

The background is a light blue gradient with several realistic water droplets of various sizes scattered across the surface. The droplets have highlights and shadows, giving them a three-dimensional appearance.

UPPER WATERSHEDS OF THE SACRAMENTO VALLEY – A VIRTUAL TOUR

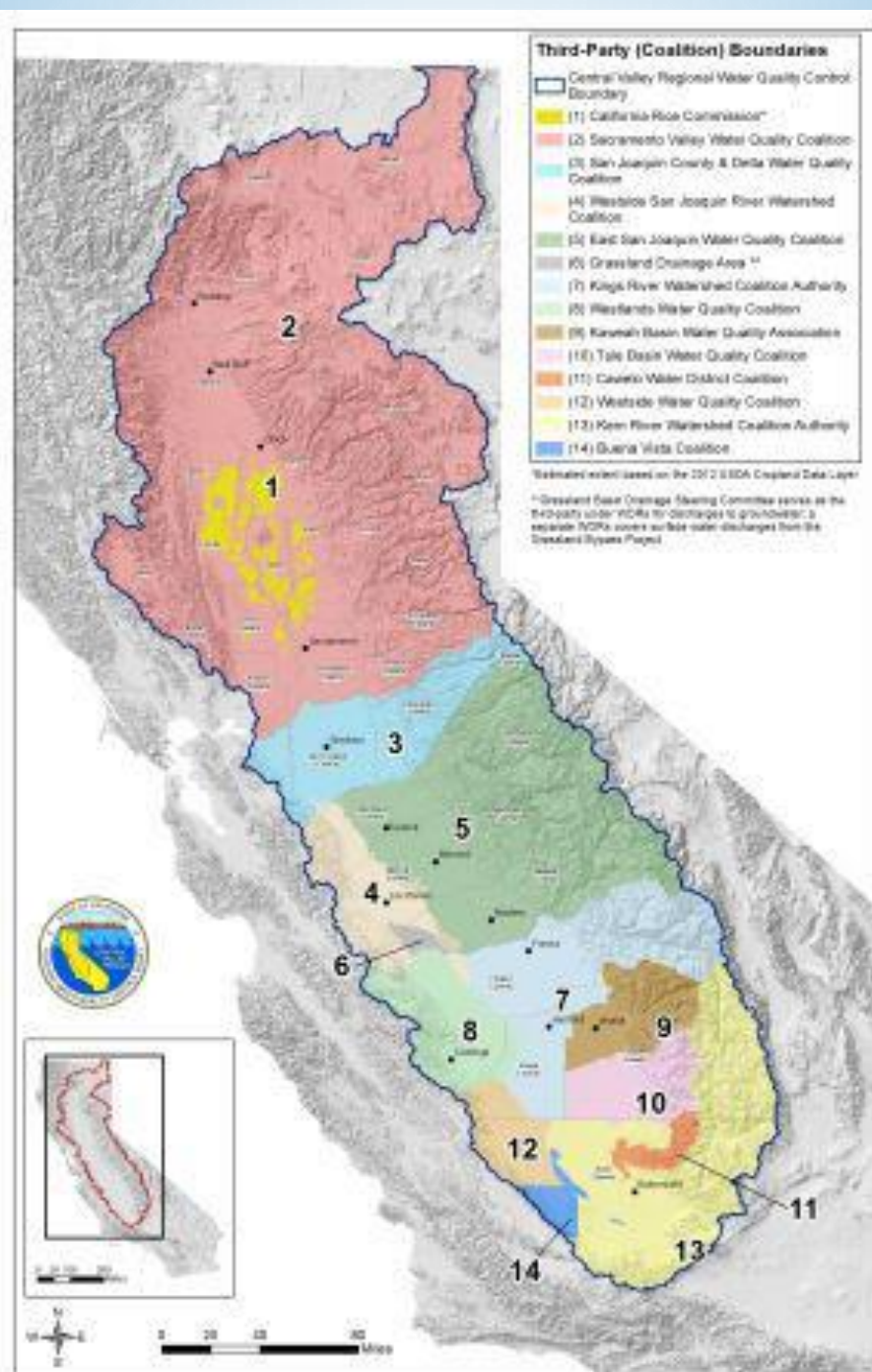
STORY OF STEWARDSHIP

OVERVIEW OF PRESENTATION

- INTRODUCTION OF PANELIST BACKGROUND
 - PAM GIACOMINI – SHASTA COUNTY SUPERVISOR, VICE-CHAIR SIERRA NEVADA CONSERVANCY
 - PAST MEMBER STATE BOARD OF FORESTRY AND FIRE PROTECTION
 - BRUCE HOUDESHEDT, SACRAMENTO VALLEY WATER QUALITY COALITION
 - LARRY FORERO – COUNTY DIRECTOR, COOPERATIVE EXTENSION – SHASTA COUNTY
 - VICKY DAWLEY – DISTRICT MANAGER, TEHAMA COUNTY RESOURCES CONSERVATION DISTRICT, SHASTA
TEHAMA WATERSHED EDUCATION COALITION

GOALS OF PRESENTATION

- BRIEF OVERVIEW OF UPPER WATERSHEDS OF SACRAMENTO VALLEY WATER QUALITY COALITION
- SURFACE AND GROUNDWATER QUALITY CONDITIONS
- **PROACTIVE** STEWARDSHIP INITIATIVES AND PROJECTS
 - NOT JUST WAITING FOR ISSUES TO ARISE
 - BUILDING ON SUCCESS STORIES – BOTH IN THE UPPER WATERSHEDS AND VALLEY FLOOR WALKER CREEK IN GLENN COUNTY
- RESOURCES UTILIZED BY “SUBWATERSHED TEAM”



**Sacramento River Watershed
Sacramento Valley Water Quality Coalition
Subwatershed Boundaries**



A UNIQUE NATURAL AND WORKING LANDSCAPE

THE SACRAMENTO VALLEY

- OVER 225 MILES FROM THE DELTA TO THE OREGON BORDER
- 60,000 SQUARE MILES

HOME TO

- HABITAT FOR 50% OF THE THREATENED AND ENDANGERED SPECIES IN CALIFORNIA, INCLUDING THE WINTER-RUN AND SPRING-RUN SALMON, STEELHEAD, AND MANY OTHER FISH SPECIES.
- SIX NATIONAL WILDLIFE REFUGES, MORE THAN FIFTY STATE WILDLIFE AREAS, AND THE PACIFIC FLYWAY.

