



BACWA Pesticides Annual Update

Stephanie Hughes, P.E.

November 18, 2022

BACWA Pesticides Workgroup Members

Municipal Agencies

- Robert Wilson, Santa Rosa (co-chair)
- Autumn Ross, SFPUC (co-chair)
- Julie Weiss, City of Palo Alto
- Olivia Trevino, City of Palo Alto
- David Robertson, City of San Jose
- Jaylyn Babitch, City of San Jose
- Susan Hiestand, Silicon Valley Clean Water
- Alicia Dutrow, Union Sanitary District
- Melody LaBella, Central San
- Mary Cousins, BACWA

Regional Board

- James Parrish
- Alessandra Moyer
- Rebecca Nordenholt

Consultant Support

- Stephanie Hughes P.E.
- Tammy Qualls, P.E., Qualls Environmental Consulting
- San Francisco Estuary Institute
 - Kelly Moran, Ph.D.
 - Ezra Miller, Ph.D.

POTW Pesticides Conundrum

- 100s of Pesticides used and discharged
- Many pass through POTWs
- Some exhibit aquatic toxicity as low as ng/L
- Toxicity in CA surface waters nearly always linked to current pesticides
- May present a potable reuse/RO concentrate disposal challenge
- POTW treatment changes unrealistic
- **State law prohibits local pesticide regulation**





BACWA's Pesticide Workgroup is proactive on pesticides

Monitoring partnerships (RMP, DPR, SFEI)

- Identify and support monitoring programs
- Identify key scientific research
- Use those findings to inform science-based pesticide regulatory programs

Regulatory engagement

- Coordinate with CASQA to track regulatory activity
- Advocate for POTWs concerns
- Educate regulators about POTWs & CWA
 - Formal: Letters to EPA/DPR
 - Informal: Meetings & science conferences

Professional and community engagement

- Identify specific indoor uses and less-toxic alternatives
- Reach out to relevant professionals
- Reach out to the community
- Coordinate messages with CASQA's Our Water Our World

Key Monitoring Outcomes for 2021-22

Monitoring partnerships
(RMP, DPR, SFEI)

- DPR quantified pyrethroid wash-off from various surfaces following simulated fogger use
 - Water readily extracted the pyrethroid from fabric
 - Adding detergent significantly increased this extraction
 - Adds to our knowledge about indoor pesticide fate and transport
- DPR developed sampling protocol to monitor POTW effluent for 29 pesticides including pyrethroids, fipronil, imidacloprid and chlorpyrifos; results expected in early 2024
 - Sought statewide POTW network
 - They seek to uncover regional and seasonal differences as well as influences due to sewershed characteristics



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journal homepage: www.elsevier.com/locate/scitotenv

Wash-off potential of pyrethroids after use of total release fogger products

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^b Surface Water Protection Program, Environmental Monitoring Branch, California Department of Pesticide Regulation, 1001 I Street, Sacramento, CA 95812, USA

Field Sampling: August 2022 – July 2023
 Chemical Analysis: August 2022 – September 2023
 Summary Report: January 2024

Table 1 - Summary of participating WWTPs in monitoring study. Additional WWTPs may be added throughout the study to support study objectives.

