
Petty cash	276.06	405.78	372.04
	<hr/>	<hr/>	<hr/>
Total Current Assets	11,463,615.82	10,141,469.75	8,614,394.09
Property and Equipment			
Acc Dep - equipment	(1,479,068.00)	(1,479,068.00)	(1,310,797.45)
Acc Dep - stru & improv	(2,485,267.00)	(2,485,267.00)	(2,349,631.01)
Construction in progress	-	-	547,711.16
Equipment	1,751,859.00	1,751,859.00	1,699,506.64
Structure/improvement	4,799,729.70	4,760,618.00	4,638,621.62
Land	61,406.00	61,406.00	61,406.00
	<hr/>	<hr/>	<hr/>
Total Property and Equipment	2,648,659.70	2,609,548.00	3,286,816.96
Other Assets			
Net OPEB Asset	2,522,763.00	1,823,556.00	690,338.00
	<hr/>	<hr/>	<hr/>
Total Other Assets	2,522,763.00	1,823,556.00	690,338.00
Total Assets	\$ 16,635,038.52	\$ 14,574,573.75	\$ 12,591,549.05

LIABILITIES AND CAPITAL

Current Liabilities			
Accounts payable	\$ 104,526.08	\$ 122,858.22	\$ 126,791.38
AP Credit Card	-	-	30,118.71
Acc payroll/vacation	208,228.89	200,290.26	187,668.43
Def inflow - 75	1,254,695.00	931,786.00	49,810.00
Def inflow pen defer GASB 68	289,664.00	289,664.00	192,480.00
Defer outflow pen cont GASB 68	(1,056,534.00)	(1,056,534.00)	(1,208,279.00)
Net pension liability GASB 68	3,277,554.00	3,277,554.00	2,952,714.00
	<hr/>	<hr/>	<hr/>
Total Current Liabilities	\$ 4,078,133.97	\$ 3,765,618.48	\$ 2,331,303.52
Long-Term Liabilities			
Total Long-Term Liabilities	<hr/>	<hr/>	<hr/>
Total Liabilities	4,078,133.97	3,765,618.48	2,331,303.52
Capital			
Designated fund balances	4,816,355.25	4,440,057.25	4,763,137.19
Investment in general fixed as	6,894,403.96	5,296,151.61	4,637,374.11
Net Income	846,145.34	1,072,761.41	859,734.23
	<hr/>	<hr/>	<hr/>
Total Capital	12,556,904.55	10,808,955.27	10,260,245.53
Total Liabilities & Capital	\$ 16,635,038.52	\$ 14,574,573.75	\$ 12,591,549.05



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1. OPERATIONS REPORT

The story of December 2021 could be summed up in one word: RAIN. Alameda County and most of Northern California experienced record-breaking levels of rain and snowfall in December. In our world, rain generally means both an increase and decrease in mosquito habitats. On one hand, the significant amount of rain helped flush out stagnant areas of creeks, canals, catch basins, and storm drains. The main summer and fall genus of these sources, *Culex*, saw a significant drop in larval inspections and treatments due to the rain and the change in season, with decreases in temperature and daylight hours. On the other hand, the rain undoubtedly impounded numerous sources throughout the county. The water levels in rainwater sources that were drying down in November quickly filled up again, with some being inundated with more water than in recent memory. By far, the most significant species of mosquito found in inspections and treated was *Culiseta inornata*.

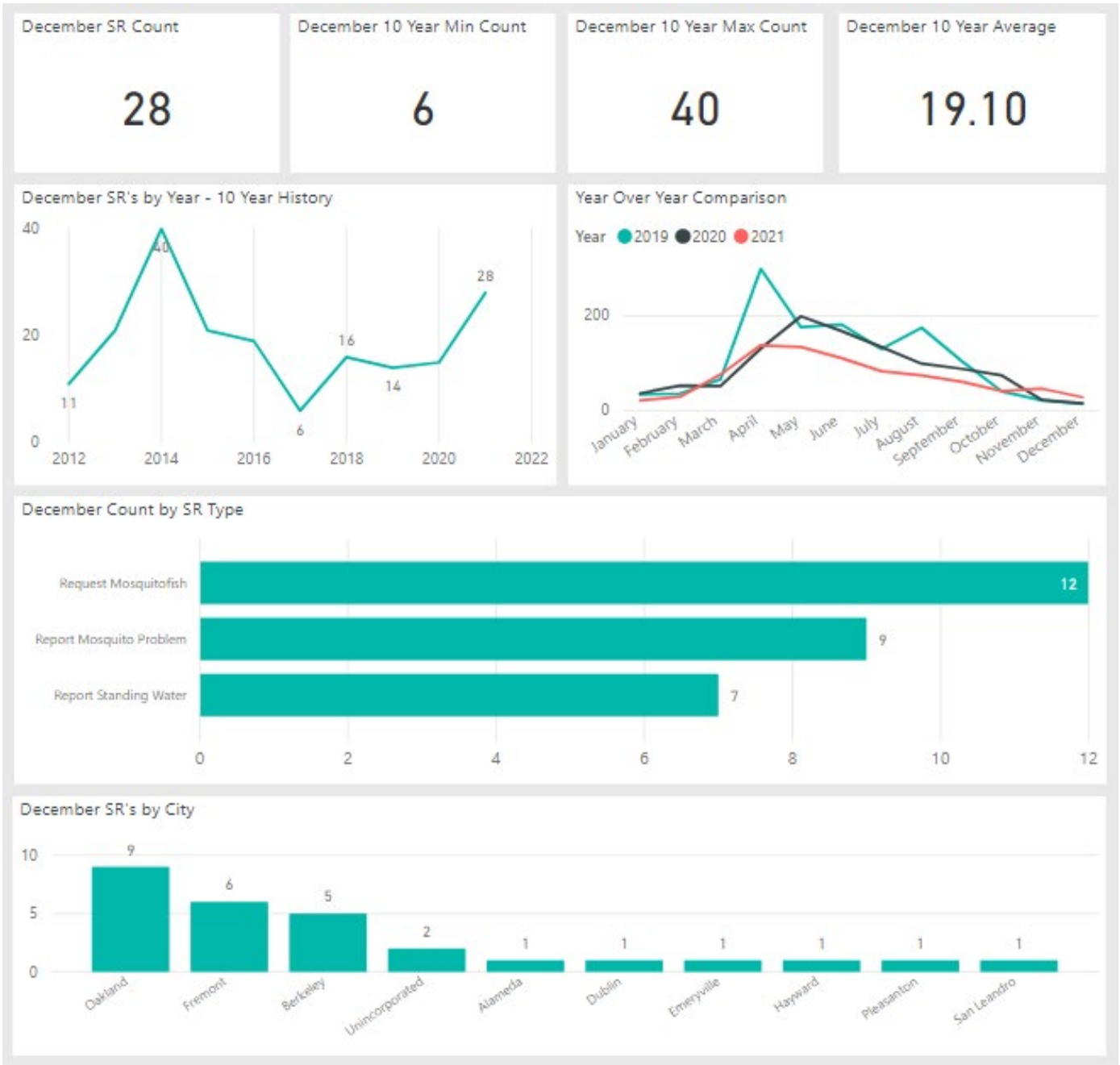
Although December, in the middle of a seasonal transition period, is generally a slower month, Operations staff remained active and vigilant- monitoring both the decline of the summer species and the oncoming of the winter species that can proliferate in the spring if not addressed quickly and efficiently. The main genus monitored by Operations in winter months is *Aedes*, including *Aedes squamiger* (salt marsh mosquito), *Aedes sierrensis* (treehole mosquito), and *Aedes washinoi* (floodwater/willow mosquito). Field Operations Supervisor, Joseph Huston, has engrained in Operations a philosophy of quick and data-driven decisive action, on the inspection and treatment of winter mosquitoes (this pertains to all mosquitoes, really). Although these mosquitoes characteristically do not emerge until the nearing of the spring equinox, Operations staff “knocks down” any *Aedes* larval emergence immediately, as opposed to hoping sources will dry up and kill off the larvae or perform any last-minute treatments before adult emergence. As the rainwater collected in these rainwater sources settles and recedes in the coming months, Operations staff will continue to monitor any larval emergence.