OVERVIEW OF UPPER WATERSHEDS

- NEARLY 8 MILLION ACRES IN THE WATERSHEDS OF GOOSE LAKE, THE UPPER PIT RIVER, LAKE COUNTY, SHASTA – TEHAMA, EL DORADO AND THE UPPER FEATHER RIVER.
- WHILE THE FOOTPRINT IS LARGE IRRIGATED AGRICULTURE LESS THAN 5% OF THE LANDSCAPE IN THE UPPER WATERSHEDS
- IRRIGATED AGRICULTURE INTERSPERSED AMONG NATIONAL FORESTS, TIMBER, RANGELAND, STATE AND FEDERAL REFUGES AND URBAN CENTERS - RED BLUFF, REDDING, ALTURAS, QUINCY, AUBURN, NEVADA CITY, AND PLACERVILLE
- ABOUT 240,000 OF THE SACRAMENTO RIVER WATERSHED'S 1.3 MILLION IRRIGATED ACRES ARE IN UPPER WATERSHED







UPPER WATERSHEDS – < 5% IRRIGATED ACRES OUT OF 8 MILLION ACRES

2095 MEMBERS FARMING AND RANCHING ~4500 PARCELS ON ~240,000 IRRIGATED ACRES

• GOOSE LAKE - ACRES	36 MEMBERS	68 PARCELS	8315 IRRIGATED
• PIT RIVER –	152 MEMBERS	633 PARCELS	85,732 IRRIGATED ACRES
• UPPER FEATHER RIVER	93 MEMBERS	407 PARCELS	34,892 IRRIGATED ACRES
• EL DORADO	301 MEMBERS	390 PARCELS	3545 IRRIGATED ACRES
• LAKE COUNTY	166 MEMBERS	725 PARCELS	10,053 IRRIGATED ACRES
• PUTAH CREEK (NAPA COUNTY)	61 MEMBERS	124 PARCELS	3929 IRRIGATED ACRES
• SHASTA AND TEHAMA COUNTIES	1061 MEMBERS	2144 PARCELS	83,374 IRRIGATED ACRES
• NEVADA COUNTY	102 MEMBERS		2500 IRRIGATED ACRES
• AMADOR COUNTY	123 MEMBERS		5696 IRRIGATED ACRES
• PLUS THE FOOTHILL PORTIONS OF PLACER AND YUBA COUNTIES			

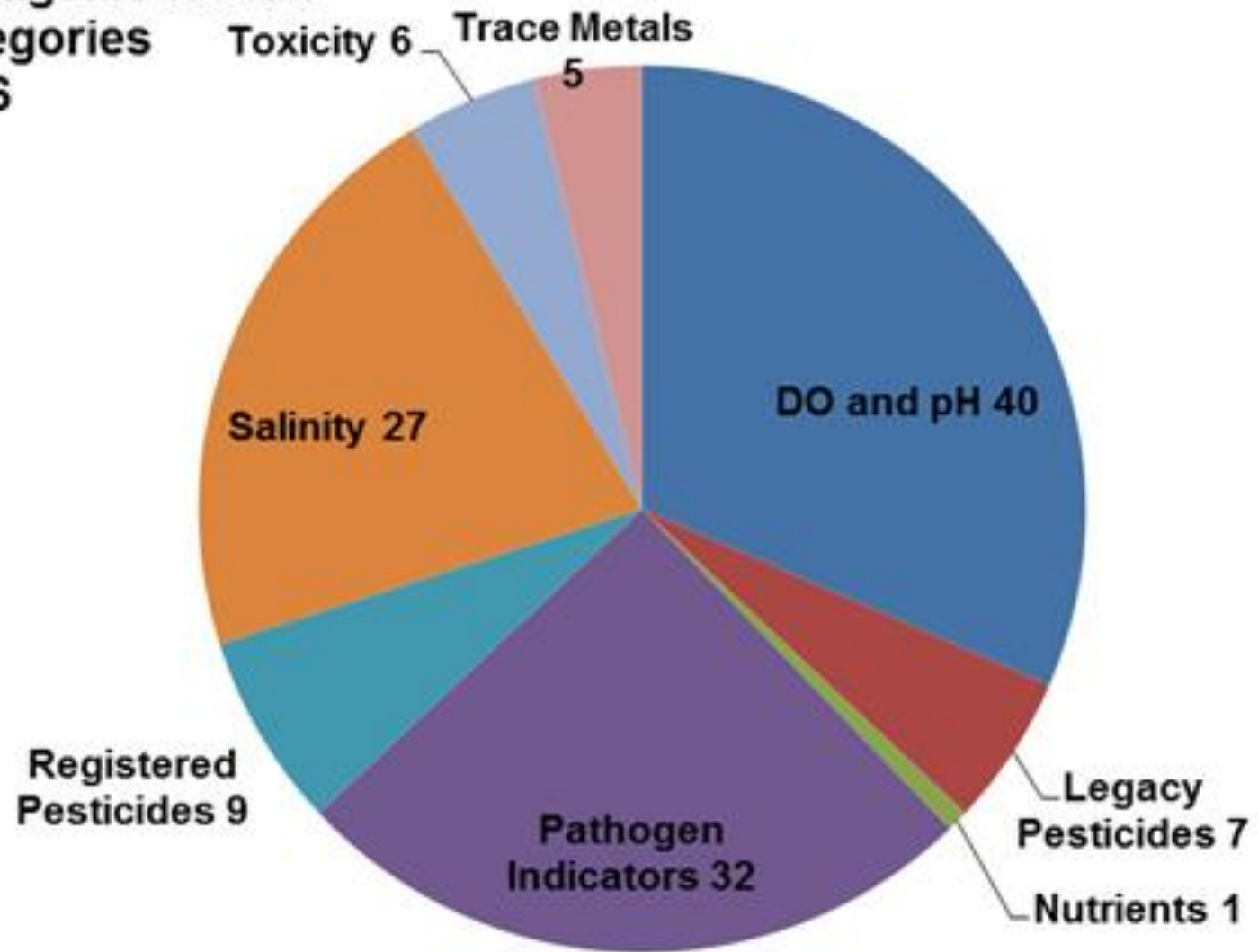
DELINEATING UPPER WATERSHEDS

- APPRECIATE REGIONAL BOARD ACTIONS TO RECOGNIZE CONDITIONS IN THE UPPER WATERSHED ARE DIFFERENT
 - REDUCED MONITORING MANAGEMENT PRACTICES VERIFICATION OPTION
 - IRRIGATED PASTURE NOT APPLYING NITROGEN NOT REQUIRED TO DO NITROGEN MANAGEMENT PLAN
 - DESIGNATION OF GROUNDWATER QUALITY VULNERABILITY IN UPPER WATERSHEDS 2021

