Central Valley Regional Water Quality Control Board

Safe to Swim Program

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Alisha Wenzel
Ag & Surface Water Assessment Unit
Alisha.Wenzel@waterboards.ca.gov

California Water Boards

SWAMP
Surface Water Ambient Monitoring Program

People

Project Planning and Outreach

- Catherine Gill
- Anne Littlejohn
- TJ Ditto
- Bethany Soto (Fresno)
- Guy Chetelat (Redding)

Project Support

- Sarah Rutherford
- Gordon VanCamp
- Clair Anderson
- True Khang
- Victoria Tomlinson

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Presentation Overview

Central Valley Region

Quick Introduction to SWAMP

Safe to Swim Monitoring 2007-2012

Reports and Findings

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Central Valley Region

- Largest of the nine Regional Water Boards
- Three distinct basins
- Diverse terrain, land use, and water quality issues

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Surface Water Ambient Monitoring Program

SWAMP is tasked with assessing water quality in all of California's surface waters. The program conducts monitoring directly and through collaborative partnerships, all designed to support water resource management in California.

Find out more at www.waterboards.ca.gov/swamp

- Tools
- Webinars
- Reports

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Surface Water Ambient Monitoring Program

Statewide program has focused on aquatic life and fish consumption.

Water Body Type	Beneficial Uses			
	Aquatic Life	Safe to Eat	Safe to Swim	Safe to Drink
Wadeable Streams				
Large Rivers				
Lakes				
Coastal Waters				
Bays & Estuaries				Not applicable
Wetlands		Not applicable	Not applicable	Not applicable

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Safe to Swim

- Reasons for focus on swimming:
  - Fill data gap
  - Relative low cost
  - Public interest
  - Opportunity for coordination

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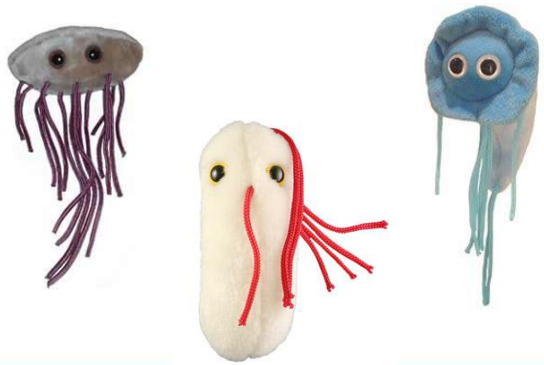
Indicators

- *E. coli*
  - Analysis using IDEXX Colilert
  - US EPA recreation guidelines
- Pathogens
  - Sites with elevated *E. coli*
  - *Giardia*, *Cryptosporidium*, *Salmonella*, *E. coli* O157:H7



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Coordination with Watershed Groups

- Watershed groups help to:
  - Identify swimming holes
  - Collect samples
- SWAMP provides:
  - Training, supplies, field sheets
  - Sample analysis
  - Data management and reporting

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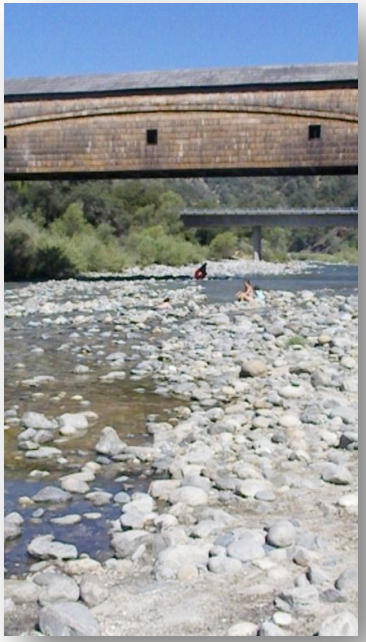
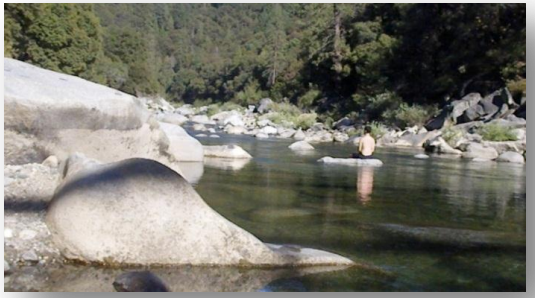
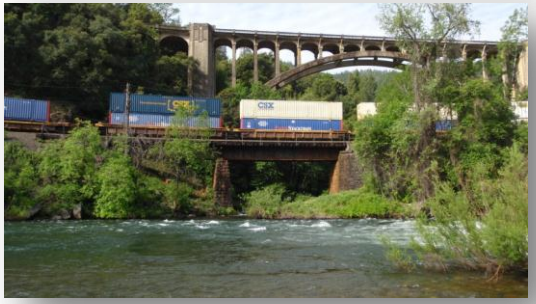
Safe to Swim Program

