SOLANO COUNTY

SPRAY SAFE - FEBRUARY 19,2025

Water Quality and Pesticides

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Ulatis Creek

Agenda

- ILRP-Irrigated Lands Regulatory Program
  - D/S RCD Water Quality Coalition
- Water Quality Monitoring
- Surface Water Management Plan

Want a copy of this presentation?
Visit:
dixonrcd.org/bmp-for-pesticides

What is the purpose of the ILRP?

Protect surface and groundwater from irrigated lands runoff that may contain pollutants, such as pesticides, fertilizers, salts, and sediment, which can harm aquatic life or make water unusable for drinking water or agricultural uses.

The CA Water Board adopted the waste discharge requirements (WDRs) and referred as the “Orders” which address irrigated agricultural discharges to protect water quality.

Program Review-Sacramento River Basin Watershed

Regional Board = Regulatory

Central Valley Regional Water Quality Control Board

ILRP-Irrigated Lands Regulatory Program

2002

Two options:

- Individual permit
- Join a Coalition (Group permit)

NCWA-Northern CA Water Agency

Sac-Valley Water Quality Coalition

Group permit

Coalition = Non-regulatory

Dixon-Solano | Yolo County | Sac-Amador | Butte-Yuba-Sutter | Colusa-Glenn | Shasta-Tehama | Pit River | Lake | Napa | El Dorado | PNSSNS

Valley Floor Subwatersheds

Upper Subwatersheds

Member/Grower

Water Quality Monitoring

Water quality monitoring for the ILRP is based on two primary criteria:

1. Irrigated Lands Regulatory Program **Pesticides Evaluation Protocols (PEP).**
2. Water quality issues identified from **prior monitoring**

Water Quality Monitoring

PEP- Pesticides Evaluation Protocol:

1. The Coalition is required to monitor for specific registered pesticides
2. Registered pesticides are assigned a score based on their toxicity to humans or aquatic organisms

Determination for monitoring:

- Pesticide A: little use and low toxicity = won't be monitored
- Pesticide B: little use and high toxicity = will be monitored
- Pesticide C: high use and little toxicity = a formula is used to determine monitoring
- Pesticide D: high use and high toxicity = will be monitored

Water Quality Monitoring

Water quality issue(s) identified from prior monitoring:

Single exceedance:

- If no additional exceedances in the next 3 years, no management plan is triggered.

Two or more exceedances in a 3-year period:

- A management plan (MP) is triggered and there would be increased monitoring until the MP was completed.
- A management plan is for 3 years IF there are no more exceedances for the parameter in question.

Water Quality Monitoring

What's an exceedance?

- Exceeds water quality objectives (WQO) of the PEP-pesticide evaluation protocol
- A WQO is a numeric value (based on science) that, if measured above that value, may cause harm to humans or aquatic organisms.
- In recent years, exceedances have been caused by **pyrethroids.**

Monitoring for Pyrethroid Pesticides

Pyrethroids are:

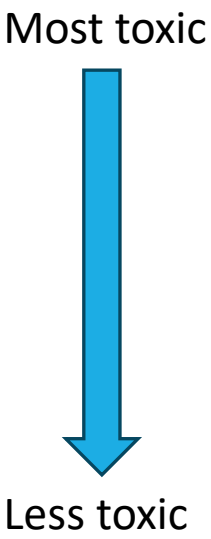
- Highly toxic at very low concentrations to ***Hyalella azteca***, that are eaten by waterfowl and fish.
- Tightly bound to soil in the water column
- Six pyrethroids have been identified in the program for analysis and requires that the toxicity of each one be added together to determine if concentrations are **collectively toxic** to test organisms (i.e., *Hyalella*).

Hyalella azteca

Monitoring for Pyrethroid Pesticides

The six pyrethroids include:

- Bifenthrin*
- Lambda-Cyhalothrin*
- Cypermethrin
- Cyfluthrin
- Esfenvalerate
- Permethrin



*Bifenthrin and Lambda-Cyhalothrin pyrethroid triggered the management plan at Ulatis Creek monitoring site.

