

# Status of Biomonitoring and Attempts to Integrate



Region 5

Central Valley Regional Water Quality Control Board

Lower Sacramento River Basin

# Status of Biomonitoring....

- 1) Bioassessment of Agriculture and Effluent Dominated Waterways of the Lower Sacramento River Watershed
- 2) Old Alamo Creek Aquatic Life Surveys
- 3) Sac River BMI Reference Condition Project

# Attempts to Integrate....

- 1) Weight of Evidence Approach - Sediment-associated Pesticides as Factors Controlling Macroinvertebrate Distributions in Central Valley Surface Waters
- 2) Pilot Project - Zooplankton Trends in Agriculture Dominated Waterways of Lower Sacramento River Watershed

# Bioassessment of Agriculture and Effluent Dominated Waterways of the Lower Sacramento River Watershed

## Macroinvertebrate Assemblages in Agriculture- and Effluent-dominated Waterways of the Lower Sacramento River Watershed

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Surface Water Ambient Monitoring Program (SWAMP)  
Region 5 – Lower Sacramento River Basin  
Fiscal Years: 00/01 and 01/02

Hydrologic Units:

514 (American River), 515 (Marysville), 519 (Valley-American), 520 (Colusa Basin)

# Bioassessment of Agriculture and Effluent Dominated Waterways of the Lower Sacramento River Watershed

Goal: Describe BMI community composition and habitat conditions

- 2 year Investigation
- Eight Waterways – multiple sites on each waterway

Summary of Findings:

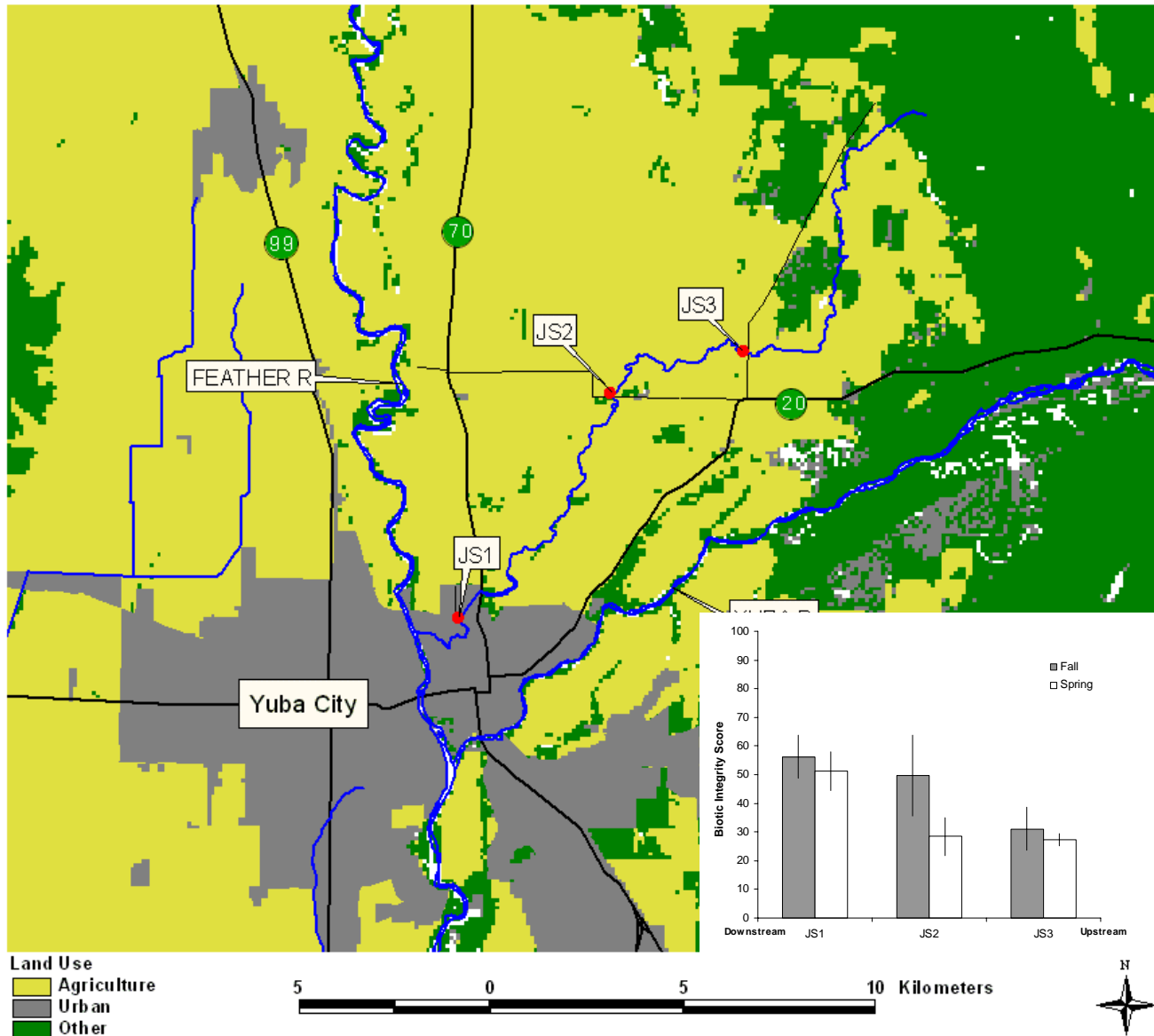
Compromised BMI communities

Decreased riparian zones, increased channel alteration, increased sedimentation, and loss of high quality BMI habitat

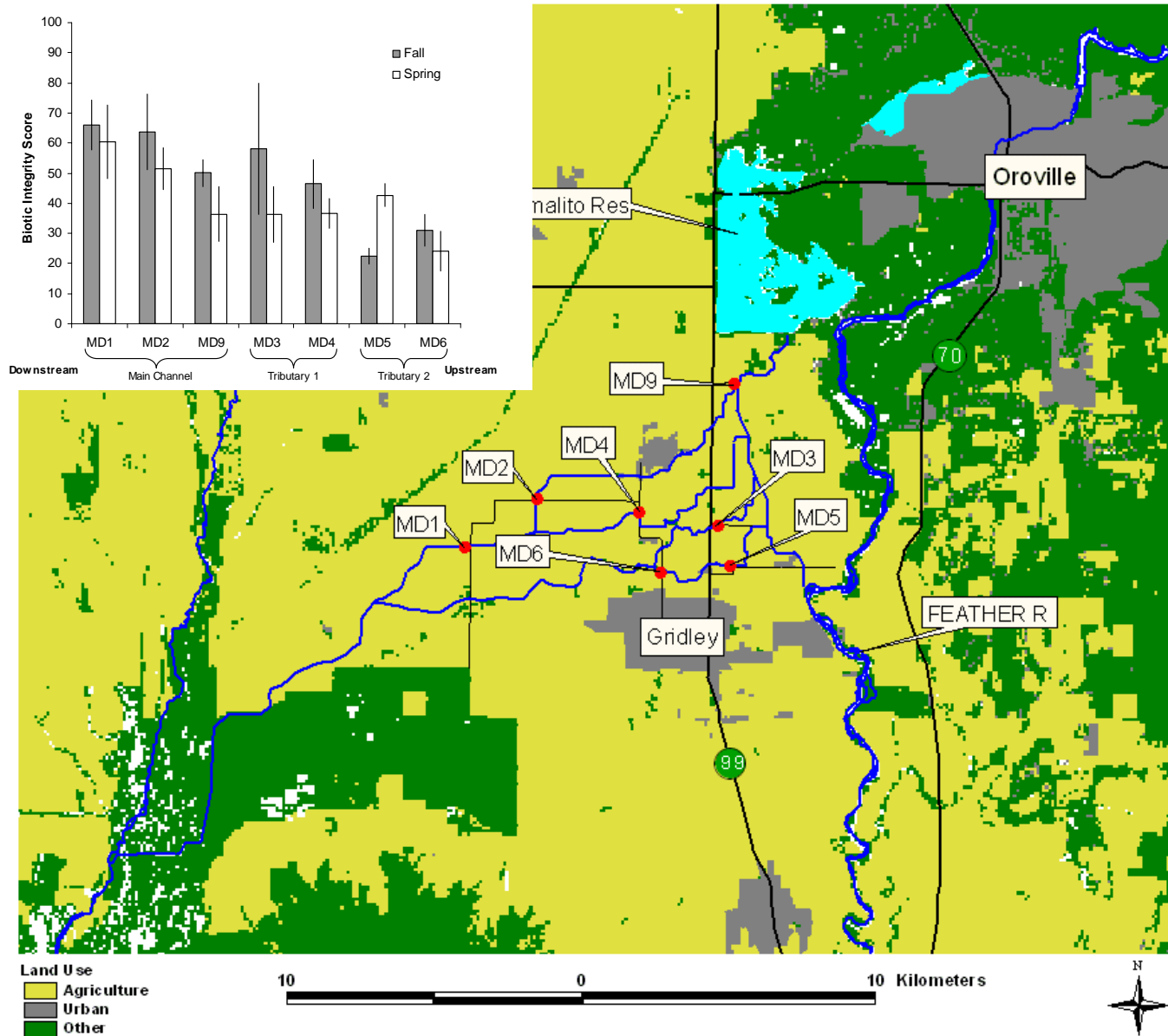
Physical habitat poor at most sites – especially agriculture-dominated waterways.