- Region-wide monitoring of ambient condition
- Swimming holes on rivers and creeks
- Sampling during the summer swimming season
- Monitoring design evolved and expanded over time







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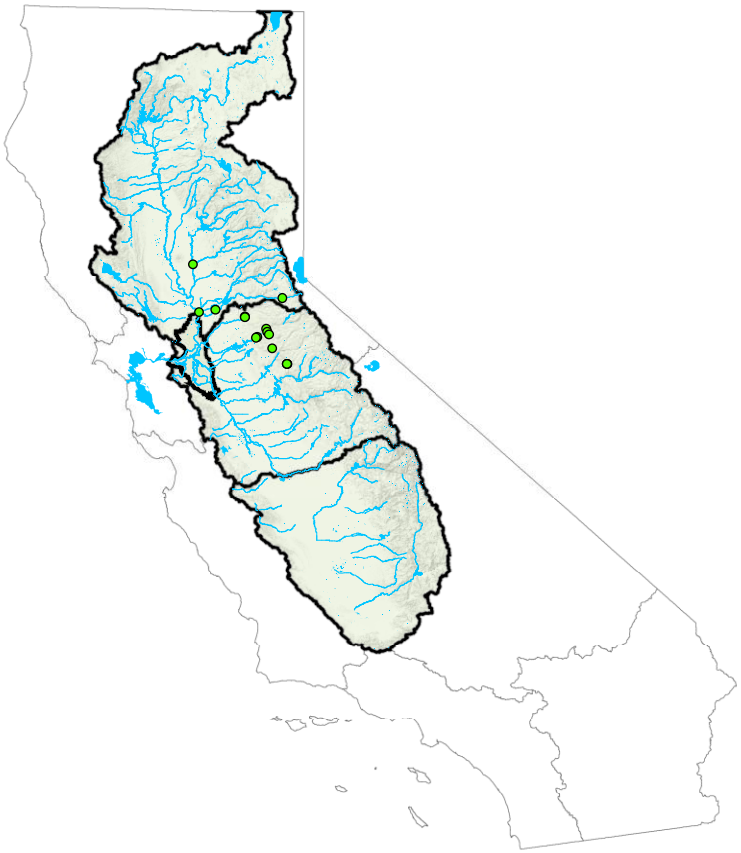
Safe to Swim 2007: Pilot Study



- 2 watershed groups
- 15 sites
- 3 sample events: before, during, and after Labor Day weekend