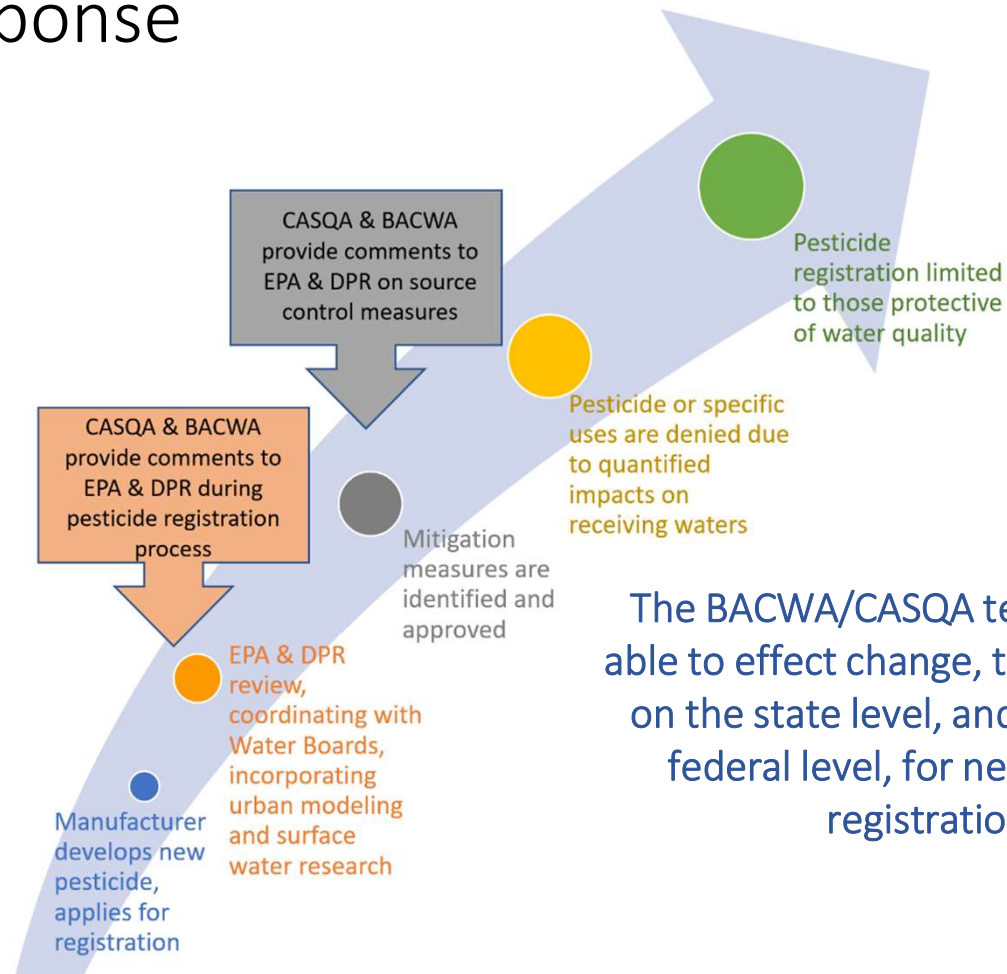
Facility Treatment	Discharge Point	Number of Plants	Plant Capacity (MGD)*
Secondary	Ocean	12	7.6–450
	Fresh Water	2	6.7–60
Tertiary	Ocean	2	8.5–20
	Fresh Water	7	15–100
	Recycled	2	2
Total		25	2-450

Table 1 Notes:

* Millions of gallons per day (MGD)

BACWA and CASQA continue to coordinate regulatory tracking and response

Regulatory engagement



The BACWA/CASQA team has been able to effect change, to a large effect on the state level, and lesser at the federal level, for new pesticide registrations

Key Regulatory Outcomes for 2021-22

Regulatory engagement

- DPR
 - Sustainable Pest Management Roadmap drafted this summer
 - BACWA coordinated messaging with CASQA to seek higher priority for urban uses and mitigations
 - Asked that their pesticide reduction goal be focused upstream of POTWs
 - Tracking their fipronil human health risk assessment findings and mitigation planning
- EPA
 - Reviewed > 40 EPA science assessments; wrote 3 comment letters
 - Spoke at national Environmental Monitoring Public Meeting in June (>100 participants)

DISCUSSION DRAFT

ACCELERATING SUSTAINABLE PEST MANAGEMENT: A CALIFORNIA ROADMAP

◆ DEVELOPED BY:

Members of the Sustainable Pest Management Work Group & URBAN SUBGROUP

◆ IN COLLABORATION WITH:

California Department of Pesticide Regulation
California Department of Food and Agriculture
California Environmental Protection Agency

◆ FACILITATED BY:

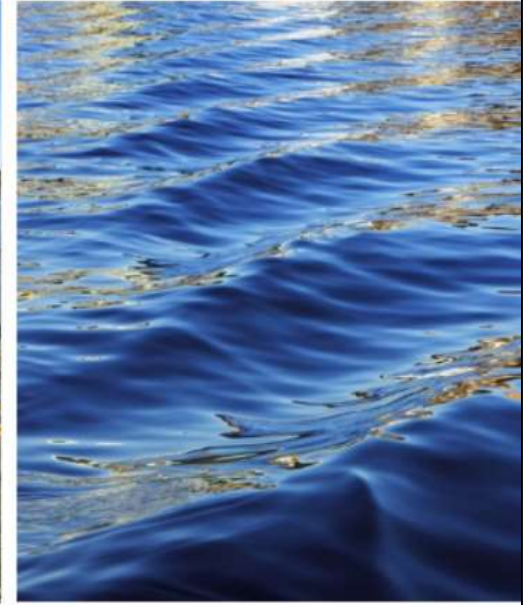
Ag Innovations Network

**EPA Announces Virtual
Environmental Modeling Public
Meeting on Endangered Species;
Calls for Abstracts**

EMPM presentation: The BACWA/CASQA presentation at EPA's Environmental Monitoring Public Meeting (EMPM) was the **only** one to link endangered species protection with urban pesticide mitigation.



Practical measures and mitigations to reduce pesticide effects on endangered and threatened species in urban areas

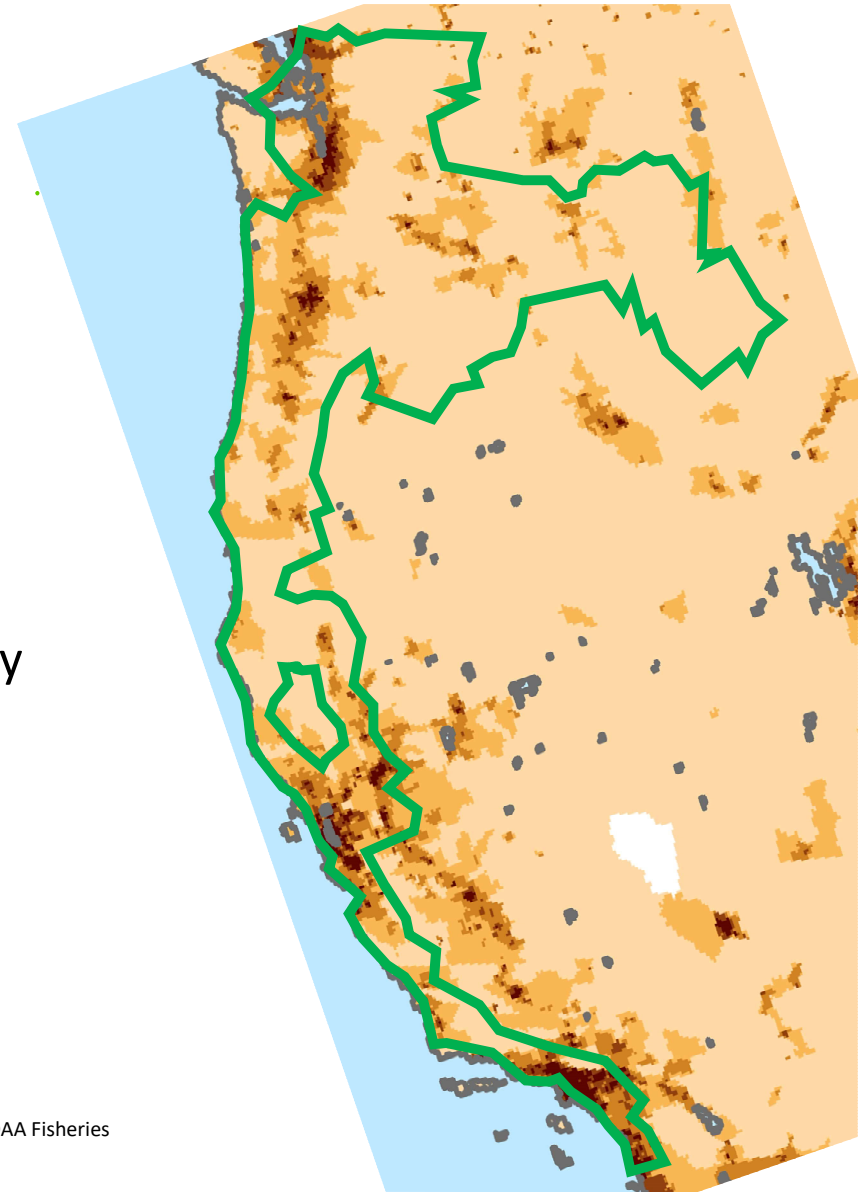


Tammy Qualls, M.S., P.E (Qualls Environmental Consulting); Kelly Moran, Ph.D. (San Francisco Estuary Institute) Stephanie Hughes, M.S., P.E. (Santa Clara University); and Armand Ruby, M.S. (Armand Ruby Consulting).