Some Ag drains – variables explaining BMI composition not well understood. Need more investigation.

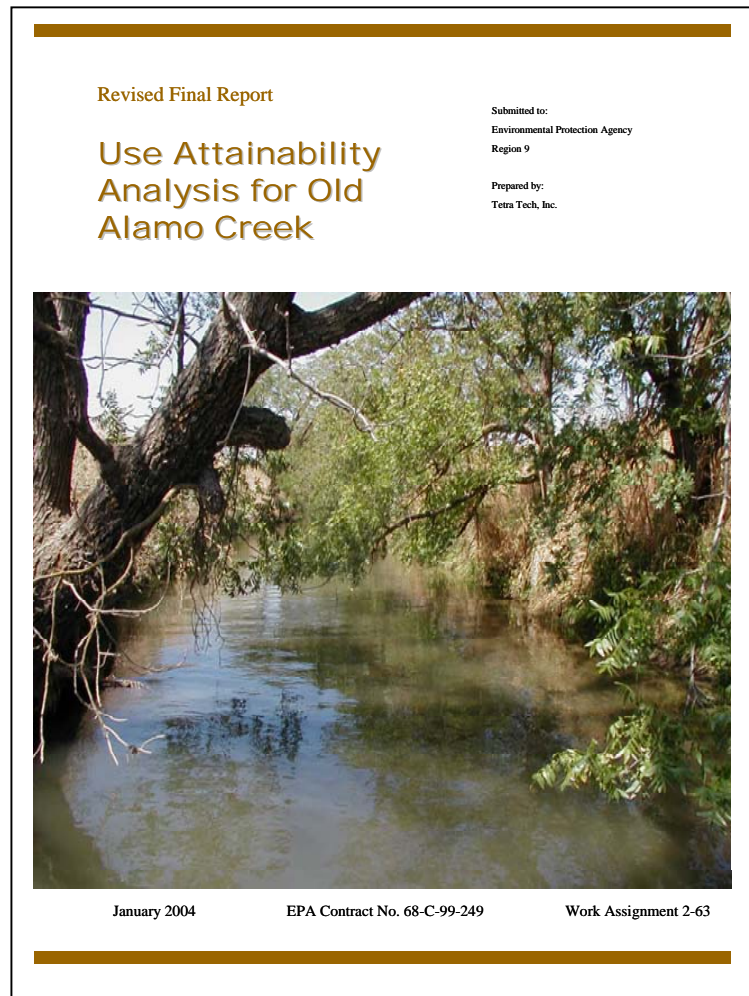
# Jack Slough BMI Integrity



# Main Canal BMI Integrity



# Old Alamo Creek Aquatic Life Surveys



## Goals:

- 1) Use framework identified by Tetra Tech for aquatic life component of Use Attainability Analyses (UAA)
- 2) DFG - Expand aquatic life surveys throughout upper Old Alamo Creek Watershed

# Focus: Biological Surveys throughout Upper Old Alamo Creek with emphasis on Coldwater species

Are coldwater species present?

Were coldwater species present?

Is habitat sufficient to support coldwater species use?

Are factors limiting the use?