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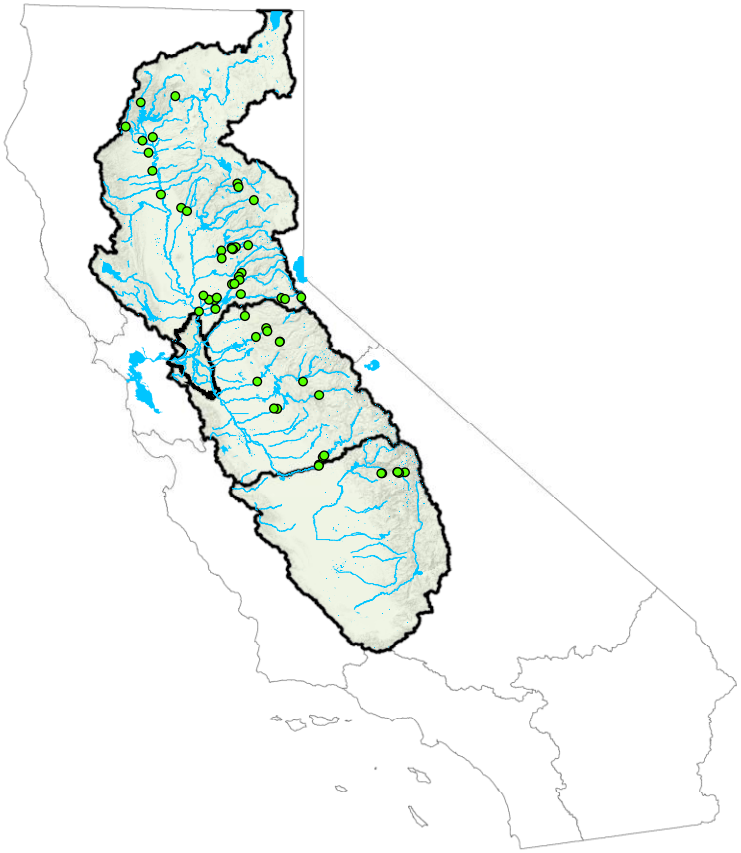
Safe to Swim 2008: Labor Day



- 21 watershed groups
- 56 sites
- 3 sample events: before, during, and after Labor Day weekend

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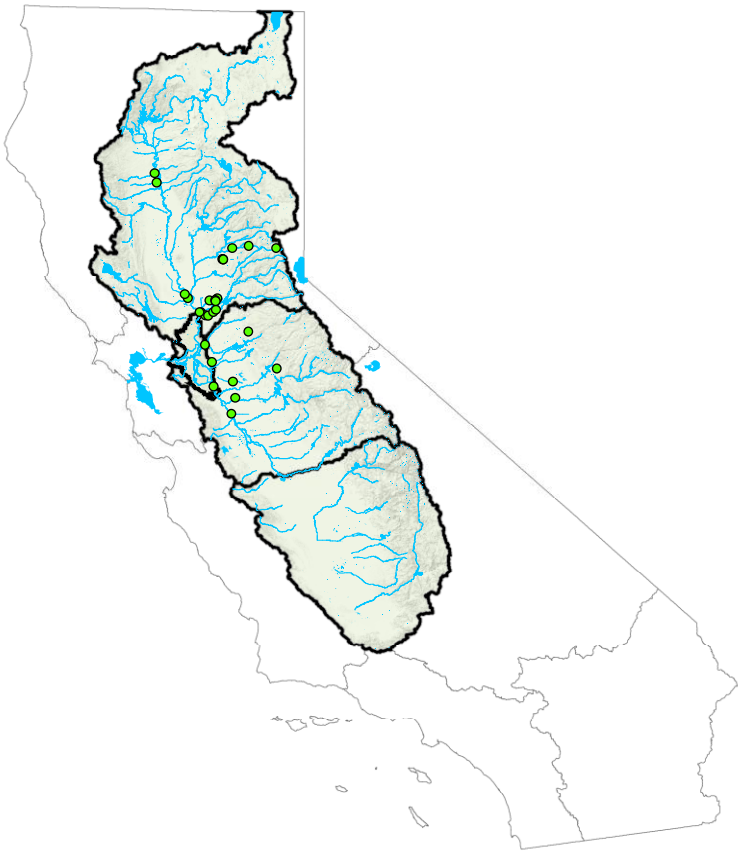
Safe to Swim 2009: Sources



- Follow-up
  - 2 watershed groups
  - 17 sites
  - E. coli and pathogens
- Bacteria Source ID Study:
  - 12 sites
  - 5 sample events
  - E. coli, pathogens, bacteroidales