December continued the general trend of service requests, with a larger proportion of mosquitofish drop-offs. Only two of the nine mosquito problem requests for service were attributed to mosquito adults. Both of the SR’s were related to backyard container breeding, which can be common calls following rainy periods. Operations staff in this area of northern Alameda County, mainly Neil Campbell and Nick Appice, are highly experienced and take prompt action in addressing these public concerns, displaying a high degree of professionalism and detective skills in helping the public find sources of stagnant water where the mosquitoes in question may be coming from. The other mosquito problem requests for service were associated with non-biting insects mistaken for mosquitoes.

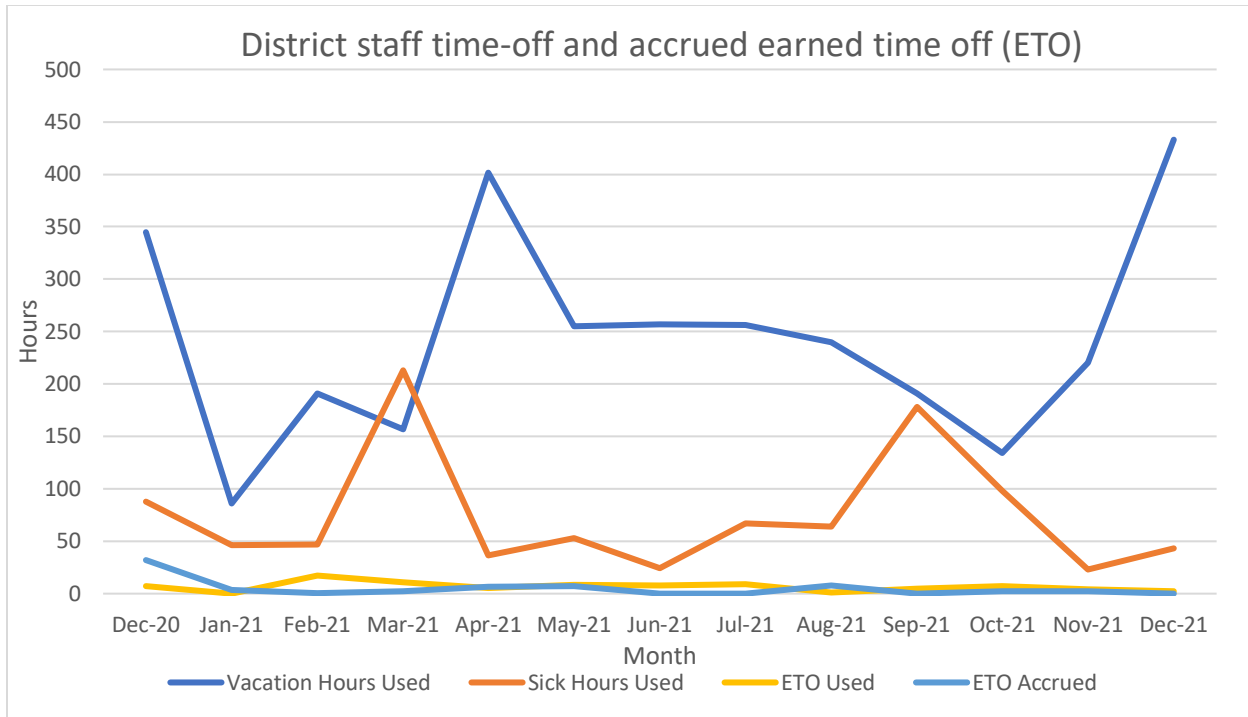
Vector Biologist

Jeremy Sette

Service Requests

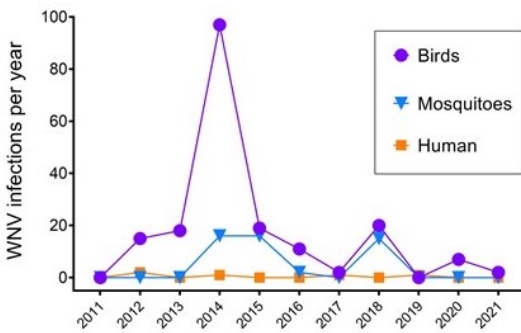


Activity Report

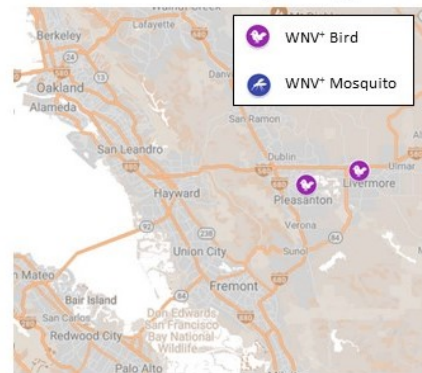


WNV Activity

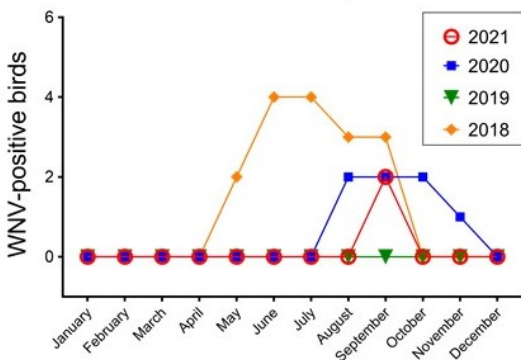
WNV infections detected in Alameda County 2011 – 2021



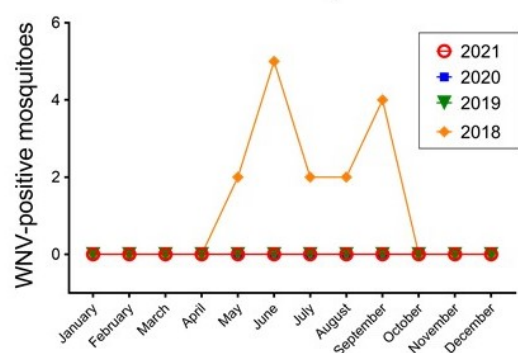
Locations of WNV-infected mosquitoes and birds collected in Alameda County during 2021



WNV-infected birds collected in Alameda County



WNV-infected mosquitoes collected in Alameda County



2. LAB

Summary

- *Arboviruses*. West Nile virus (WNV) was not detected in birds during December 2021. So far this year, two WNV-positive crows have been collected in Alameda County. Saint Louis encephalitis virus (SLEV) and Western equine encephalitis virus (WEEV) has not been detected in Alameda County during the prior 5 years.
- *Native mosquitoes*. Rainy weather limited the placement of CO₂-baited encephalitis virus survey (EVS) traps during December (9 traps placed during the month collected a total of 19 mosquitoes). Two New Jersey Light Traps (NJLT) captured 17 adult female mosquitoes during December. None of the sentinel chickens have seroconverted, indicating they have not been infected with WNV, SLEV or WEEV.
- *Invasive mosquitoes*. Invasive *Aedes* mosquitoes were not detected in Alameda County during 2021.

Arbovirus Monitoring

- WNV was not detected in birds or mosquitoes during December. WNV was last detected in birds collected in Alameda County during October 2021.
- WNV was last detected in mosquitoes during 2018. SLEV and WEEV have not been detected in the County for over a decade.
- None of the birds in the two sentinel chicken flocks have seroconverted during 2021, suggesting that WNV, SLE and WEEV are absent from those areas (southeast Livermore and western Newark). The sentinel chicken program for 2021 concluded during December.