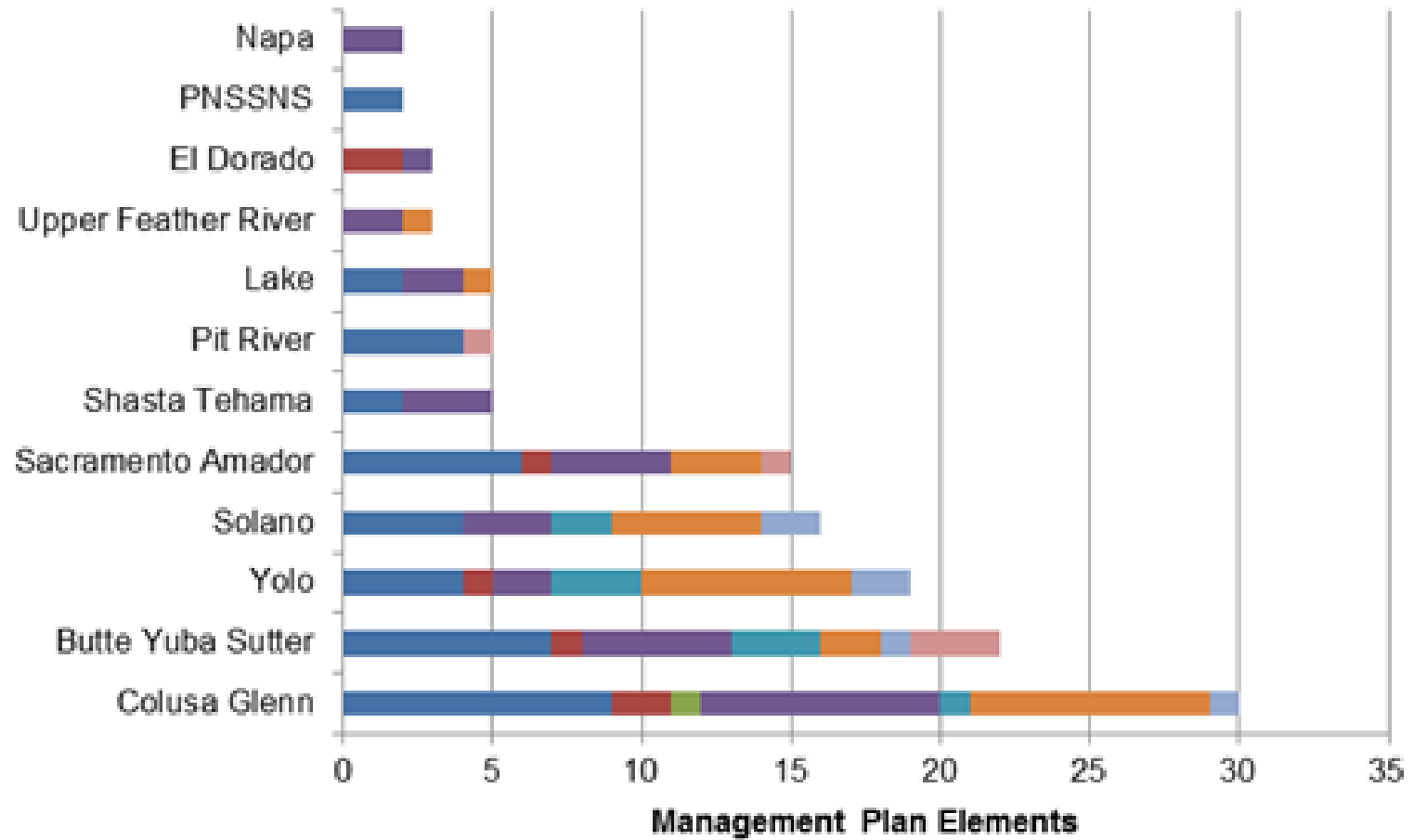
WATER QUALITY CONDITION

- VARIOUS INVESTIGATIONS AND REPORTS OF WATER QUALITY – BOTH SURFACE AND GROUNDWATER – HAVE FOUND NO DEGRADATION
- NO ACCIDENT WATER QUALITY IS GOOD
 - PESTICIDE USAGE IS LOW
 - ORGANIC PROGRAMS INCREASING
 - MANAGEMENT PRACTICES IMPLEMENTED TO PROTECT WATER QUALITY
- IN THE SIERRA NEVADA FOOTHILLS NO GROUNDWATER BASINS
- THROUGHOUT SACRAMENTO VALLEY FEW PESTICIDE AND TOXICITY MANAGEMENT PLANS – IN UPPER WATERSHEDS **NONE**

**Management Plan
Categories
2016**

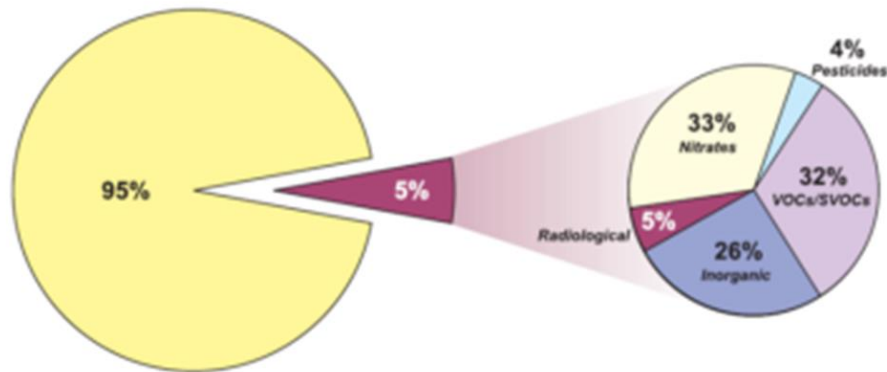


■ DO and pH ■ Legacy Pesticides ■ Nutrients ■ Pathogen Indicators
 ■ Registered Pesticides ■ Salinity ■ Toxicity ■ Trace Metals