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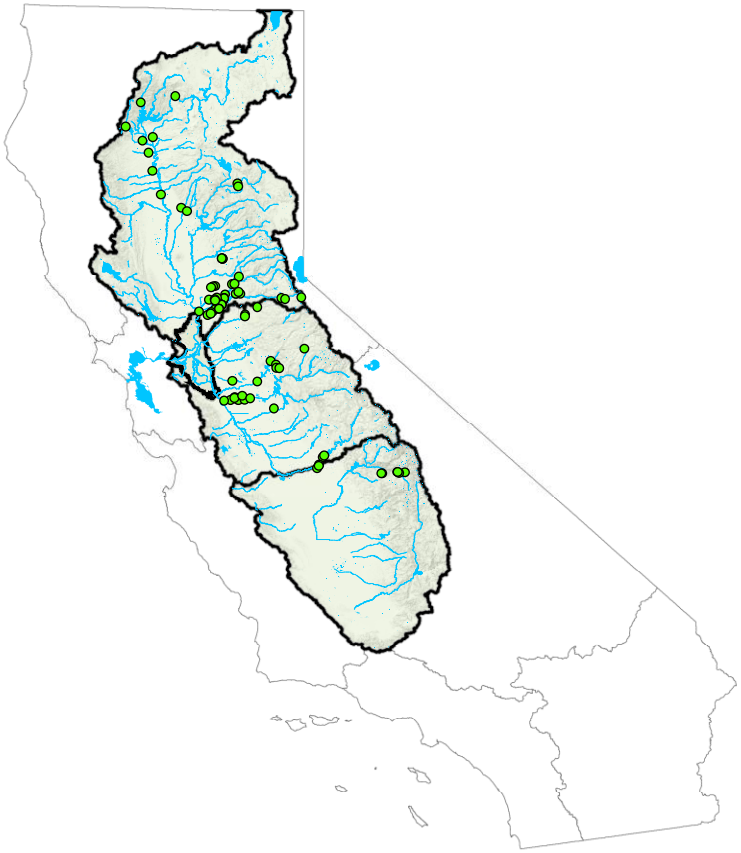
Safe to Swim 2010



- 8 watershed groups
- 67 sites
- 12 lake sites
- 1 to 3 sample events
- Limited pathogen sampling

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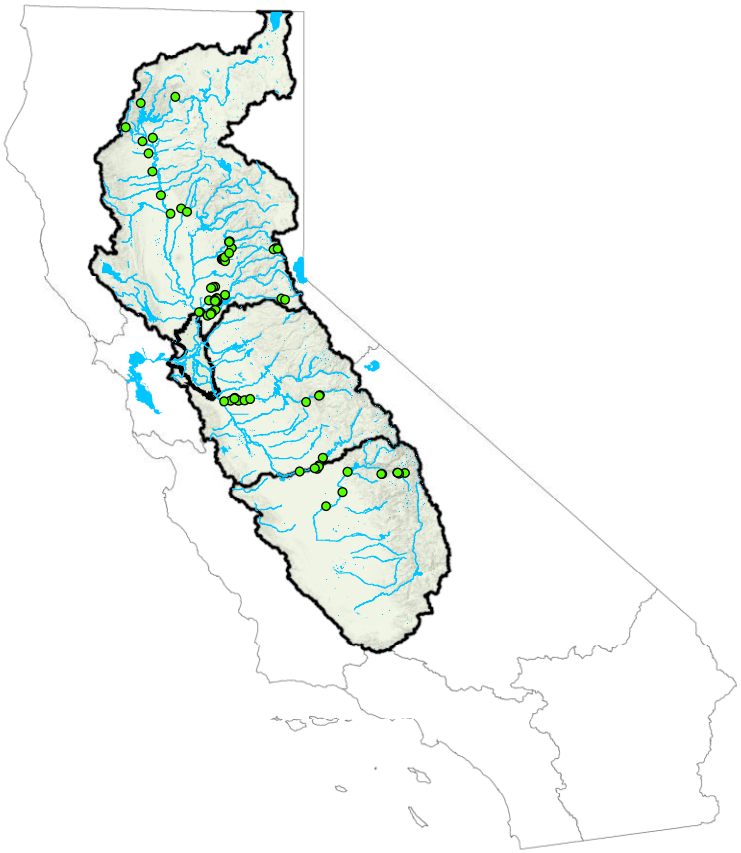
Safe to Swim 2011