Native Mosquito Abundance

- Rainy and cold weather limited the placement of EVS traps. A total of 19 adult mosquitoes were captured in EVS traps during December 2021 (Figure 1; N = 9 traps were placed during the month). Two EVS traps did not collect mosquitoes (Figure 1, insert). Although the abundance was low and traps sparse, *Culex pipiens* and *Culiseta inornata* were the most abundant (Figure 2). All were collected in the region of Don Edwards San Francisco Bay National Wildlife Refuge (Figure 3).
- Two NJLT collected a total of 17 mosquitoes during December. *Culiseta incidens*, which is not a WNV vector, was most abundant species collected in NJLT (Figure 4). Mosquitoes were collected in the NJLT at Coyote Hills Regional Park and Sunol (n = 17 mosquitoes; Figure 5).

LAB FIGURES

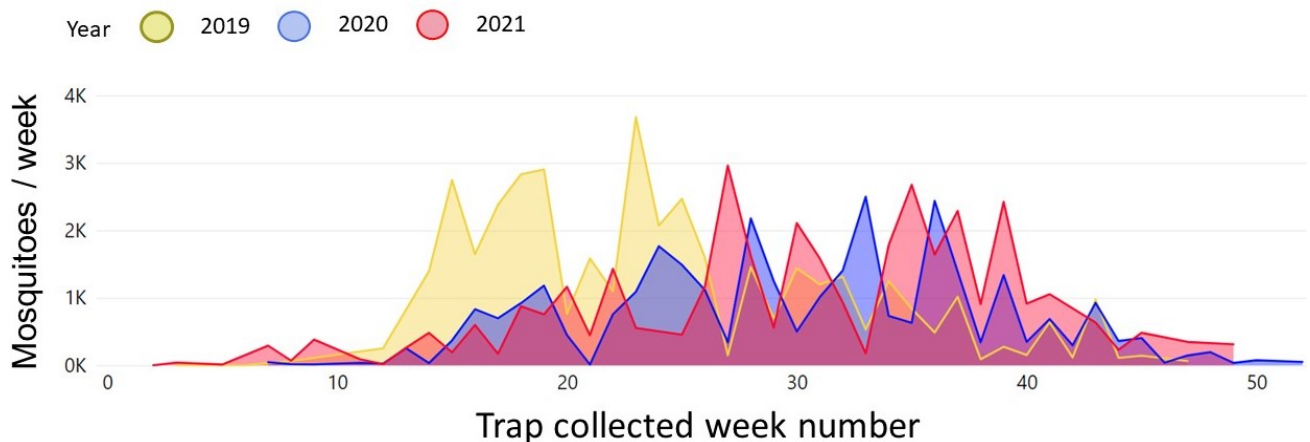


Figure 1. Mosquitoes captured in EVS CO₂ traps from 2019 – 2021. A total of 19 adult mosquitoes were captured in EVS CO₂ traps during December 2021 and identified to species. Week 24 was excluded from the graph because the high anomalous abundance during 2021 skewed the y-axis.

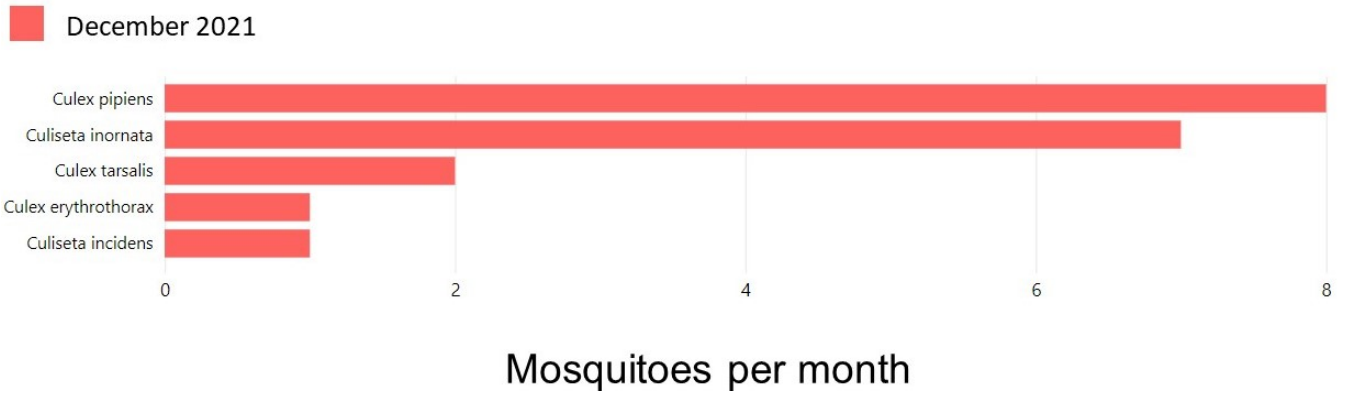


Figure 2. The most abundant species of mosquito captured using EVS CO₂ traps.

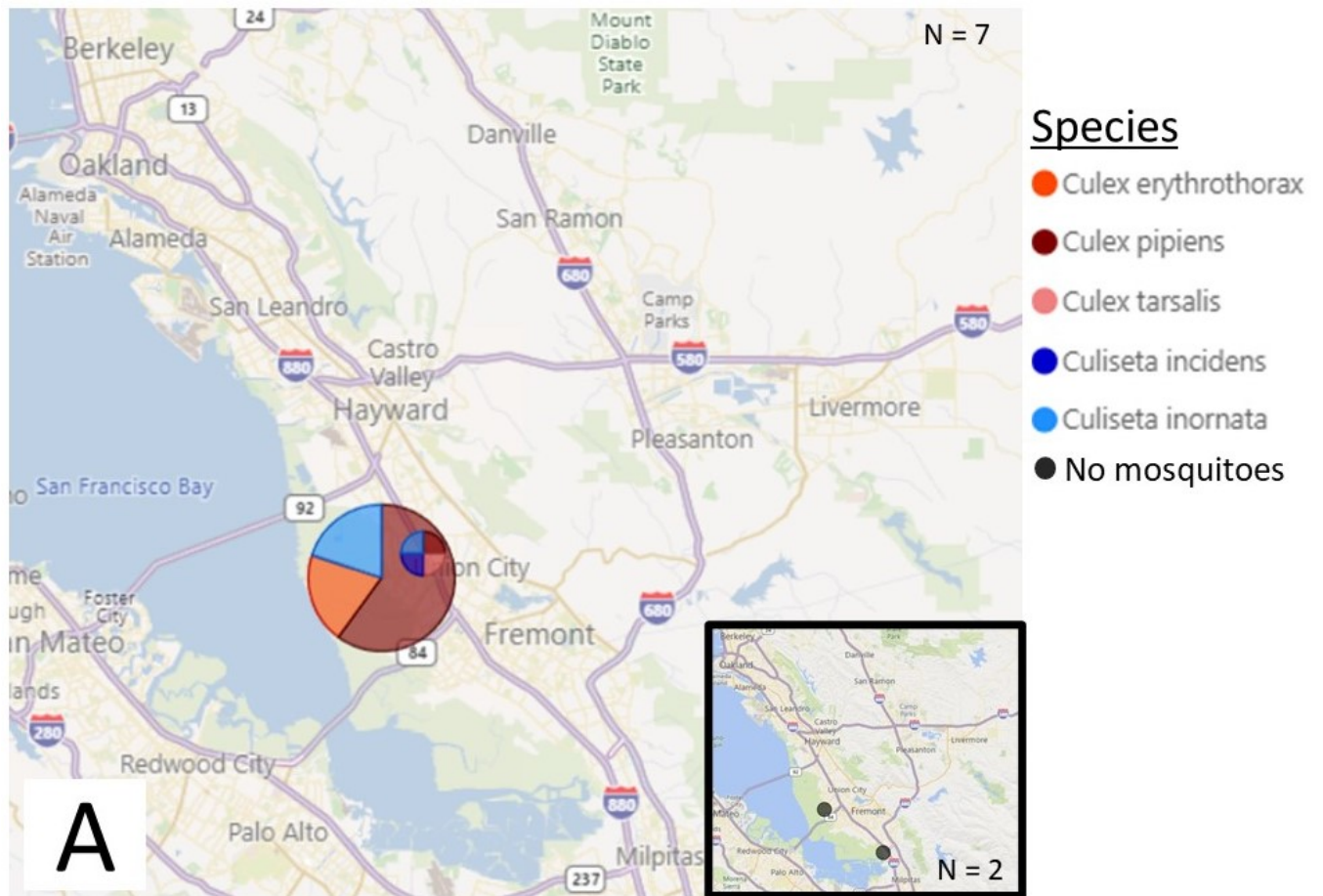


Figure 3. Mosquito abundance by trap site evaluated using EVS CO₂ traps. Pie charts over trap sites indicate the distribution of mosquito species collected at the trap site. The size of each pie chart indicates the relative number of mosquitoes at each site during December 2021. (A) Alameda County. The insert shows traps that were placed but did not collect mosquitoes.