GROUNDWATER QUALITY

2003: DWR Bulletin 118: 2003 Update –
Public Supply Wells



1356 Wells Sampled

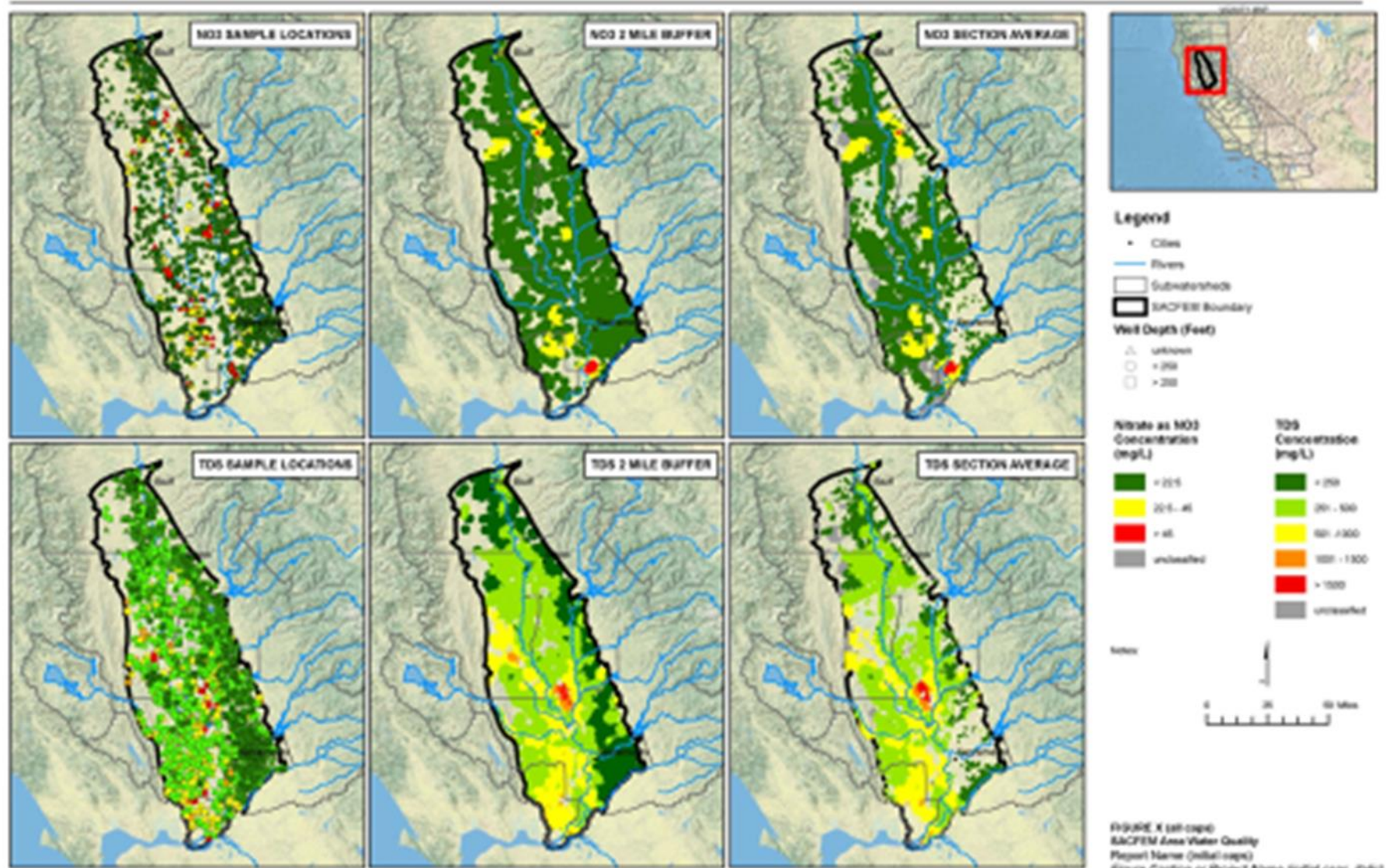
■ Meet primary MCL standards
■ Detection of at least one constituent above primary MCL

Conclusion: Groundwater quality in the Sacramento Valley is generally very good, and low in contaminants including pesticides, nitrate, and inorganic constituents.

Valley-scale Results: Water Quality

NO3 Statistics:

- 2645 wells total
- Most recent data
- 15% above half MCL
- 5% above MCL
- Average: 11 mg/L
- Median: 7 mg/L