- 7 watershed groups
- 77 sites
- Monthly or bimonthly monitoring events
- Targeted pathogen monitoring

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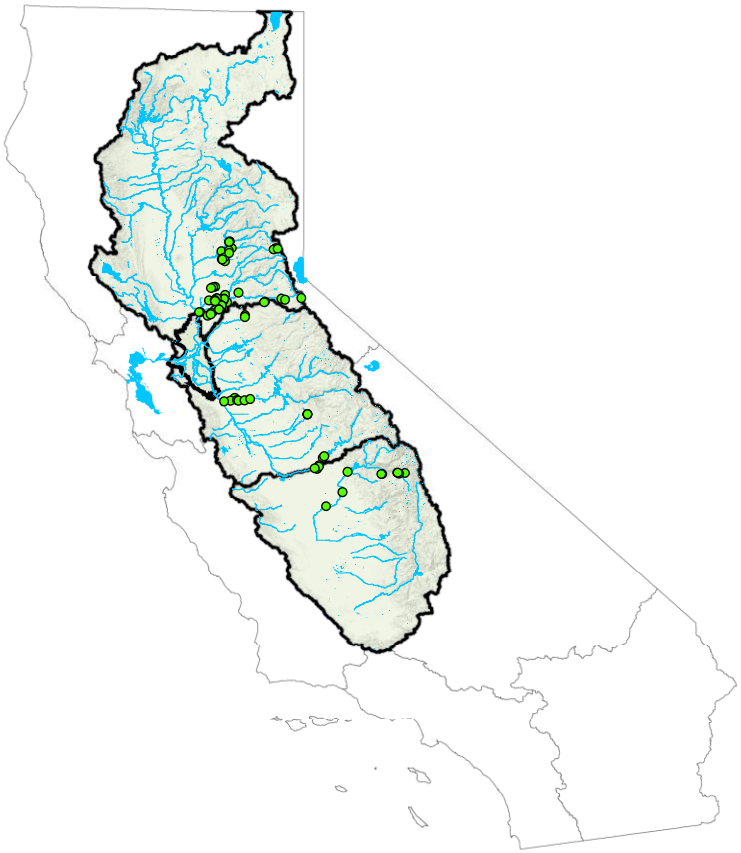
Safe to Swim 2012



- 6 watershed groups
- 73 sites
- Monthly or bimonthly monitoring events
- Targeted pathogen monitoring
- 16 lake sites sampled before and after the 4th of July

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2013 and Beyond

- Plan to continue current monitoring design
- Continue to refine sites
- Opportunities to expand monitoring
  - Lakes
  - Delta
  - Events (triathlons, rafting days)

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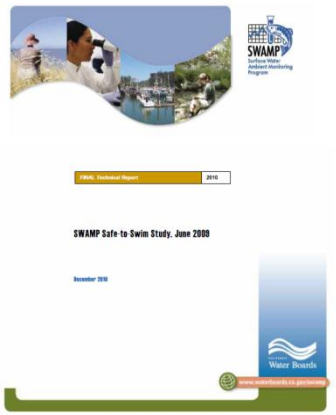
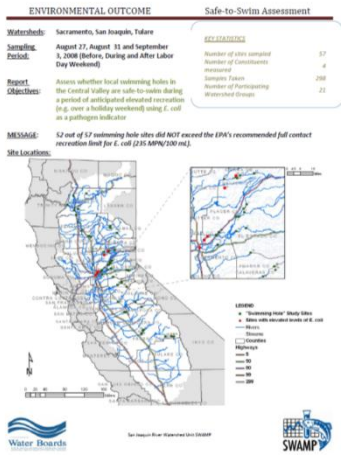
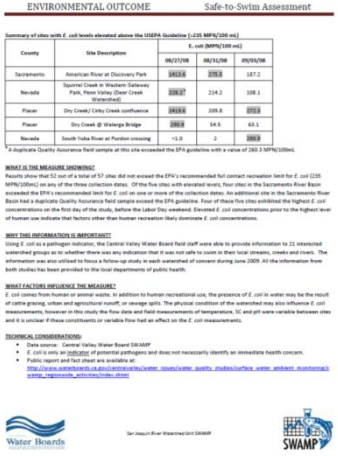
Sharing Information