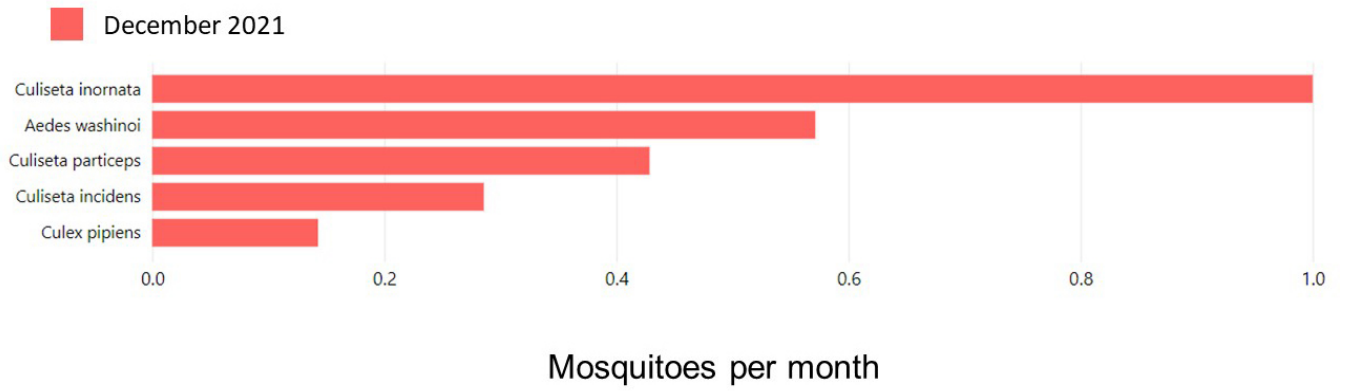


Figure 4. The most abundant species of mosquito captured in NJLT. A total of 17 mosquitoes were captured in NJLT.

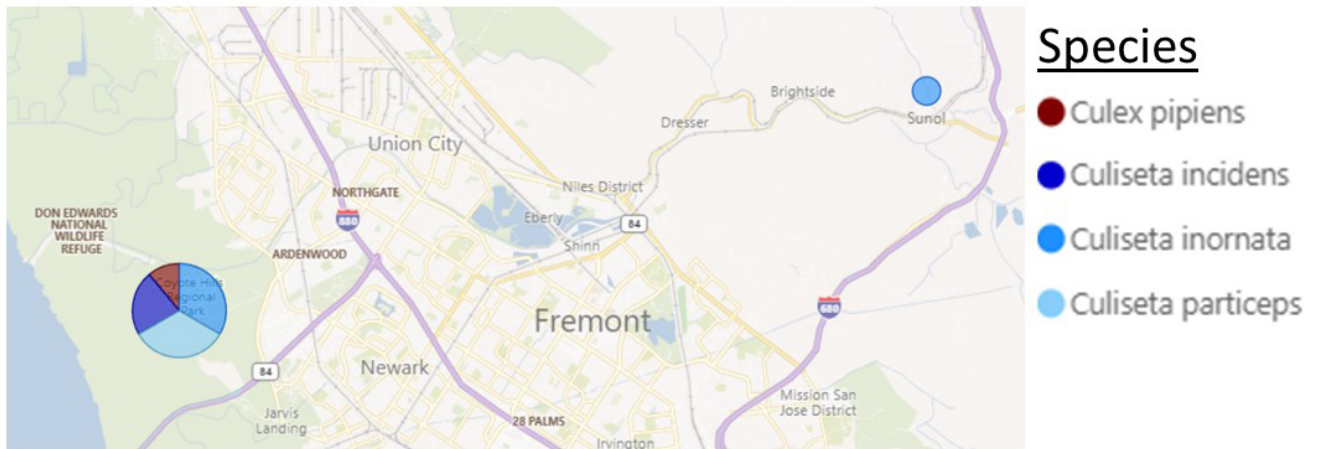


Figure 5. Geographic distribution of mosquito abundance in Alameda County evaluated using NJLT. Pie charts over trap sites indicate the distribution of mosquito species collected at the trap site.

3. PUBLIC EDUCATION

Google Analytics

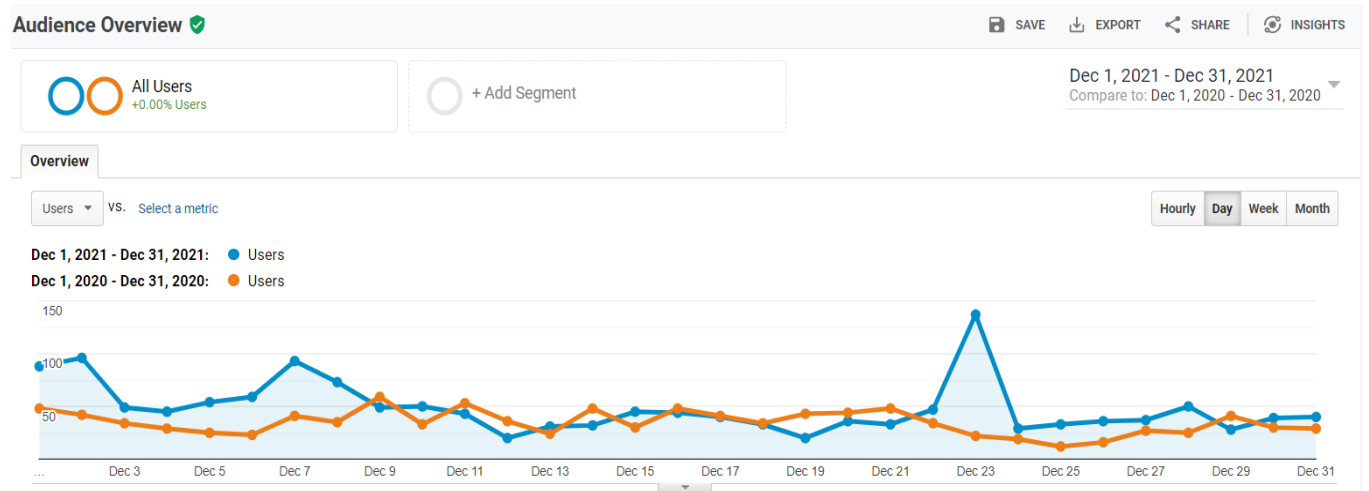


Figure 1. December website users for 2020 compared to 2021.