STEWARDSHIP OF LANDSCAPE IS A WAY OF LIFE

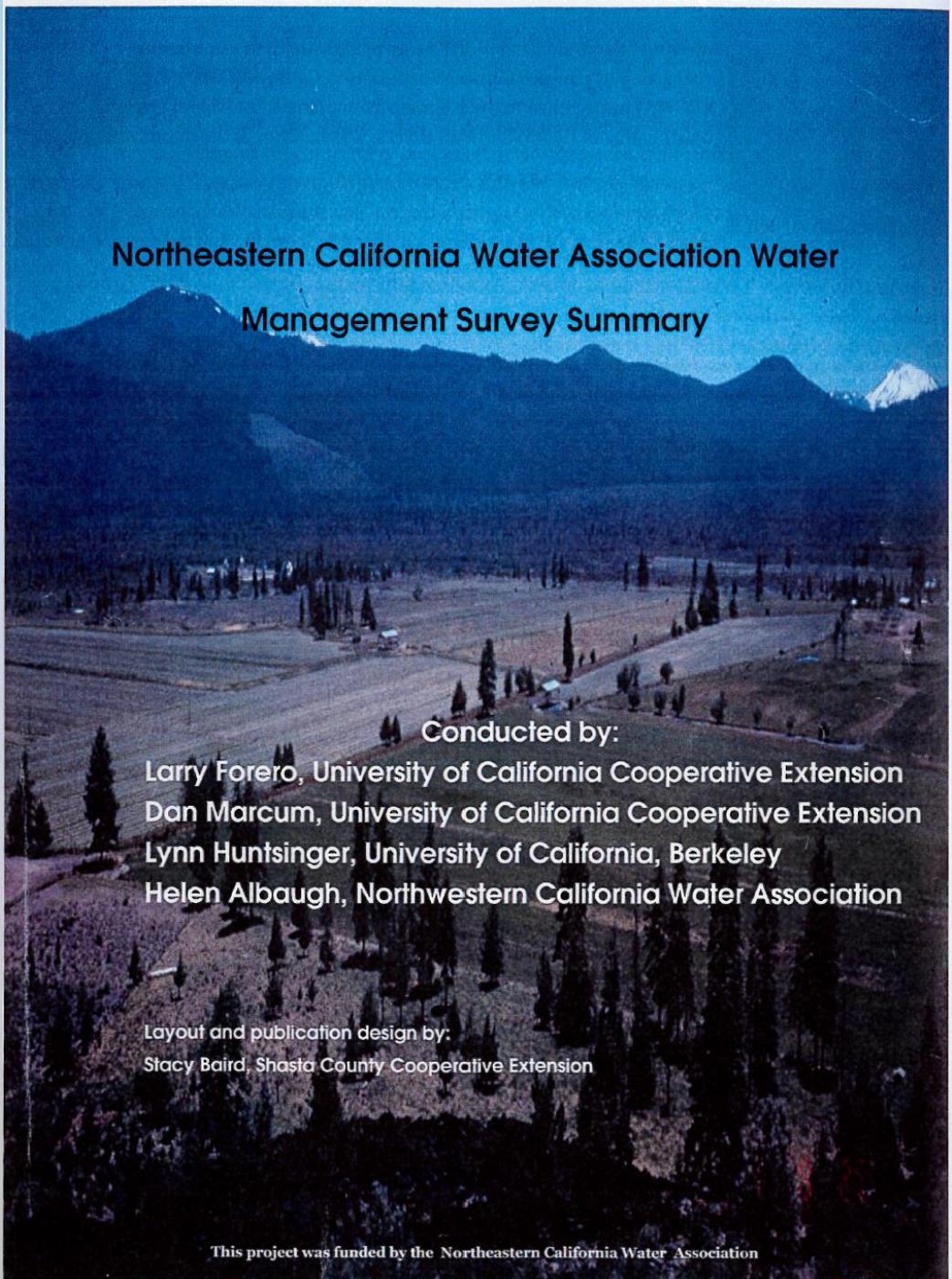




- THE CALIFORNIA NATURAL RESOURCES AGENCY HAS AWARDED A GRANT FOR \$650,000 TO CALIFORNIA TROUT TO RESTORE FISH HABITAT AND CREATE NEW RECREATIONAL OPPORTUNITIES IN AND AROUND HAT CREEK IN SHASTA COUNTY. THE FUNDING WILL SUPPORT PROJECTS AIMED AT IMPROVING CONDITIONS FOR WILD TROUT THAT WERE ONCE ABUNDANT BUT HAVE DROPPED TO PRECARIOUSLY LOW LEVELS IN RECENT YEARS.
- RESTORE 1.5 MILES OF IN-STREAM WILD TROUT HABITAT AND NATIVE VEGETATION ALONG HAT CREEK.

RIPARIAN FRIENDLY GRAZING – CENTRAL MODOC RCD



An aerial photograph of a mountainous landscape. In the foreground, there are dark, dense evergreen forests. Beyond the forest, there are rolling hills and fields, some of which appear to be agricultural. In the background, there are large, rugged mountains with some snow-capped peaks under a clear blue sky.

Northeastern California Water Association Water Management Survey Summary

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This project was funded by the Northeastern California Water Association

GENERAL DEMOGRAPHICS

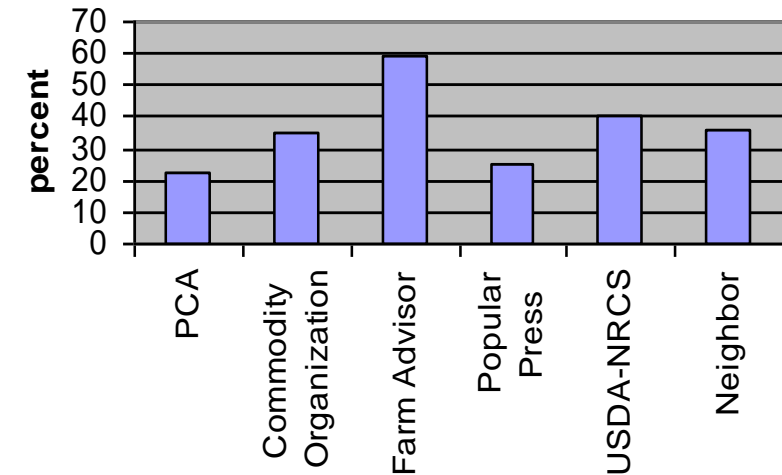


NECWA Mission Statement::

“To protect and enhance water rights, water quality and riparian areas to the benefit of agriculture, the environment, recreation and wildlife in the Northeastern California region.”

- RESPONSE RATE-76%
- RETURN:
 - 80% OWNERS
 - 16% MANAGERS
- 66% RESPONDENT TENURE <29 YRS
- 28% REPORT USING EQIP

Sources of Advice



SUMMARY

- **90% OF RESPONDENTS** HAVE MADE OR ARE MAKING SOME EFFORT TO IMPROVE MANAGEMENT OF WATER ON THEIR FARM/RANCH OPERATIONS
- 28% HAVE UTILIZED USDA-NRCS EQIP PROGRAM



OPPORTUNITIES (2010)

Commodity	No. of respondents reporting commodity	Soil and Tissue Test	Soil moisture sensors	Irrigation Scheduling
Wild rice	35	60%	N/A	37%
Hay	110	45%	36%	36%
Irrigated Grain	40	28%	15%	15%
Mint	12	66%	0	0
Strawberry	2	50%		
Other Crops	5	80%	29%	20%
Irrigated Pasture	77	21%	4%	42%
Livestock	100	N/A	N/A	43%

NORTHEASTERN CA WATER ASSOCIATION MONITORING PROGRAM-2005-2016

- IN 2005, NORTHEASTERN CALIFORNIA WATER ASSOCIATION CONTRACTED WITH THE SACRAMENTO VALLEY COALITION TO CONDUCT THE MONITORING REQUIRED BY THE CALIFORNIA CENTRAL VALLEY WATER QUALITY CONTROL BOARD (CVWQCB) TO COMPLY WITH THE AGRICULTURE WATER DISCHARGE REGULATIONS.
- SINCE 2005, SIX BROAD CATEGORIES OF POTENTIAL WATER QUALITY CONTAMINANTS WERE CONSIDERED:
 - PESTICIDES AND “LEGACY PESTICIDES”
 - TOXICITY,
 - PHYSICAL ATTRIBUTES,
 - MICROBIAL CONTAMINATION,
 - NUTRIENTS
 - VARIOUS ELEMENTS.

Toxicity

Aquatic invertebrates, fish and algae are used as indicators of water toxicity. The testing regime requires that water samples are sent to the lab and invertebrates are placed in the water samples. Growth and survival of these invertebrates is evaluated.

Toxicity	2005	2006	2007	2008	2009	2010
<i>Selenastrum</i> growth	N/A	Complies	Complies	N/A	N/A	N/A
<i>Pimephales</i> survival	N/A	Complies	Complies	N/A	N/A	N/A
<i>Ceriodaphnia</i> survival	N/A	Complies	Complies	N/A	N/A	N/A

Toxicity	2011	2012	2013	2014	2015	2016
<i>Selenastrum</i> growth	Complies	N/A	N/A	N/A	N/A	N/A
<i>Primephales</i> survival	Complies	N/A	N/A	N/A	N/A	N/A
<i>Hyalella</i> Survival	Complies	N/A	N/A	N/A	N/A	N/A
<i>Ceriodaphnia</i> survival	Exceed (1x)	N/A	N/A	N/A	N/A	N/A

Microbiological

There are several microbiological indicators for fecal contamination of water. These include total coliforms, fecal coliforms and E. coli. E. coli was found to exceed the standard in 2005 and 2006.

In July, 2010 the California Regional Water Quality Control Board waived the E. coli management plan requirement for the Pit River subwatershed because:

1. No exceedances observed in samples taken from Canby Bridge site since summer 2006.
2. No exceedances observed in 28 samples taken at Pittville site.
3. The Alturas Wastewater Treatment facility was upgraded in 2008 to address effluent limits for parameters including coliform bacteria.