- Preliminary results
  - County Health Departments
  - Our Partners
- Final results available through CEDEN
- Watershed Data Sheets
- Assessment Reports and Fact Sheets







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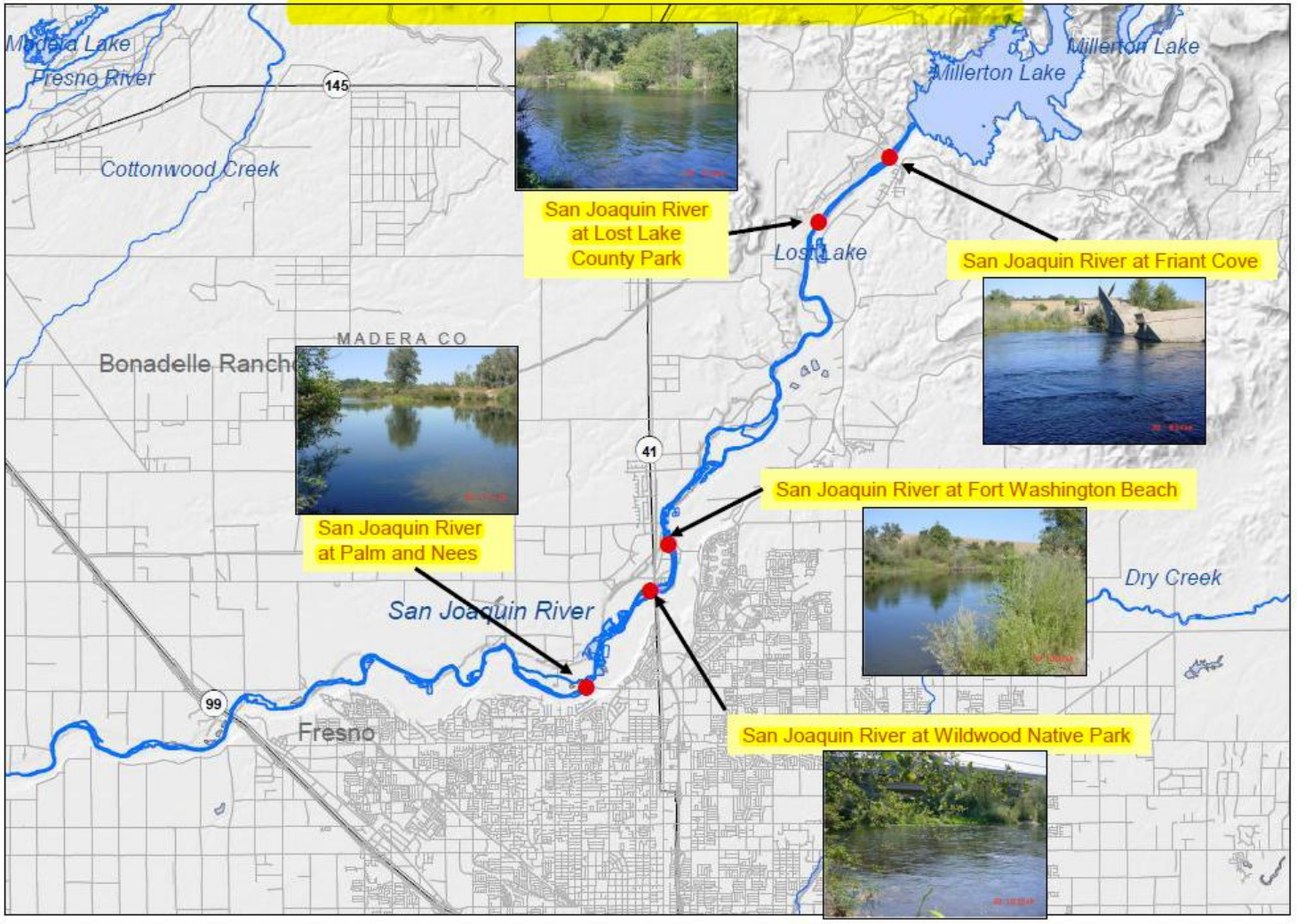
SWAMP Safe-To-Swim Study August-September 2010