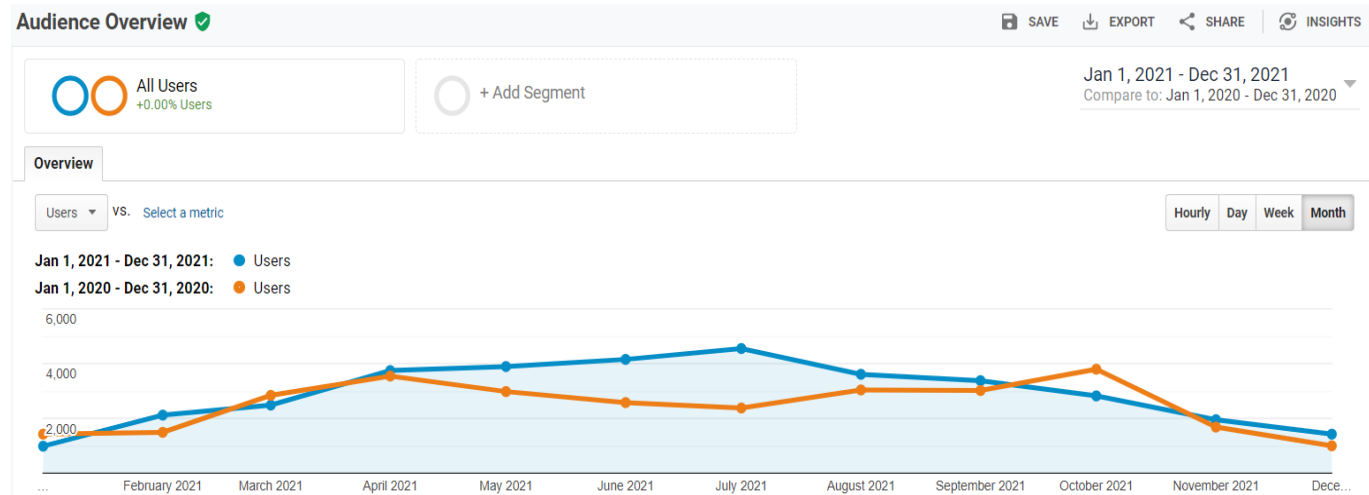


Figure 2. Comparison of website users over the past two years.

Mosquitoes.org Year in Review

A few findings from 2021



57,498 PAGEVIEWS

48,865 unique visitors
Average time on page: 1:25 sec



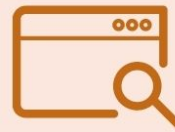
68% OF USERS ACCESS SITE BY MOBILE

30 percent by desktop, 2% tablet



HOW DO PEOPLE FIND THE SITE?

- Search engine 84%
- Typing www.mosquitoes.org 15%
- Social media and email 1%

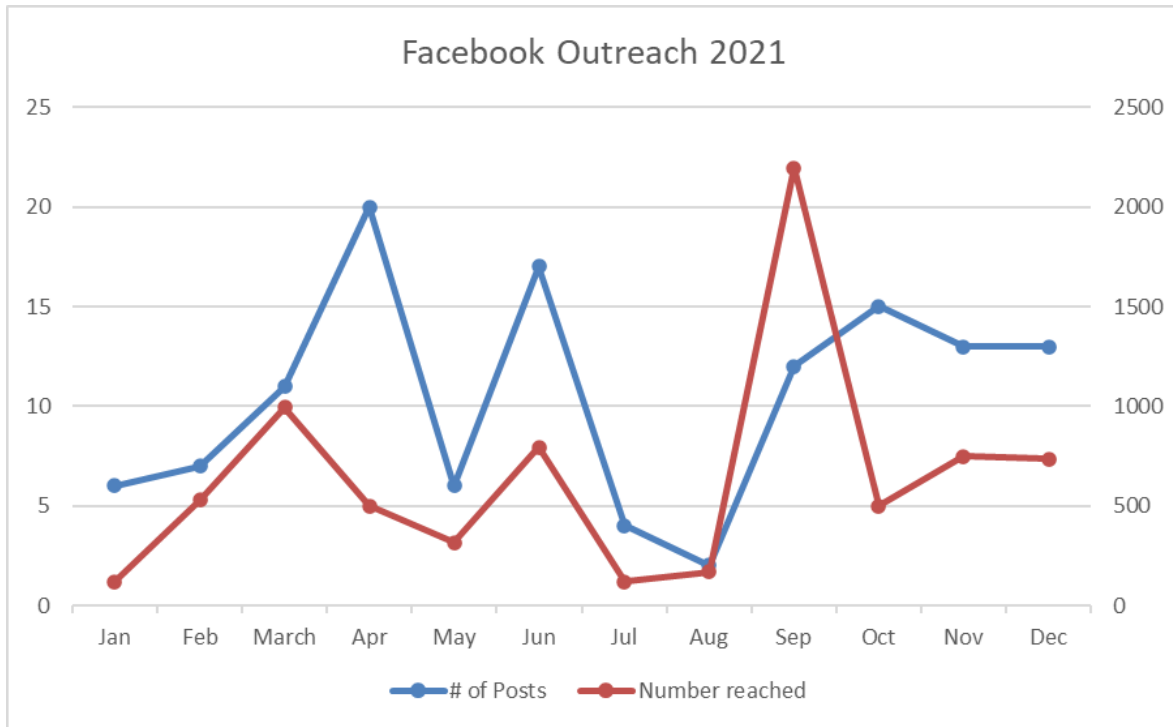


TOP 3 PAGES

- Mosquito-like insects
- California Species
- Aedes mosquitoes



Facebook



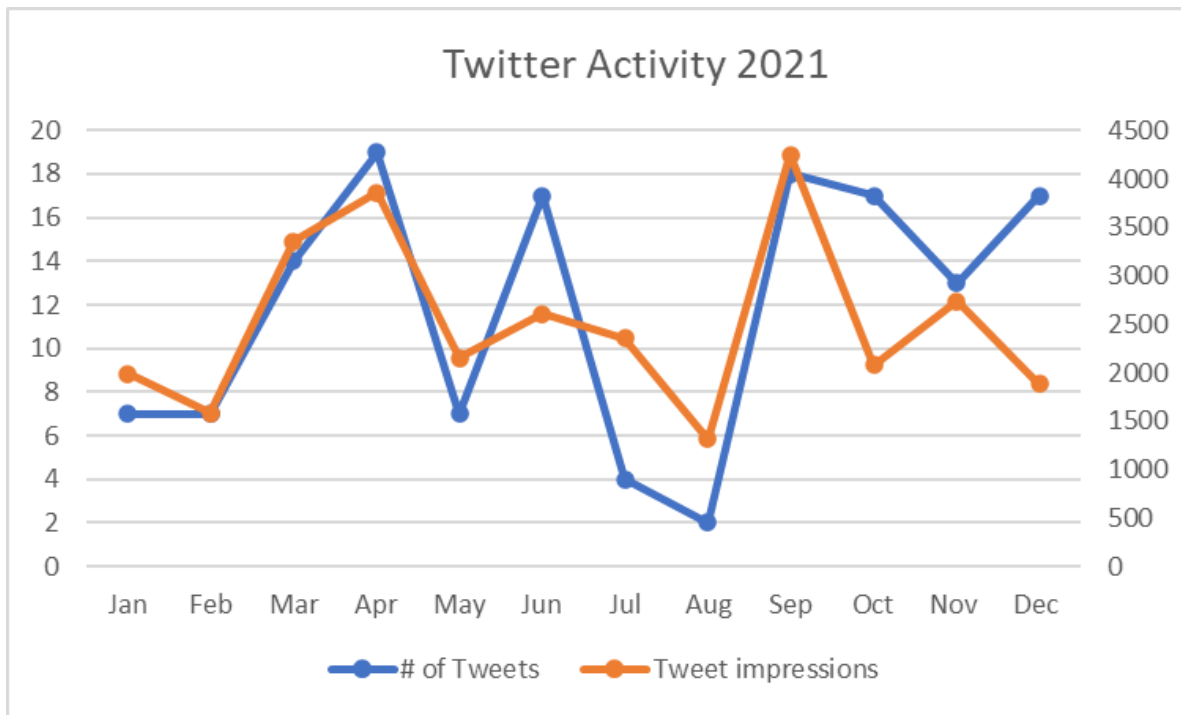
Facebook: 13 posts, 736 number reached

Total Number of Followers: 337 (no change)



Top Facebook Post: Ooof, you don't need the local news to tell you there's been a lot of rain, you may have the proof in your backyard! Remember to tip, toss or dump the water out, even if there is more rain on the way. Mosquitoes like standing water at all times of the year.