Trade Names for the Pyrethroids that triggered our MP

Bifenthrin Trade Names*

Aceto Bifenthrin 2EC
Athena
Bifen 2 Ag Gold
Bifenture
Brigade
Brigadier
Capture
Fanfare
Hero
Sniper

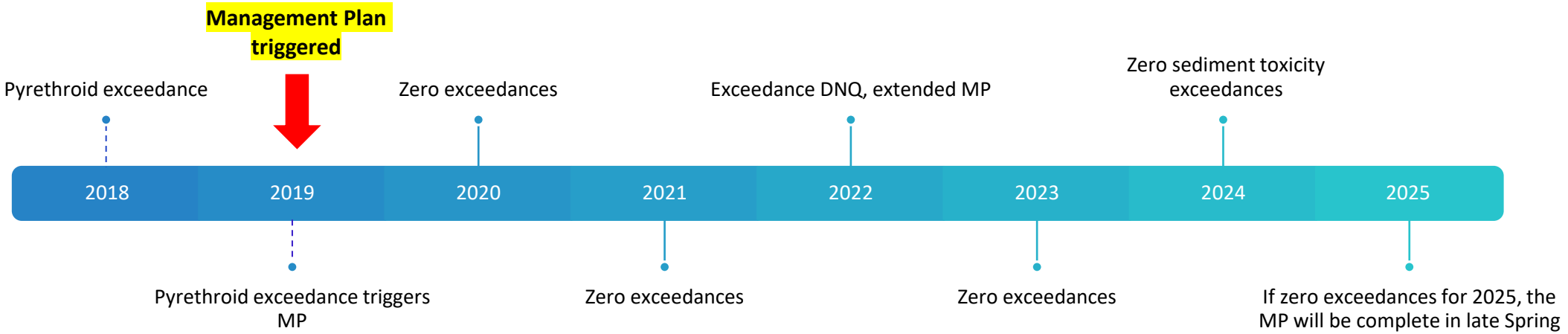
*This list focuses on products that are commonly used in local agriculture. It is not ALL inclusive of the pyrethroid products that could be used.

Lambda-Cyhalothrin Trade Names*

Besiege
Endigo ZC
Grizzly Too
Kaiso
Karate
Kendo
Lambda-Cy
Lambdastar
Lamcap
Paradigm
Province
Silencer
Voliam Xpress
Warrior

Pyrethroid Sediment Toxicity Exceedances:

Timeline of the active Management Plan for Sediment Toxicity at Ulatis Creek/Brown Road (UCBRD) monitoring site