EMPM presentation:

Endangered species habitat often overlaps with urban areas: salmon example

- Map shows urban areas on west coast of USA
- Darker brown areas are higher population density
- Green outline is Critical Habitat Designations for West Coast Salmon and Steelhead

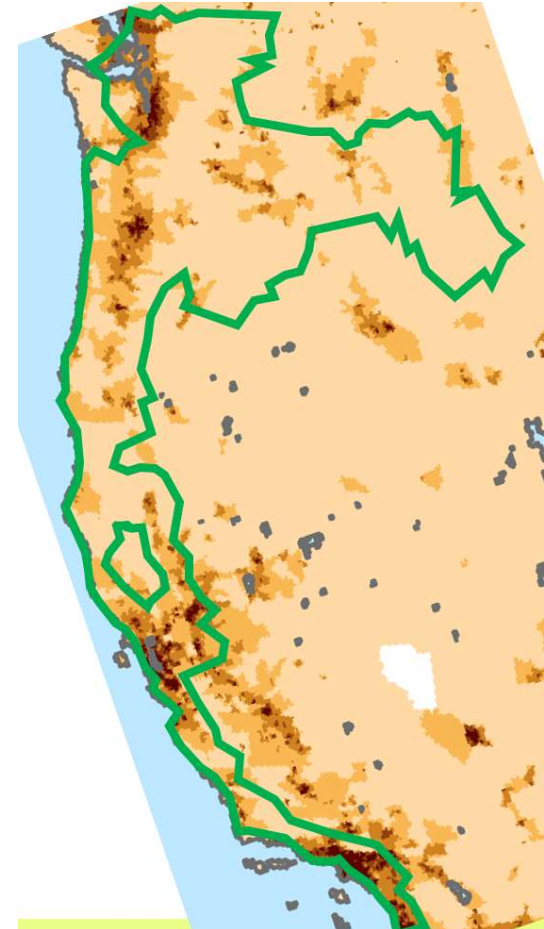


Sources:
NASA, NOAA Fisheries

EMPM presentation:

Practical ESA mitigations specific to urban users are necessary, feasible, and cost-effective

- Endangered species are exposed to pesticides used in urban areas via wastewater and urban runoff
- Desktop studies and modeling can identify and prioritize specific urban pesticide uses for mitigation actions
- Advanced treatment of pesticides in wastewater and urban runoff is not a feasible pesticide mitigation strategy
- Pesticide label changes only effective for licensed & trained users
- Sale and use restrictions most effective mitigation option for products designed for unlicensed/untrained pesticide users



Key Engagement Outcomes for 2021-22

*Professional
and
community
engagement*

Continuing to educate about the pathway and aquatic toxicity of indoor flea/tick treatments

- Reaching out to veterinary community
 - Dialogue at the national level (AVMA)
 - Dialogue at local chapters
 - Veterinary survey
- Reaching out to medical community
 - Santa Clara County Medical Association
 - Physicians for Social Responsibility (Bay Area Chapter)
- Reaching out to the community
 - Social media
 - Piloting outreach via libraries and local shelters