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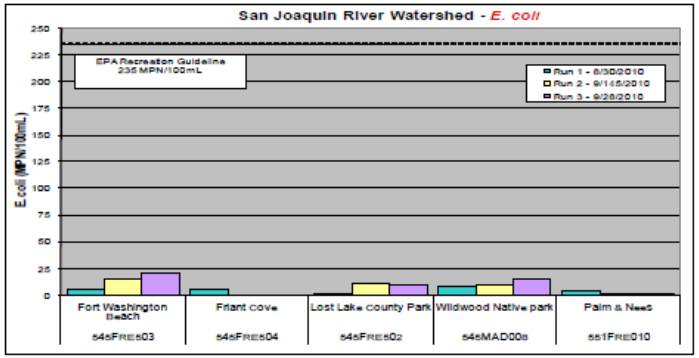
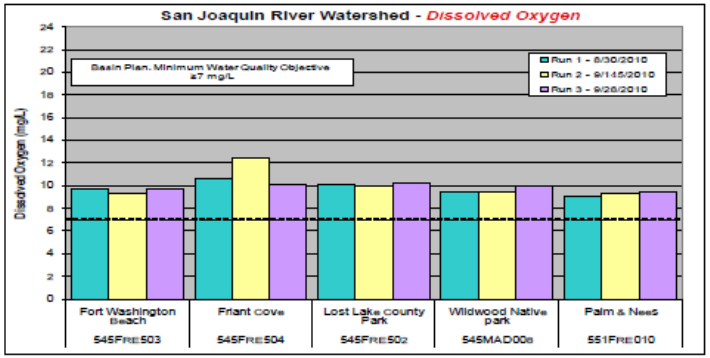
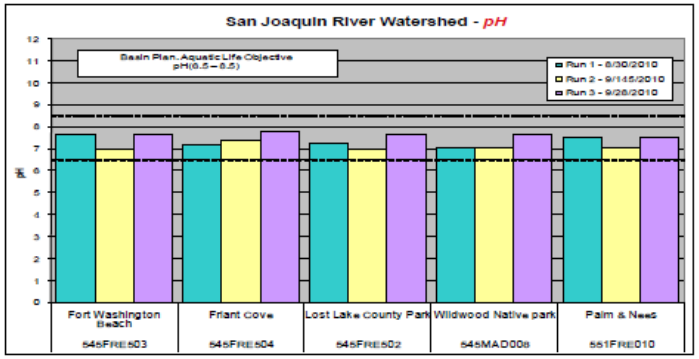
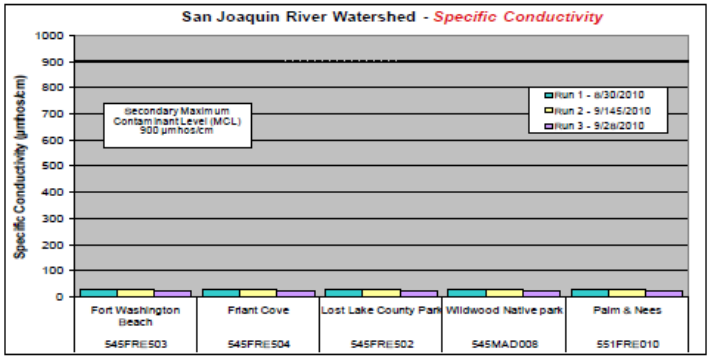
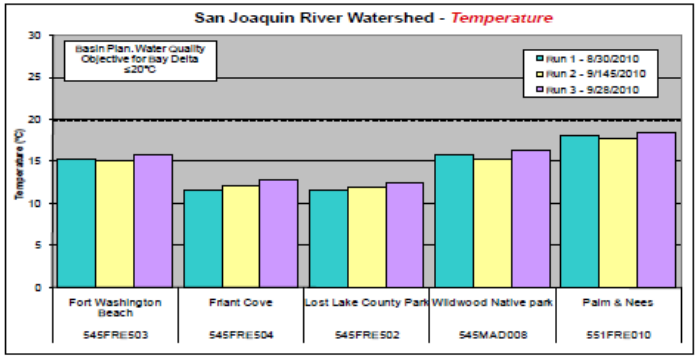
DRAFT DATA –SWAMP Safe-to-Swim Study August-September 2010