Twitter

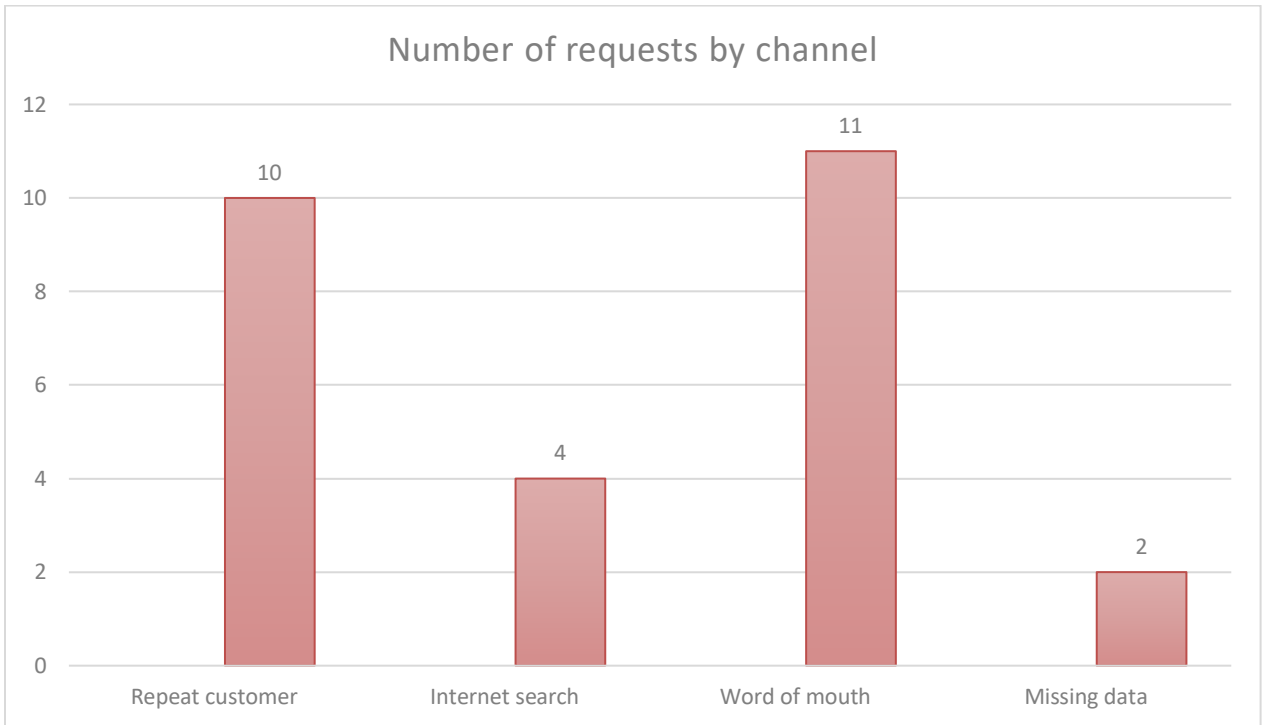


Mentions from other users: 2

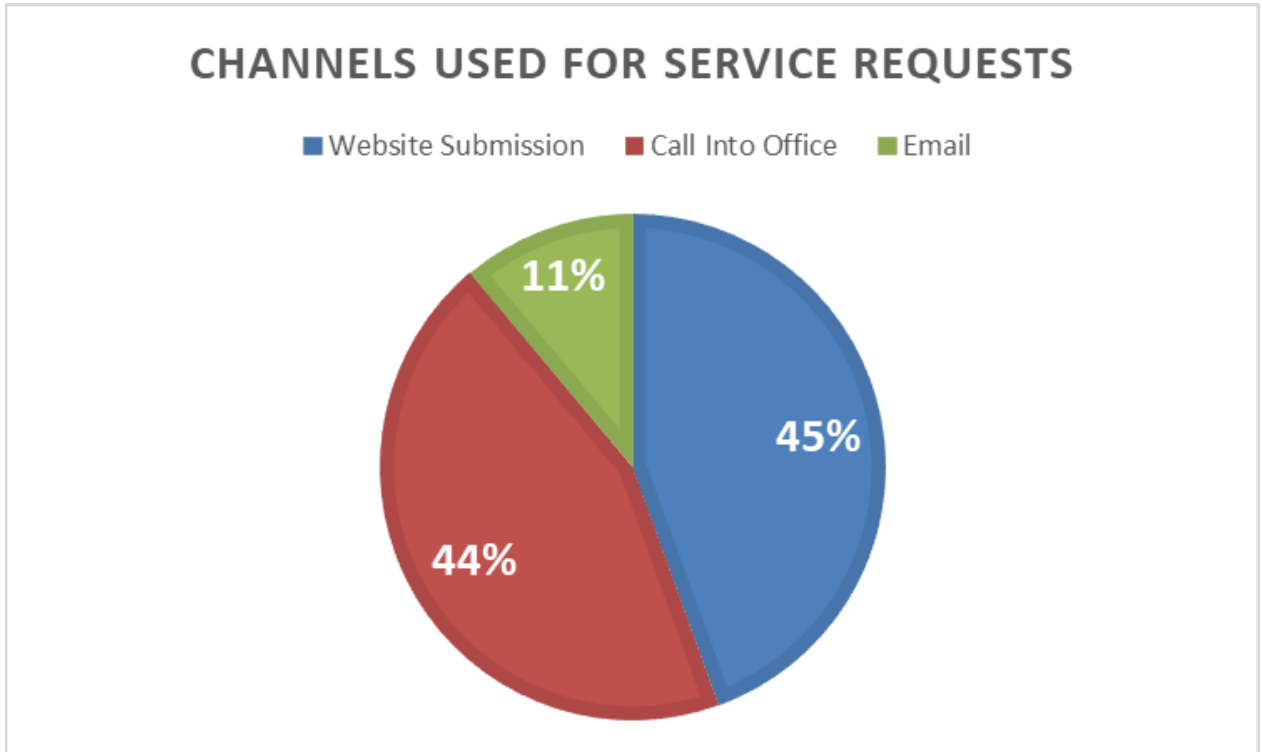


Top December Twitter Post: We enjoyed hosting our Board of Trustees in person last night for the first time since March 2020. Trustees had an opportunity to speak to our staff, learn about specific problem sites and successes from the past year.

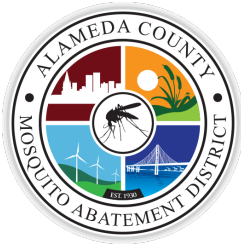
Service Request Referral Summary for December



Channels Used by Residents to Request Service in December



27 requests in total: 12 web submissions, 12 calls and 3 emails



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acmad@mosquitoes.org

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Hayward

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Livermore

Jan O. Washburn

Oakland

Eric Hentschke

Newark

Andrew Mingst

Piedmont

Julie Testa

Pleasanton

Ryan Clausnitzer

General Manager

Background:

ACMAD is pleased to recognize and thank the following Trustees on their anniversaries in the month of January

Trustee	City	Years of Service	Anniversary Date
Julie Testa	Pleasanton	3	December 19 th
Eric Hentschke	Newark	6	January 14 th
Subru Bhat	Union City	4	January 9 th

CITY

No, genetically engineered mosquitoes aren't about to be released in Berkeley

A confusing City Council item last month suggested Alameda County could soon see a release of genetically engineered mosquitoes as part of a state pilot. But the county never agreed to be included in the study.