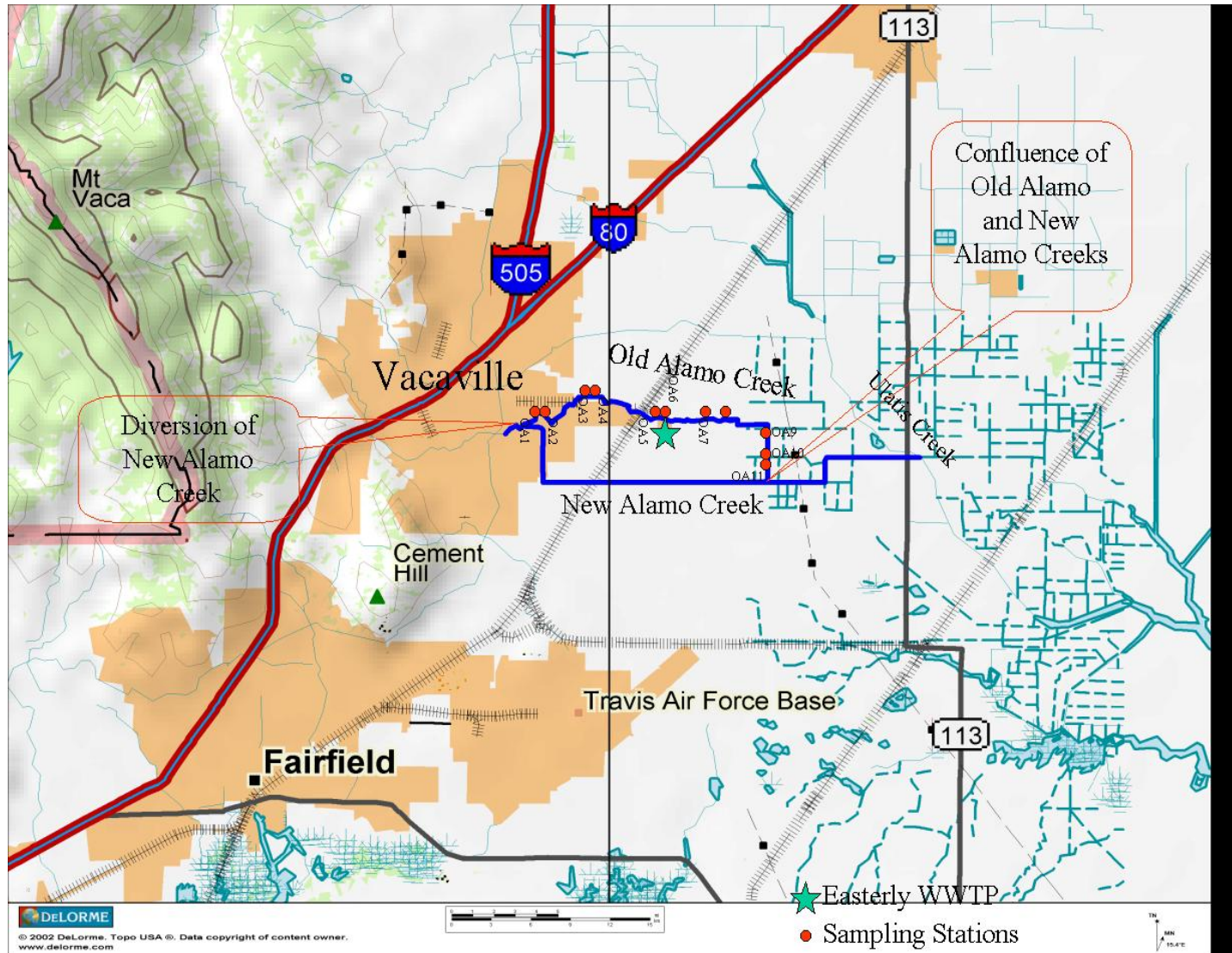
Spatial and temporal coldwater uses?

Explore biological potential

- Fish, Benthic Macroinvertebrates (BMI)s, Habitat



# Old Alamo Creek and New Alamo Creek



# Old Alamo Creek Aquatic Life Surveys



# Sacramento River BMI Reference Condition Project

DFG Contract - Sac River BMI and Habitat Reference Condition Project

- Sierra Foothills Region and Low Gradient Waterways (Sloughs) of Valley Floor Region



# Attempts to Integrate....

Sediment-associated Pesticides as Factors Controlling  
Macroinvertebrate Distributions in Central Valley Surface Waters

Sediment toxicity testing, sediment chemistry (pyrethroid pesticides),  
freshwater amphipod (*hyalella*) occurrence/abundance

UC Berkeley/CVRWQCB SWAMP

Coordinated with Sacramento River Watershed Program (SRWP)  
Proposition 13 Pesticide Research and Identification of Source and  
Mitigation (PRISM) grant project “ Distribution and toxicity of  
sediment-associated pesticides in the Sacramento River Watershed”

# Sediment-associated Pesticides as Factors Controlling Macroinvertebrate Distributions in Central Valley Surface Waters



# Attempts to Integrate....

Zooplankton Trends in Agriculture Dominated Waterways of Lower Sacramento River Watershed

Water column toxicity testing, water column chemistry,  
Zooplankton abundance and composition

UC Davis/CVRWQCB SWAMP

Coordinated with CVRWQCB Agricultural Waiver Program monitoring.

# Zooplankton Trends in Agriculture Dominated Waterways of Lower Sacramento River Watershed



# Summary

Region 5 Lower Sacramento River....

Aquatic life surveys – Use Attainability Analyses

Weight of Evidence approach to ambient monitoring

Finish BMI Reference Condition Project





# Acknowledgements

Surface Water Ambient Monitoring Program (SWAMP)

Tetra Tech

UCD

UCB

DFG