Microbiological	2005	2006	2007	2008	2009	2010
Total Coliforms	Complies	Complies	Complies	Complies	Complies	Complies
Fecal Coliforms	Complies	Complies	Complies	Complies	Complies	Complies
E . coli	Exceed 2	Exceed	Complies	Complies	Complies	Complies

Microbiological 2011-2016

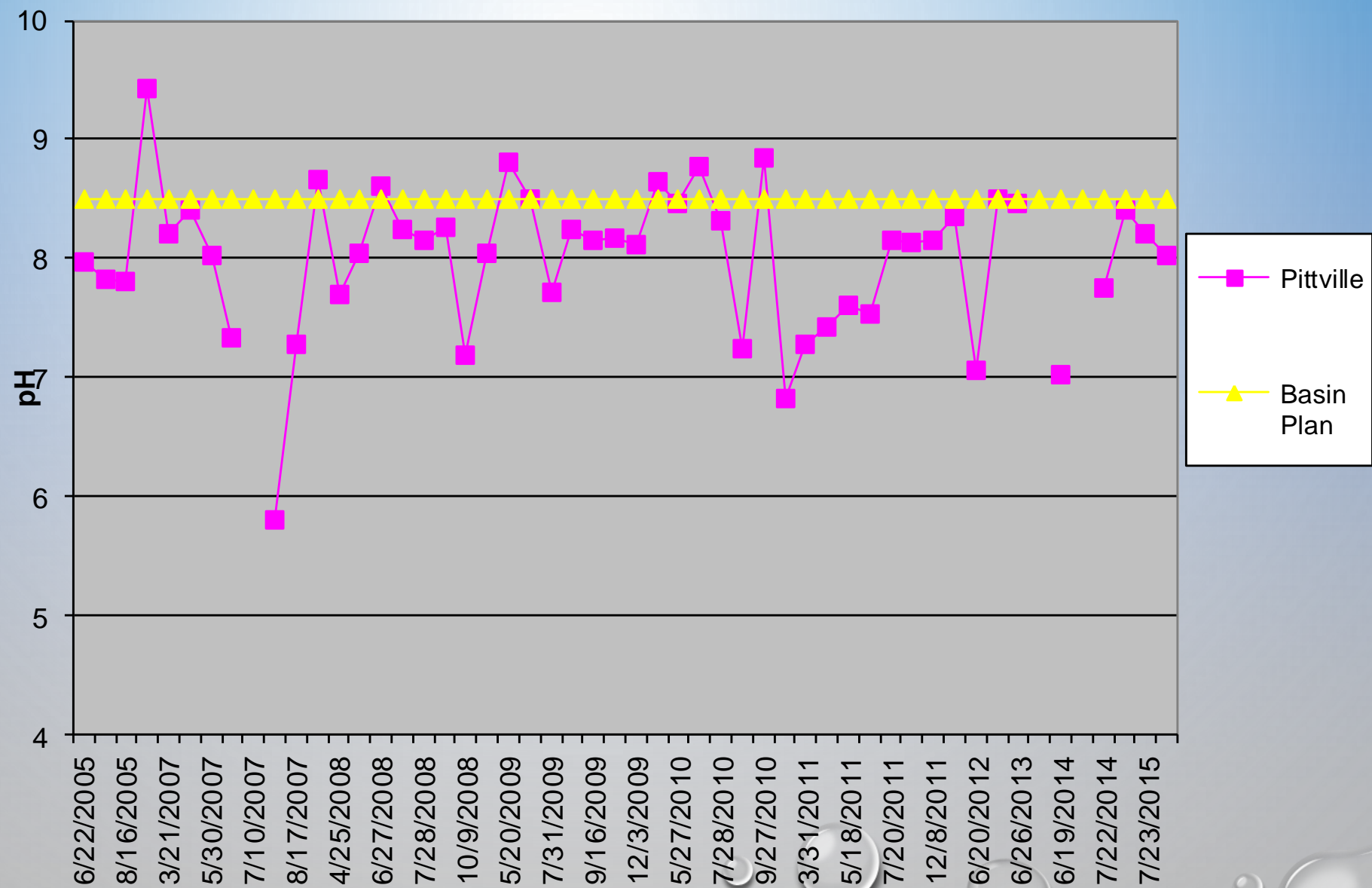
E. Coli was used as the microbiological indicator for fecal contamination of water.

Microbiological	2011	2012	2013	2014	2015	2016
E . coli	Complies	Complies	Complies	Exceeds (1x)	Complies	N/A

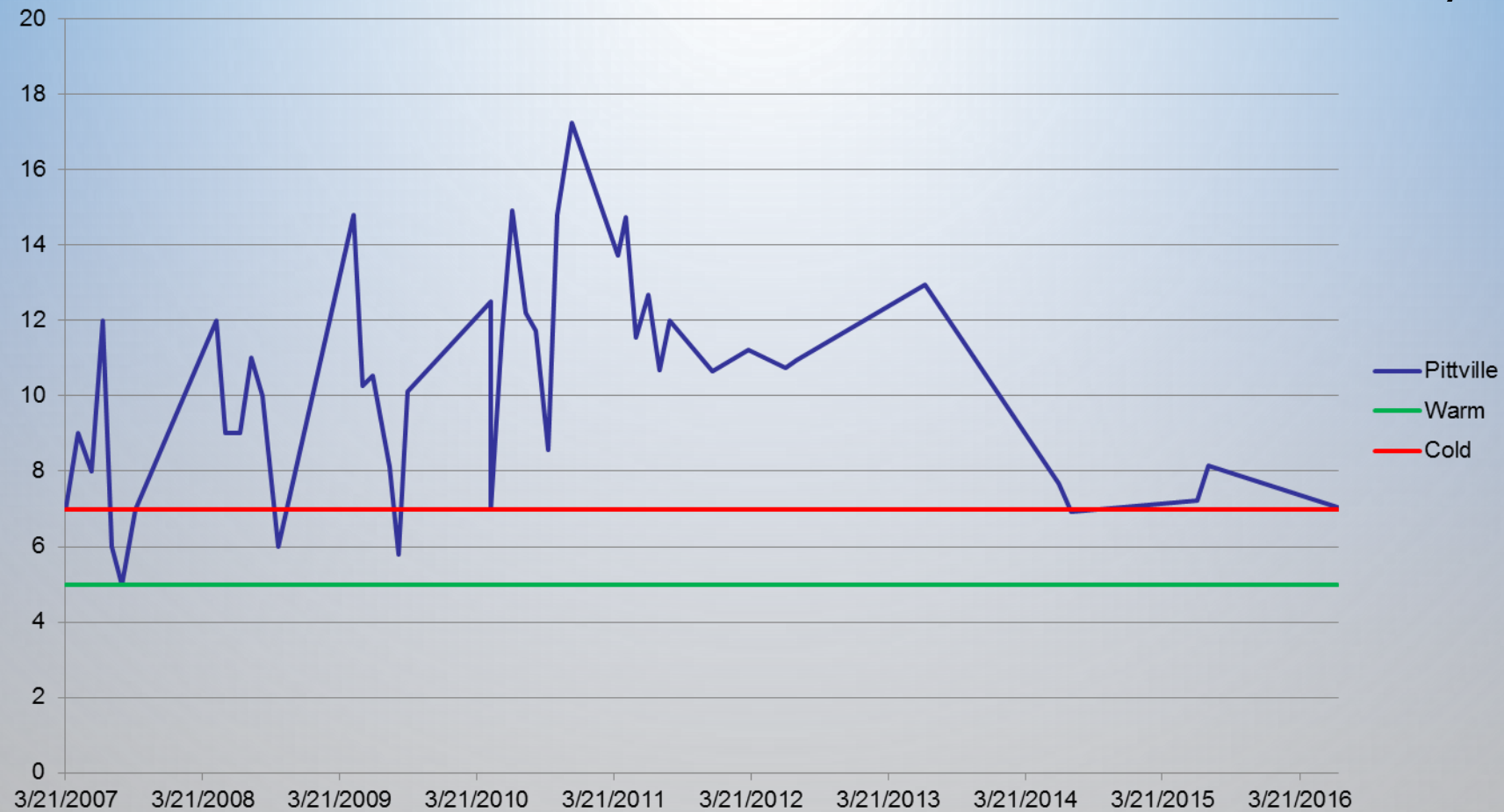
Summary of exceedances and results for ILRP Monitoring conducted for NECWA (2007 - 2016)