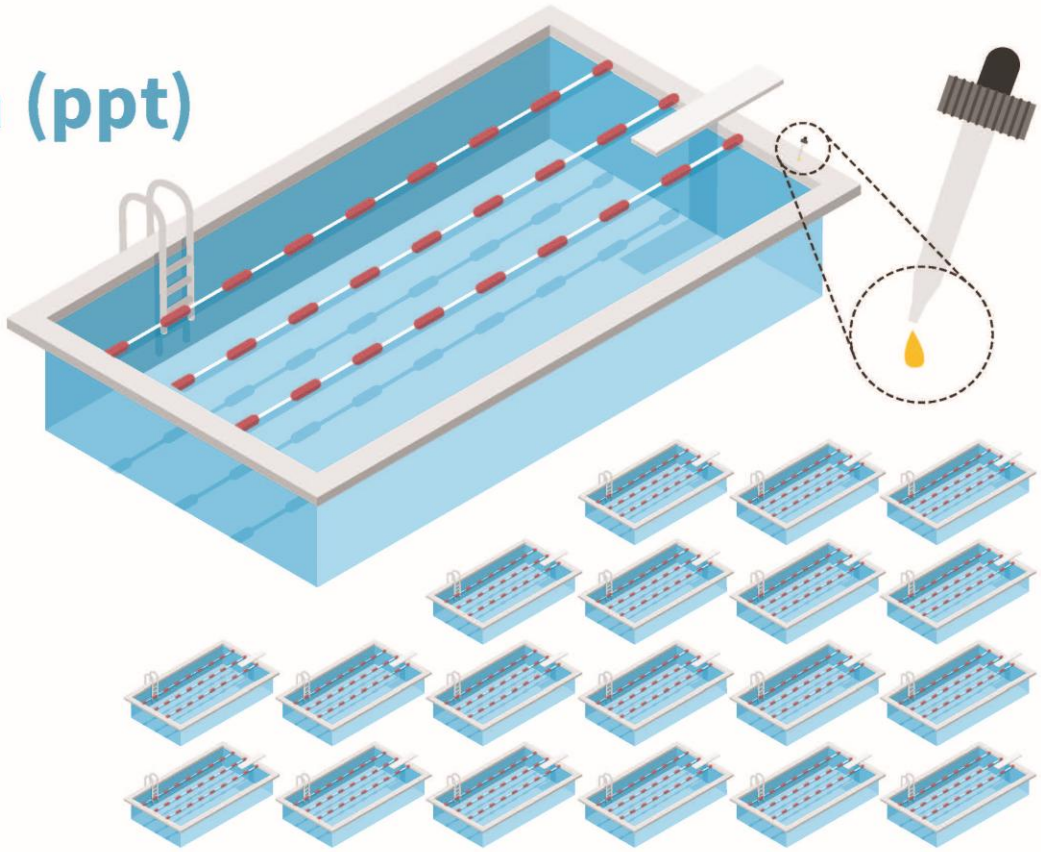


Amount of Pyrethroid to cause an Exceedance

1 part per trillion (ppt)

IS EQUIVALENT TO A SINGLE DROP OF WATER IN

20 olympic-sized swimming pools



Overview of a Management Plan (MP)

- Environmental concerns
- Increased program costs
- Increased water quality monitoring
- Increased farm reporting for pyrethroid users
- Additional outreach and training requirements

Pyrethroid **Water Column** Exceedances:

December 17, 2024

Water Column detection of pyrethroids at the Ulatis Creek monitoring site

Found in the sample:

- Bifenthrin
- Lambda-Cyhalothrin
- Cyfluthrin
- Esfenvalerate

- A management plan was not triggered, however, collectively the 4 pyrethroids together was enough to cause an exceedance.
- Preceeded by 2.25 inches of rain, characterizes this exceedance as being impacted by land surface runoff

Trade Names for the Pyrethroids used 6 months prior to the exceedance on December 17, 2024

Agricultural Use

Bifenthrin

ACETO BIFENTHRIN 2EC
BIFEN 2 AG GOLD
BIFENTURE EC AGRICULTURAL INSECTICIDE
BIFENTURE LFC
CAPTURE LFR INSECTICIDE
FANFARE 2EC INSECTICIDE-MITICIDE
FANFARE EC
LANCER 2EC
OMNI BRAND BIFENTHRIN 2EC
SNIPER

Lambda-Cyhalothrin

BESIEGE INSECTICIDE
ENDIGO ZC
LAMBDA-CY AG
LAMBDA-CY EC INSECTICIDE-RUP
LAMBDASTAR 1 CS
LAMBDASTAR INSECTICIDE
LAMCAP II
RAVAGE
SCIMITAR GC INSECTICIDE
SILENCER
WARRIOR II WITH ZEON TECHNOLOGY
WILLOWOOD LAMBDA-CY 1EC

Non- Agricultural Use

Bifenthrin

BASELINE INSECTICIDE
BIFEN I/T INSECTICIDE/TERMITICIDE
BIFEN L/P INSECTICIDE GRANULES
BIFEN MAXX INSECTICIDE/TERMITICIDE
BIFEN XTS INSECTICIDE/TERMITICIDE
BISECT L
HY-END BIFEN S
LESCO CROSSCHECK EZ GRANULAR INSECTICIDE
LESCO CROSSCHECK PL GRANULAR INSECTICIDE
LESCO CROSSCHECK PLUS GC INSECTICIDE/MITICIDE
LESCO CROSSCHECK PLUS MULTI-INSECTICIDE
MASTERLINE B MAXXPRO TERMITICIDE/INSECTICIDE
MASTERLINE BIFENTHRIN 7.9 TERMITICIDE/INSECTICIDE
MAXXTHOR SC
TALSTAR CA GRANULAR INSECTICIDE
TALSTAR EZ GRANULAR INSECTICIDE
TALSTAR INSECTICIDE
TALSTAR P PROFESSIONAL INSECTICIDE
TALSTAR PL GRANULAR INSECTICIDE
TALSTAR TERMITICIDE/INSECTICIDE
TALSTAR XTRA GRANULAR INSECTICIDE
TALSTAR XTRA GRANULAR INSECTICIDE FEATURING VERGE GRANULE TECHNOLOGY
TRANSPORT GHP INSECTICIDE
TRANSPORT MIKRON INSECTICIDE
UP-STAR GOLD INSECTICIDE
VALUELINE BIFENTHRIN TC
WISDOM EZ
WISDOM LAWN GRANULAR INSECTICIDE
WISDOM TC FLOWABLE