BACWA ran a digital advertising campaign last spring

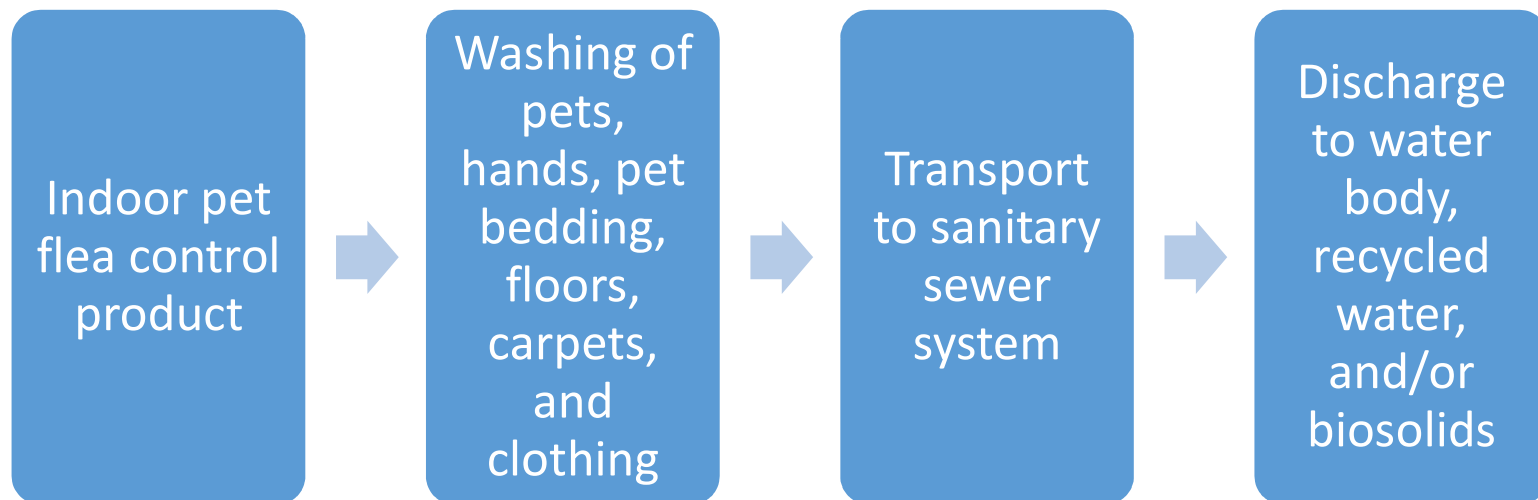
- Display and video ads
- Upcycled video created for Palo Alto
- > 2M impressions, 14.7k clicks
- Female ages 65+ generated majority of clicks and impressions for the display ads
- For the video ads campaign, the youngest (25-34) and oldest (65+) age groups generated the most impressions and clicks



Online and presentation materials describe how on-pet and indoor flea/tick treatments travel to sewer systems and San Francisco Bay



Fig. 3. Handling of a dog treated with Frontline® containing 1% Tinopal® CBS-X fluorescent tracer revealed contamination of hands during routine application and handling of a treated dog (color figure available online).



**It gives us an opportunity
to introduce the integrated
pest management (IPM)
concept**



Working with BACWA members to pilot new community outreach techniques

Pet owners: Control fleas and ticks while protecting your family and the Bay

Stephanie Hughes and David Robertson

Santa Clara City Library
November 3, 2022



- 100% of respondents agreed or strongly agreed with the following statements:
 - “I will use what I learned about the natural environment”
 - “I learned something useful from the library program.”
- Attendee Comments
 - “Thank you for providing the information on flea meds, etc. The two presenters had great information and provided resources that I will check out.”
 - “Excellent content and presentation. Useful, evidence-based information. THANK YOU!”
 - “Excellent presentation! Both presenters were easy to understand and provided very valuable information. Thank you.”

FY 2022/2023 Recommended BACWA Priorities

Monitoring partnerships (RMP, DPR, SFEI)

- Pesticides/CECs monitoring synergies
- DPR POTW monitoring study

Regulatory engagement

- DPR
 - Sustainable Pest Management Roadmap – continue to advocate for urban funding
 - Fipronil human health risk assessment findings and resulting mitigation
- EPA
 - Fipronil mitigation
 - Endangered Species Act consultation – new process and mitigation opportunity
 - Continued education about POTW needs including potable reuse challenges
- DPR and EPA
 - Continued review of regulatory actions, esp. antimicrobials

Professional and community engagement

- Continue building relationships with AVMA and medical community
- Online presence: Spanish translations, and test new messaging
- Discuss pilot outreach results with BAPPG members



Questions?