Analyte Category	Sites			Totals	Notes:
	Pit River at Pittville	Pit River at Canby Bridge	Fall River at Fall River Ranch Bridge		
Pesticide	0 of 94	NA	NA	0 of 94	No exceedances or management plans;
Legacy Pesticides	1 of 60: (Toxaphene)	NA	NA	1 of 60	One exceedance of toxaphene; No management plans;
Trace Metals	3 of 56: (Lead)	NA	NA	3 of 56	Pit River lead management plan completed;
Toxicity	1 of 15 (ceriodaphnia)	NA	NA	1 of 15	Exceedances of ceriodaphnia i at PRPIT (2011); No active management plans;
Microbiological	2 of 35: (E.coli)	NA	NA	2 of 35	2 exceedances of e. coli at PRPIT (2010 and 2014); No active management plans;
Nutrients	0 of 94	NA	NA	0 of 94	No exceedances or management plans;
Salinity	0 of 35	0 of 5	0 of 5	0 of 45	No exceedances or management plans;
Physical (DO, pH, etc,)	7 of 236: (6 DO; 7 pH)	4 of 27: (3 DO; 1 pH)	2 of 27: (DO)	13 of 290	2 Active Management Plans for DO and 2 for pH;

Irrigated Lands Data-Pitville Site



NECWA DATA-DISOLVED OXYGEN IN MG/L



WHERE DO WE GO FROM HERE...

- LOTS OF PH AND DO DATA-CLEAR BACK TO 1952
- PH HAS EXCEEDED THE BASIN PLAN IN 2005, 2007, 2008, 2009 AND 2010 (IRRIGATED LANDS REGULATORY PROGRAM)
- THESE EXCEEDANCES HAVE TRIGGERED THE DEVELOPMENT OF A MANAGEMENT PLAN
- IS THE OCCASIONAL PH EXCEEDANCE A FUNCTION OF NATURALLY OCCURRING BACKGROUND LEVELS?
- IF THE PIT RIVER WAS CONSIDERED A WARM WATER FISHERY, THE DO REFLECTED IN THE MONITORING PROGRAM WOULD RESULT IN NO EXCEEDANCES.

WHERE DO WE GO FROM HERE...

- WHAT'S THE PROCESS FOR THE BOARD TO RECOGNIZE NATURAL BACKGROUND AS THE OBJECTIVE ELIMINATING THE NEED FOR A MANAGEMENT PLAN?
- OR CAN THE BOARD DEEM THESE PARAMETERS LOW VULNERABILITY IN THE UPPER WATERSHEDS ELIMINATING THE NEED FOR ANNUAL FARM EVALUATION REPORTING.
- GIVEN THE UPPER WATERSHEDS PROACTIVE EFFORTS TO WORK WITH THEIR MEMBERS, EVEN BEFORE THE LONG TERM IRRIGATED LANDS PROGRAM REQUIRED IT, WE'D HOPE YOU WOULD CONSIDER IT.
- THE RESULTS ARE SIMILAR IN OTHER UPPER WATERSHEDS AND EVEN LARGE AREAS OF THE SACRAMENTO VALLEY. THESE SITE SPECIFIC CONDITIONS OF THE UPPER WATERSHEDS ARE TRULY DIFFERENT THAN THE SAN JOAQUIN AND TULARE LAKE REGION.

SHASTA TEHAMA WATERSHED EDUCATION COALITION



- MANAGEMENT SERVICES FOR THE SUBWATERSHED ARE PROVIDED BY THE RESOURCE CONSERVATION DISTRICT OF TEHAMA COUNTY
- THE RCD TEAM, ALONG WITH OUR PARTNERS IN THE NATURAL RESOURCES CONSERVATION SERVICE, ALONG WITH THE UC COOPERATIVE EXTENSION, PROVIDE RESOURCES AND FUNDING FOR CONSERVATION PRACTICES TO THE SHASTA TEHAMA MEMBERS

TECHNICAL ASSISTANCE

- UC COOPERATIVE EXTENSION IN BOTH SHASTA AND TEHAMA COUNTIES PROVIDE TECHNICAL ASSISTANCE TO GROWERS AND HOST WELL ATTENDED ANNUAL WORKSHOPS AND FIELD DAYS FOR IRRIGATED AG COVERING BEST MANAGEMENT PRACTICES IN ORCHARD CROPS, IRRIGATED PASTURE AND IRRIGATION MANAGEMENT



TECHNICAL ASSISTANCE



- NRCS IN SHASTA AND TEHAMA COUNTIES PROVIDE CONSERVATION PLANNING AND TECHNICAL ASSISTANCE FOR INDIVIDUAL GROWERS WHENEVER REQUESTED
- IN TEHAMA COUNTY OVER THE LAST 3 YEARS, NRCS HAS CREATED 63 CONSERVATION PLANS COVERING 106,162 ACRES