Lambda-Cyhalothrin

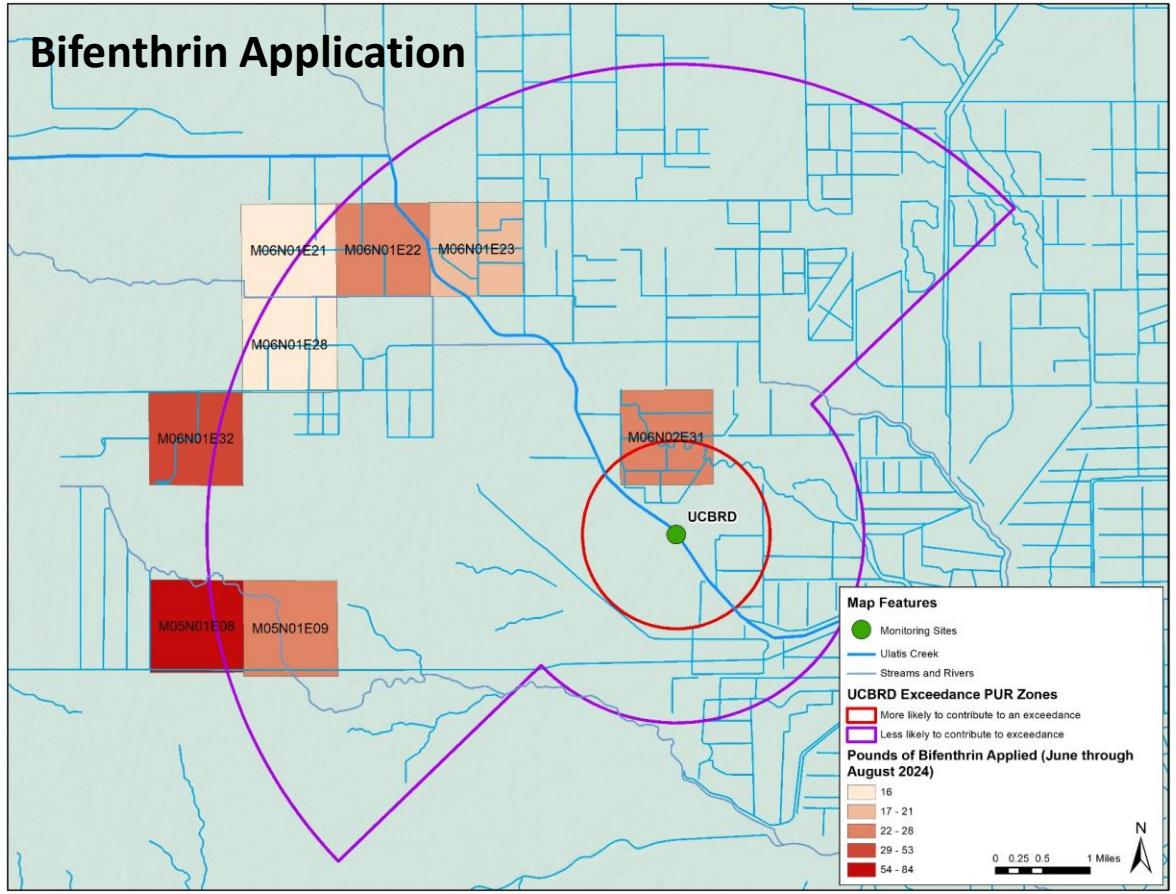
CYZMIC CS
DEMAND CS INSECTICIDE
DEMAND G
LAMBDA 9.7 CS
PATROL
PRESCRIPTION TREATMENT BRAND 221L RESIDUAL INSECTICIDE
PROFLEX
PT 221L PRESSURIZED INSECTICIDE
SPECTRACIDE WASP & H
SPECTRACIDE WASP & HORNET KILLER 3
TANDEM