By Kate Darby Rauch, Dec. 13, 2021, 10:30 a.m.



The *Aedes aegypti* female mosquito. Credit: Centers for Disease Control

Judith Pierce, public outreach coordinator for the Alameda County Mosquito Abatement District, would like to make one thing clear: A release of genetically engineered mosquitoes is not coming to Berkeley — or anywhere in Alameda County — in the near future. Not to her knowledge, anyway, and if it were official, she would know.

The Berkeley City Council's robust discussion of this at a council meeting in early November was based partially on misleading information, said Pierce.

The council, at its Nov. 9 meeting, considered whether to send a letter to the Environmental Protection Agency (EPA) opposing a potential California pilot study of mosquitoes engineered to combat Zika, dengue, chikungunya, yellow fever and other diseases.

Councilmember Ben Bartlett sponsored the item, sending out an email to constituents ahead of time urging them to take action to prevent the EPA from "releasing billions of genetically engineered mosquitoes



An Oxitec mosquito release box, being piloted now in Florida and Brazil. Credit: Oxitec

Founded in 2002 as a startup affiliated with Oxford University, Oxitec, a private bioengineering company now owned by Precigen (formerly Intrexon) is working on alternatives to chemical pesticides for problem insects threatening humans and agriculture. The company and its work are at the center of vigorous debate around applying genetic engineering to problems of the natural environment.

A strong focus of Oxitec is its trademarked "Friendly" mosquito, a male *Aedes aegypti* engineered to pass along a self-limiting gene that shrinks the lifespan of female offspring so they die as larvae, before they start biting or feeding.

Only female mosquitoes feed on blood or bite. Males eat nectar.

Without females for mating mosquito populations dwindle, according to Oxitec. The effect is passed on through the modified males for "multiple" generations but eventually declines, the company says.

automatically approved consent calendar to a discussion item, calling the matter urgent. “Apparently, we are on the verge of hosting the largest genetically engineered mosquito release in human history,” he said.

It’s true that an international company called [Oxitec](#) has applied to the EPA for a California pilot of its genetically modified *Aedes aegypti*, or Egyptian mosquitoes, designed to reduce its populations. But even if the pilot is approved, Pierce said neither Berkeley nor anywhere else in Alameda County is slated for the study.

Oxitec’s trademarked “Friendly” mosquito is a male *Aedes aegypti* engineered to pass along a gene that shrinks the lifespan of female offspring so they die as larvae, before they start biting or feeding.

The district did, however, join other counties in sending the EPA [a letter of general support for the pilot](#) in the interest of learning more about the potential of the technology, which it sees merit in, Pierce said. “We know that *Aedes aegypti* is very, very difficult to eradicate once it comes into a community and we know that our current methods are insufficient,” she said.

The letter does not mention plans to release *Aedes aegypti* mosquitoes in Alameda County. “We signed on because we were interested in learning more about it,” Pierce said. “It’s kind of like having a seat at the table.”

Oxitec’s new gene-targeting strategy for tackling a mosquito that transmits several serious illnesses has sparked international controversy with questions around its safety. But the company has already won EPA approval for field testing in Florida, now underway. And the Brazilian government has backed its use there,

Sometimes called “ankle biters,” the small black and white *Aedes aegypti* are known as aggressive feeders, active in the daytime and adapted to urban environments. As with other mosquitoes, research shows they’re [developing a resistance](#) to insecticides or pesticides.

The vector is now found on all continents except Antarctica, including in the United States, mainly in the warmer, southern parts of the country. As it spreads, [so do the diseases](#) it transmits.

The lifetime flight range of *Aedes aegypti* is estimated at 150 to 500 feet. But the insects are known to stow away on ships, according to the European Centre for Disease Prevention and Control, crossing continents and countries.

In California, [Aedes aegypti is found](#) throughout central and southern California. But to date, the insect isn’t suspected of spreading illness within the state, according to the [California Department of Public Health](#). The few cases of Zika and dengue fever diagnosed here are linked to bites outside of the country.

Still, public health officials are carefully watching the [species](#) as its habitat grows.

“Friendly” mosquito technology is being used in Brazil, and Oxitec just finished a mosquito release phase of its [pilot project](#) in Florida. The company is seeking EPA approval to expand its Florida pilot, along with adding California and Texas.

Genetic engineering hits a nerve

Oxitec and its “Friendly” mosquitoes are contentious in a vein similar to the response to genetically modified foods. Critics claim the research on safety is insufficient. Supporters challenge this, calling the approach innovative and the science sound. Passions on both

A few weeks ago, Alameda County was listed among the California counties in the potential study area on the Oxitec website — possibly related to the letter.

Today, however, the county isn't mentioned. In fact, the company's California [pilot pages](#) don't refer to any counties specifically, though they include a California Department of Public Health map of where *Aedes aegypti* is found in the state.

Joshua Van Raalte, of Oxitec, referred questions on which counties are targeted for the California pilot to the [Mosquito Vector and Control Association of California](#), which advocates for the state's 60-plus local mosquito control districts.

Lisa Yarbrough, a spokesperson for the association, which supports the pilot, said she doesn't know yet which counties will be included if the EPA grants approval. "But Oxitec has indicated that it will initiate a pilot project in one or two communities," she said.

Newness fuels confusion



might have a lingering negative impact in the outside world. And they wonder what type of mosquito might swarm in to fill the void left by *Aedes aegypti*.

The EPA [maintains confidence](#) in its review of the safety of the approach, saying it's thoroughly examined these issues.

Local division on the issue mirrors that occurring in other places.

"It's problematic for a district to support a mass open-air genetic experiment in our state," said Perls, of Friends of the Earth.

"This trial proposal is riddled with missing information and information critical for public review is withheld from the public and protected as confidential business information," she said.

Van Raalte, the Oxitec spokesperson, said the company's website [cites over 100 peer-reviewed studies](#) and provided a link to [the company's California webpage](#).

"Health impact studies are only possible at very large scales and we are only in the process of our first small pilots as part of an [EUP](#) [EPA experimental use permit] in the U.S.," he said.

A complicated approval process



timeline, so as a concerned community member, I am left hanging with little information,” said Dana Perls, food and technology program manager of Friends of the Earth.

The nonprofit is [leading opposition](#) to the pilot, joined by [other groups](#). Perls lives in Bartlett’s South Berkeley district and brought the issue to his attention.

“[We don’t] want to see these GE mosquitoes released anywhere. ... Mosquitoes don’t recognize county lines.” — Dana Perls, Friends of the Earth

Much of Bartlett’s background information on the issue was provided by Friends of the Earth, he said.

Perls said the organization’s attention on Berkeley stemmed from the support letter signed by the Alameda mosquito district.

“Based on the only publicly accessible information, we took action and began reaching out to people in the districts listed in the letter,” she said. (The other districts that signed: Shasta, Coachella Valley, Orange County,

affairs director for Alameda County’s mosquito district.

Leia Bailey, a spokesperson for the state pesticide regulation department, said it hasn’t heard anything from Oxitec recently, but the company did indicate it would submit a request for research authorization if it received EPA approval to extend its pilot.

“We wouldn’t have a [mosquito] release without major community engagement.” — Judith Pierce, Alameda County Mosquito Abatement District

All research requests are rigorously reviewed by the state for safety to people and the environment, Bailey said. The value or necessity of the data generated by the research is also considered and communicated to the public, she said. Detailed information on authorizations are passed to affected county agricultural commissioners, she said.

As for “Friendly” mosquitoes: “DPR is evaluating how to incorporate public input into its review process should Oxitec submit an RA request. DPR will also work with

advocates.

He said his office tried to contact the EPA and Oxitec multiple times for details, with no success. He thanked Friends of the Earth for bringing the matter to his attention.

“I don’t implicate the science at all,” he said.

“Community members wanted to have a hearing, so I helped them do it.”