TECHNICAL ASSISTANCE

- THE RCD OF TEHAMA COUNTY HAS PROVIDED 847 FREE IRRIGATION EVALUATIONS SINCE 2001
- EACH IRRIGATION EVALUATION REPORT IS CUSTOMIZED FOR THE GROWER AND IS HAND DELIVERED ALONG WITH INSTRUCTION ON PROPER IRRIGATION SCHEDULING



FUNDING (RCD)

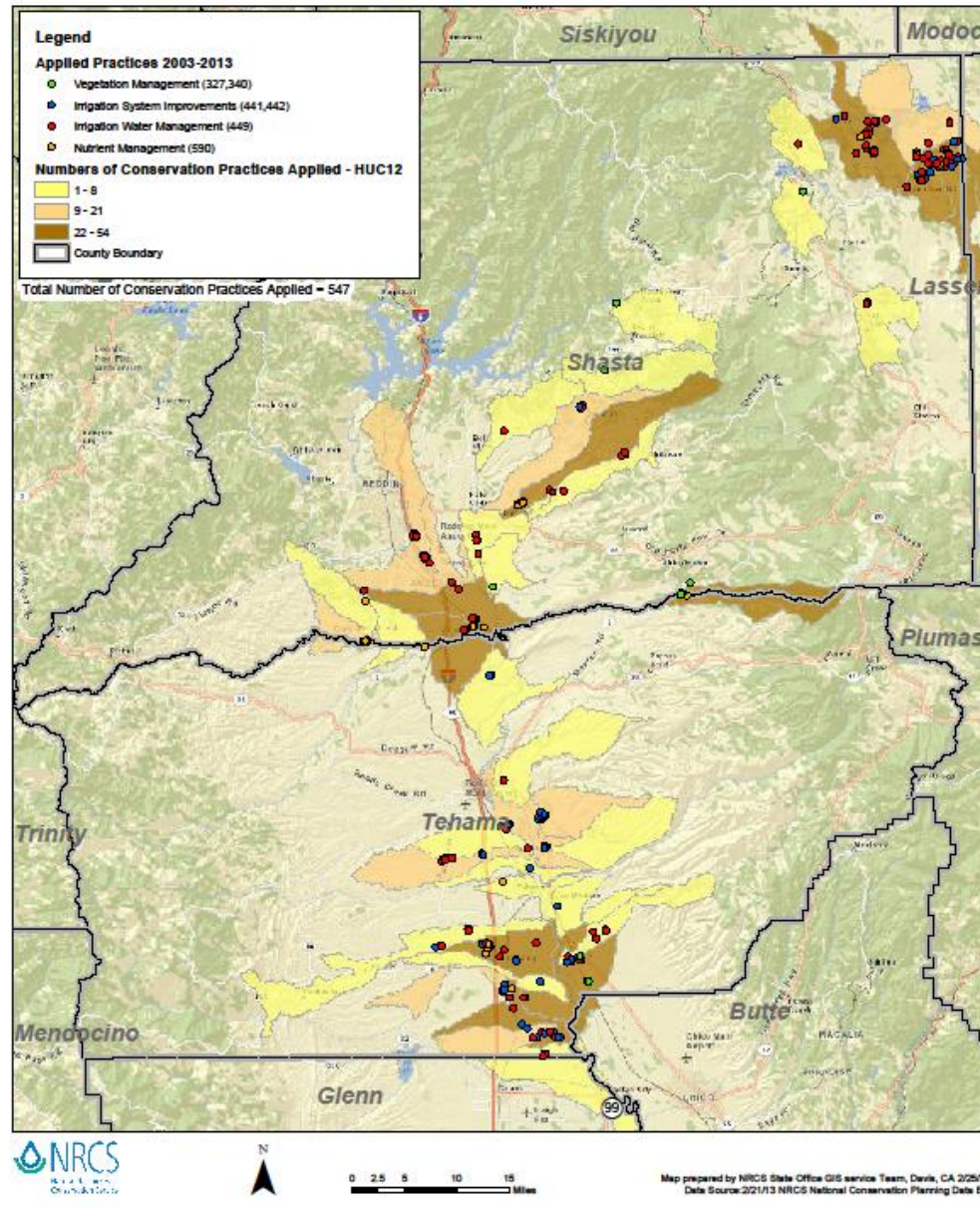
IN ATTACHMENT A TO ORDER RS-2014-0030:

TABLE 3. OUTSIDE FUNDING FOR IMPROVING AND PROTECTING WATER QUALITY ON IRRIGATED LANDS IN THE SACRAMENTO RIVER WATERSHED

Geographic Area	Funding Years	Funding Amount	Funding Source	Funded improvements
Shasta Tehama	2002-2012	\$167,000	319(h)	Improved nutrient management
				Improved irrigation management
				Cover crops



Water Quality Management - Applied NRCS Practices (2003-Present) Shasta and Tehama Counties






FUNDING (NRCS)



Water Quality Management - Applied NRCS Practices (2003 – 2013) Shasta and Tehama Counties

PRACTICES	AFFECTED ACRES
Vegetation Management	334 acres
Irrigation System Improvements	1,433 acres
Irrigation Water Management	7,740 acres
Nutrient Management	1,509 acres

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- 
- Shasta Tehama Watershed Education Coalition is proactively providing conservation assistance and funding to irrigated agriculture and ranchers.
 - The Subwatershed has years of positive results of water quality monitoring.
 - The most asked question of Members is: “Does the Regional Board recognizes our efforts?”

BALANCING STEWARDSHIP WITH ANNUAL DEADLINES AND DELIVERABLES

- ANNUAL FARM EVALUATION REPORTS
- CERTIFIED NITROGEN MANAGEMENT PLAN REQUIREMENTS
- CERTIFIED SEDIMENT AND EROSION CONTROL PLANS ASSESSMENT REPORT
- FUNDING DATABASES TO CAPTURE ALL THE INFORMATION



CONCLUSION

- APPRECIATE THE REGIONAL BOARD'S ACKNOWLEDGMENT THAT THE UPPER WATERSHEDS HAVE TRULY SIGNIFICANT SITE-SPECIFIC CONDITIONS THAT ARE DIFFERENT FROM OTHER PARTS OF THE CENTRAL VALLEY.
- REDUCED MONITORING MANAGEMENT PRACTICES VERIFICATION OPTION UNDERTAKEN BY LAKE, NAPA, EL DORADO AND OTHER UPPER WATERSHED ARE BETTER APPROACH TO PROTECTING WATER QUALITY.
- BROADEN THE CONVERSATION TO ENTIRE SACRAMENTO VALLEY – *STATE OF THE WATERSHED*
- LOOK FORWARD TO HOSTING YOU AND REGIONAL BOARD STAFF IN THE FUTURE.