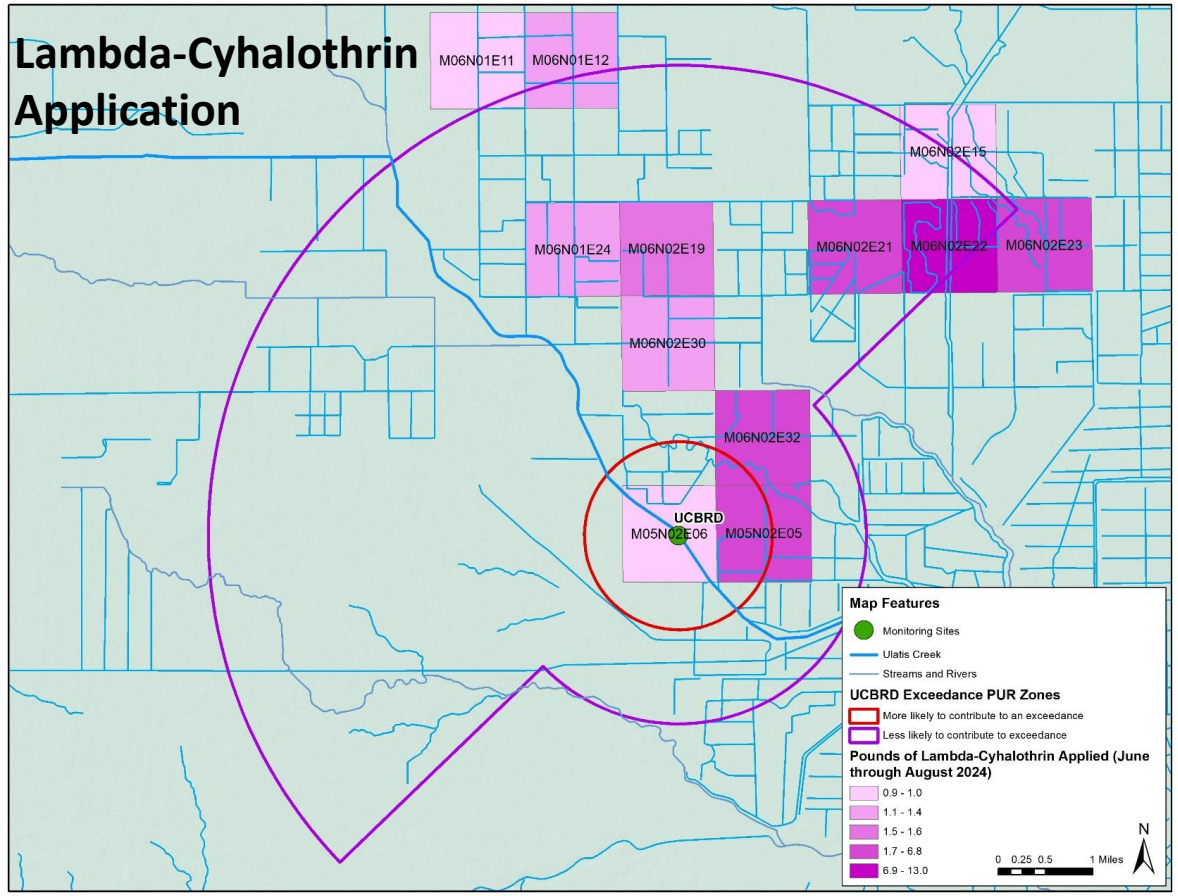
Pyrethroid Applications

What entity applied what pyrethroid from June-December 2024?

BIFENTHRIN	LAMBDA-CYHALOTHRIN	CYFLUTHRIN	ESFENVALERATE
AG-Almond	AG-Sudangrass	Structural Pest Control	Structural Pest Control
Structural Pest Control	AG-Tomato, processing	Landscape Maint	
Landscape Maint	AG-Alfalfa		
	AG-Forage/Hay		
	Structural Pest Control		
	Commercial Fumigation		
	Landscape Maint		

Pyrethroid **Water Column** Exceedances:



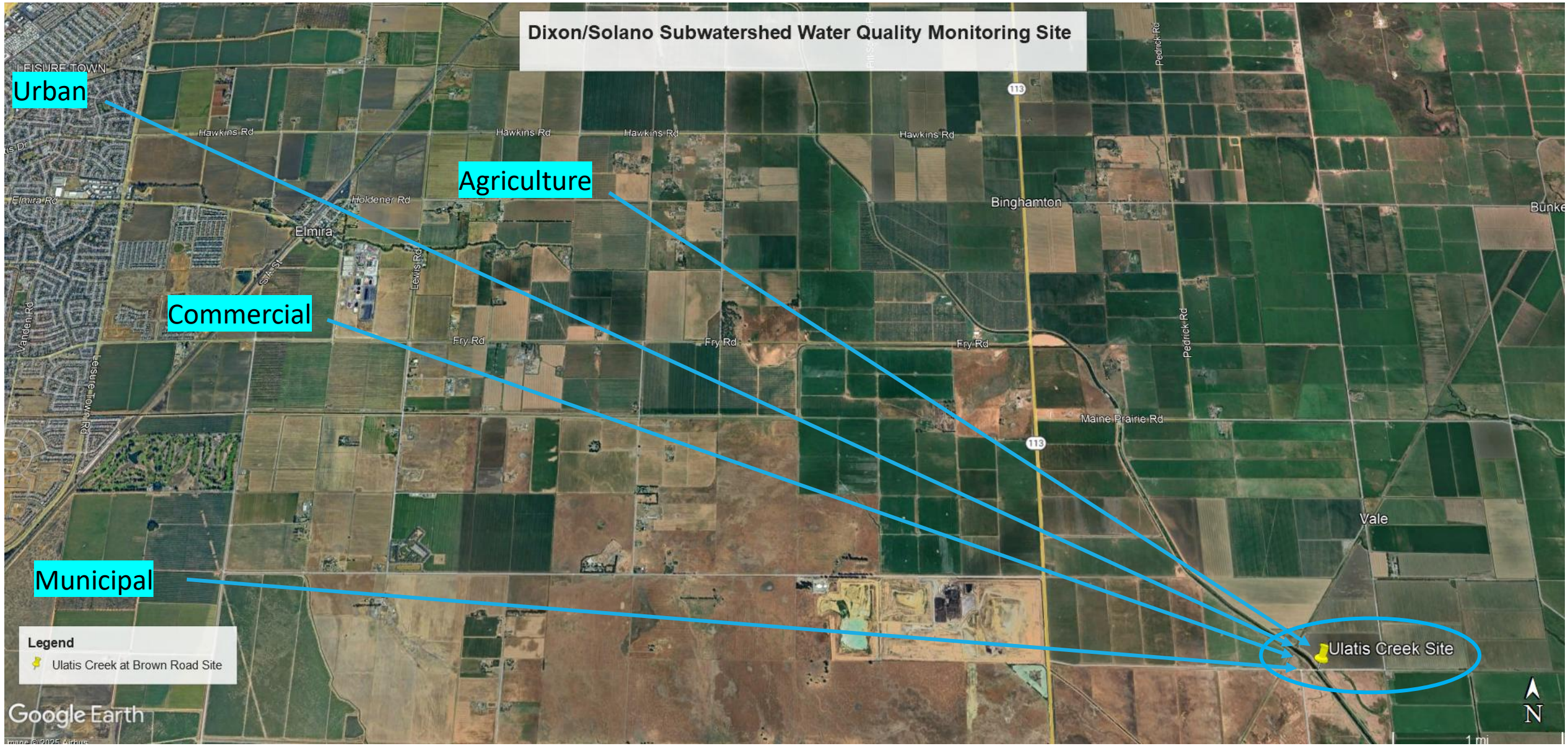


Mapped AG application of bifenthrin and lambda-cyhalothrin. Each square represents a township. Township = 36 square miles

Pyrethroid **BMP**

Use BMP – best management practices, such as:

- Avoid spray prior to rain or irrigation event
- Use alternate pesticides
- Eliminate drift
- Calibrate machinery
- Buffer zones
- Avoid waterways
- Use filter strips, berms, straw wattles, vegetated ditches
- Avoid spraying impervious surfaces


Dixon/Solano Subwatershed Water Quality Monitoring Site
Urban
Agriculture
Commercial
Municipal
LEISURE TOWN
Hawkins Rd
Elmira Rd
Holdener Rd
Elmira
Lewis Rd
Vanden Rd
Leisure Town Rd
Fry Rd
Binghamton
Pedrick Rd
Maine Prairie Rd
Vale
Ulatis Creek Site
Legend
Ulatis Creek at Brown Road Site
Google Earth
N
1 mi

Delta Regional Monitoring Program (RMP)

Established in 2015

Purpose:

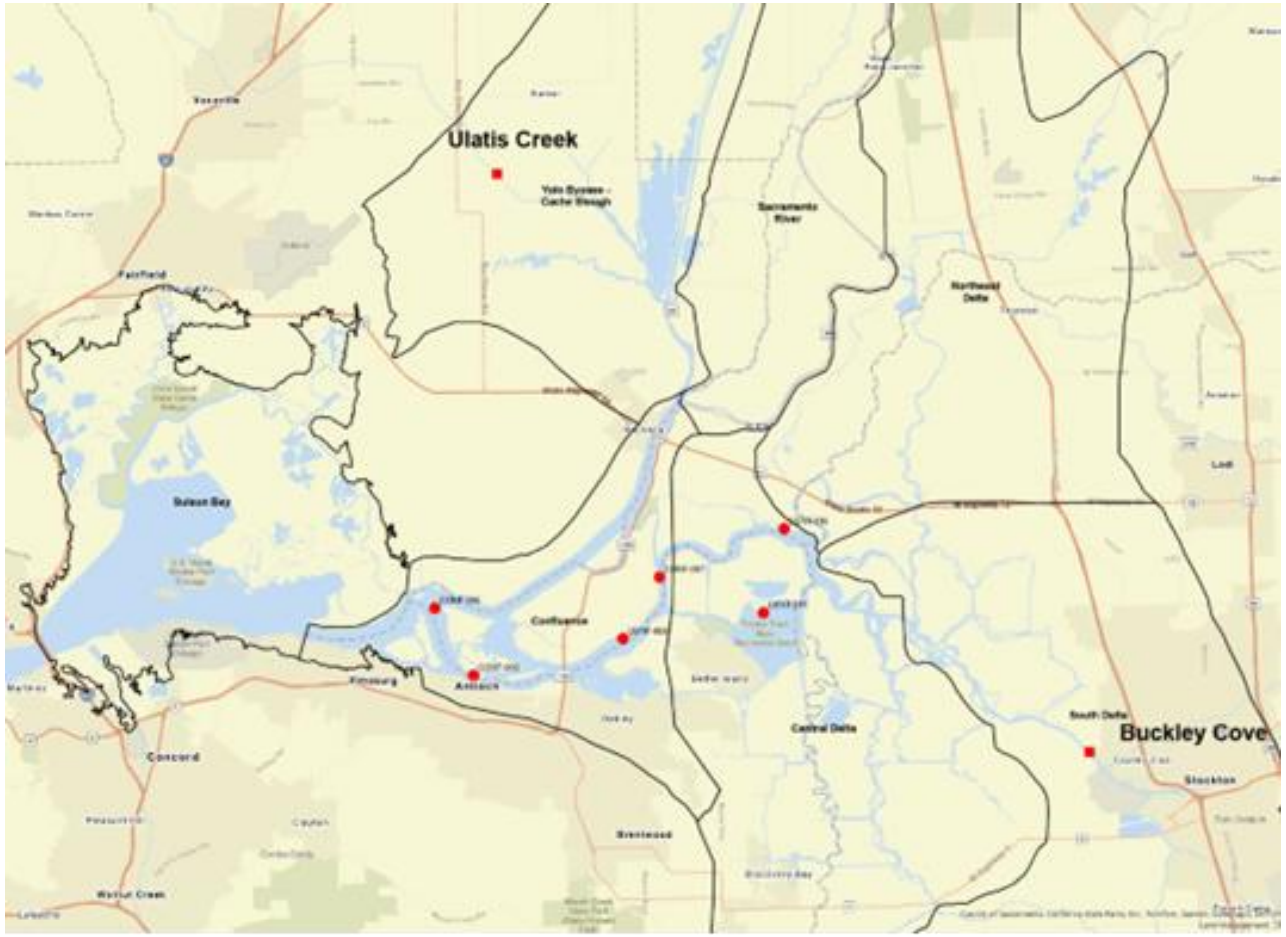
Protect water quality for multiple uses around the Delta

Long-term monitoring for historical data

Map:

Fixed monitoring sites at Ulatis Creek and Buckley Cove (location historically with most detection of pyrethroids)

Random sampling throughout the Delta



Delta Regional Monitoring Program (RMP)

January 2024 Delta RMP sampling found:

Detection of Imidacloprid and Malathion at the Ulatis Creek monitoring site

Imidacloprid Uses and # of times used:

- Structural Pest Control (278)
- Landscape Maint (55)
- Reg Pest Control (8)
- Right of Ways (1)
- Landscape/Park (1)

Malathion Uses and # of times used:

- Ag-Outdoor plants (51)
- Ag-Grapes (2)
- Ag-Alfalfa (1)

Thank you.

Questions? Please contact Martha McKeen at

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NEXT UP:

Patricia Lazicki, UCCE Advisor