The so-trademarked ‘Friendly’ mosquito

approach. The council unanimously said it needed more information before taking a stand. Bartlett was thanked by his colleagues for bringing it forward. Several council members, as well as public speakers, stressed the need to review the issue in the context of the city’s [Precautionary Principle](#) ordinance, a commitment to decision making that prioritizes the health and safety of people and the environment.

Pierce said information Bartlett presented to the City Council had other errors, such as claims the altered *Aedes aegypti* could disrupt the local food chain. She points out that since the mosquito is invasive to the Bay Area, it’s not part of the food chain.

Pierce and Perls agree that Oxitec should be more forthcoming about which counties are in the running.

Meanwhile, in Sao Paulo, Brazil, [Oxitec is now distributing “Friendly” mosquito hatching boxes for home use. Just add water.](#)

Meet the mosquitofish: California scientists debate whether it's menace or messiah

A key weapon in the war on disease-carrying mosquitoes, the invasive species also threatens biodiversity



Mosquitofish swim in a holding tank at the Sacramento-Yolo Mosquito and Vector Control District in Elk Grove, Calif., on Friday, Dec. 10, 2021. (Anda Chu/Bay Area News Group)

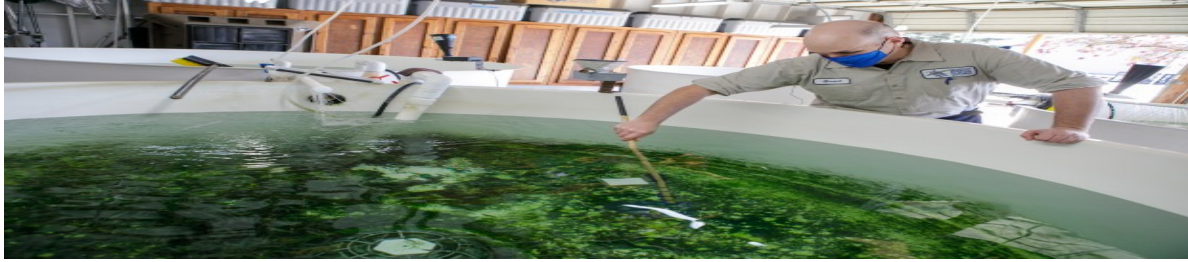
By [Zack Savitsky](#) | Bay Area News Group Correspondent

PUBLISHED: January 4, 2022 at 5:55 a.m. | UPDATED: January 5, 2022 at 1:40 p.m.

Government officials warding off deadly diseases often praise the lowly mosquitofish as a public health messiah. But some environmentalists have dubbed it the “plague minnow” and the “fish destroyer.”

Today, nearly a century after the finger-sized fish was first introduced to California in a Sacramento lily pond, it’s arguably the most ubiquitous freshwater fish in the world. But the mosquitofish also ranks among the world’s worst invasive species.

Balancing the pest-control prowess and ecological destruction of the fish, nearly every mosquito and vector control district in California now deploys the creature with varying strategies.



Grant White, a field technician at the Sacramento-Yolo Mosquito and Vector Control District in Elk Grove, is responsible for the care of mosquitofish. (Anda Chu/Bay Area News Group)

Despite 74 deaths from the mosquito-borne West Nile virus in California over the last five years, the voracious fish helps greatly in the fight against infectious diseases. In the wild, however, it also threatens local biodiversity — outcompeting native species and infiltrating seemingly every corner of the Golden State.



“Every crazy-ass place in the state of California seems to have something to do with mosquitofish,” said Eric Palkovacs, a UC Santa Cruz professor of ecology and evolutionary biology who recently published a historical overview of the creature’s complicated relationship with humans.



When first identified in the 1850s, the mosquitofish was native to the southeast U.S. But the fish made its way to California in April 1922, and after being adopted as an alternative to the toxic insecticide DDT by the World Health Organization and various militaries, it spread around the globe.

“People put non-native fish everywhere,” Palkovacs said. “They didn’t give two thoughts to their impact on the food web and native environment.”

The problem, experts say, is that the fish don’t discriminate between snacking on the rice-sized offspring of disease-ridden mosquitoes and critically endangered marine life.

Chad Mitcham, a senior biologist in the Ventura office of the U.S. Fish and Wildlife Service, has seen the impact first-hand. A few years ago, he sampled a pond in north Monterey County with

thousands of larval Santa Cruz long-toed salamanders, a federally endangered species on the brink of extinction. Months later, after mosquitofish had been introduced to the pond, only 10 larvae remained.

“It was very disheartening to see,” Mitcham said.

The fish also contribute to algal blooms — sprawling green sheets of microbes that block sunlight and oxygen from other species. When mosquitofish feed on zooplankton, which typically keep algae in check, unbridled algal populations explode and cover ponds.

The fact that mosquitofish can live almost anywhere — from frigid waters to geothermal springs, and in acidity levels ranging from those of coffee to bleach — facilitated the fish’s global domination.

Mosquitofish, however, play an important role for public health agencies around the world. The Russian city of Sochi in 2010 even erected a bronze mosquitofish statue to commemorate the fish’s contribution to fighting malaria.



In California, most vector control districts dispatch mosquitofish to infested bodies of water such as untreated swimming pools.

Tired of maintaining the chlorinated pool at her house in the mountains above Soquel, Deborah Beale decided a few years ago to replace it with a natural pond to nurture local wildlife.

“Sure enough, we got a wonderful explosion in the tree frog population — and dragonflies,” she said. “But we also had more mosquitoes.”

So Beale contacted Santa Cruz County Mosquito and Vector Control, which dumped a small bag of mosquitofish in her new pond. The fish — now numbering in the thousands — protect the Beale residence from pesky bites and dangerous viruses like West Nile and St. Louis Encephalitis.

“They really have improved the quality of life on the property for sure,” she said. “It’s absolutely striking.”

Mosquitofish were especially helpful after last year’s wildfires, when mandatory evacuations left scores of pools abandoned for weeks, said Amanda Poulsen, Santa Cruz County’s vector control manager.

Her agency, however, is cautious with its usage — collecting mosquitofish only from natural waterways and pre-stocked pools, and delivering them only to self-contained bodies of water. It also distributes flyers urging users not to release the fish into the wild.

Yet the strategies of vector control agencies differ vastly among California counties. While three small tubs in Santa Cruz County hold a few hundred mosquitofish year-round, the vector control agency for Sacramento and Yolo counties breeds millions of mosquitofish annually in 22 on-site ponds. It released more than 2 million mosquitofish in 2020 alone.

The operation in Elk Grove is one of the largest in the world. The reason: The Sacramento-Yolo district is responsible for treating mosquito threats in more than 13,000 acres of rice fields, where shallow waters create fertile insect-breeding grounds near dense residential areas.



In a

tank used for educational purposes, mosquitofish feed on mosquito larvae at the Sacramento-Yolo Mosquito and Vector Control District in Elk Grove. (Anda Chu/Bay Area News Group)

“If we aren’t treating these rice fields with fish or pesticides, then there’s a huge risk for residents,” said Tony Hedley, the district’s fisheries supervisor. “That’s what weighs more than where these fish are going to end up.”

Prioritizing human health, however, often jeopardizes other species.

“Obviously if there’s any kind of flooding, these mosquitofish are going to go other places,” Hedley said. “I don’t know the full impact of mosquitofish, honestly, but I am more concerned than ever.”

California law permits public health agencies in most counties to plant mosquitofish, even on private property, without permits. While both the Santa Cruz County and Sacramento-Yolo agencies say they typically require the consent of property owners before distributing the fish, they acknowledge that there’s no way to track whether private residents properly use or dispose of them.

That leaves officials continually working to balance the public health promise with the ecological threat of the fish.

“Mosquitofish themselves are neither good nor evil,” Palkovacs said. “We should cast them as neither the hero nor the villain of the story.”