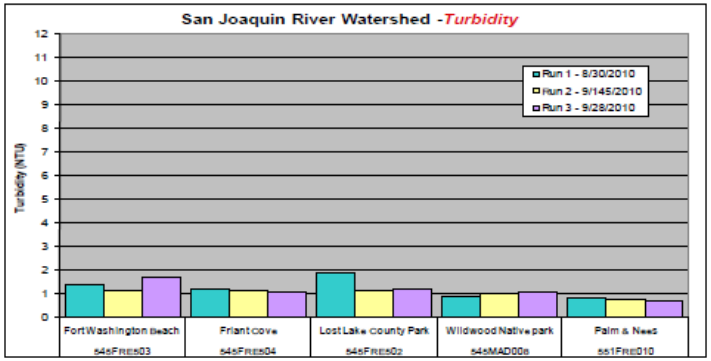












Unit measurements:

MPN/100mL = *Most Probable Number per 100 milliliters* mg/L = *milligrams per Liter* µmhos/cm = *micromhos per centimeter* °C = *degrees Celcius* NTU = *Nephelometric Turbidity Units*

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DRAFT DATA – SWAMP Safe-to-Swim Study August-September 2010

Constituent	Water Quality Guideline	Sample Date	San Joaquin River Watershed				
			Fort Washington Beach	Friant Cove	Lost Lake County Park	Wildwood Native Park	Palm and Nees
Total Coliform (MPN/100mL)	NA	8/30/2010	>2419.6	>2419.6	1553.1	>2419.6	>2419.6
		9/14/2010	>2419.6	1011.2	>2419.6	1732.9	1986.3
		9/28/2010	1986.3	1299.7	960.6	1986.3	1299.7
E. coli (MPN/100mL)	<235 MPN/100mL (USEPA Contact Recreation Guideline)	8/30/2010	5.2	5.2	1	8.6	3.1
		9/14/2010	14.6	<1	10.9	9.8	1
		9/28/2010	21.3	<1	9.8	15.6	1
Dissolved Oxygen (mg/L)	≥7 mg/L (Basin Plan Objective)2	8/30/2010	9.74	10.63	10.08	9.4	9.06
		9/14/2010	9.32	12.49	9.94	9.43	9.32
		9/28/2010	9.68	10.1	10.22	10.02	9.4
pH	6.5-8.5 (Basin Plan Objective)2	8/30/2010	7.67	7.19	7.22	7.01	7.49
		9/14/2010	6.97	7.33	6.98	7.06	7.03
		9/28/2010	7.64	7.82	7.65	7.62	7.51
Specific Conductivity (µmhos/cm)	≤900 µmhos/cm (Secondary Maximum Contaminant Level)1	8/30/2010	28.5	28.4	28.9	29.1	28.9
		9/14/2010	26.9	26.1	26.7	27.7	27.3
		9/28/2010	24.4	23.2	23.9	24.7	24.2
Temperature (° Celsius)	≤20 °C (Basin Plan Objective for Bay-Delta)2	8/30/2010	15.2	11.6	11.6	15.8	18
		9/14/2010	15.1	12.1	12	15.2	17.8
		9/28/2010	15.7	12.7	12.5	16.2	18.4
Turbidity (NTU)	NA	8/30/2010	1.36	1.17	1.88	0.83	0.81
		9/14/2010	1.10	1.07	1.08	0.97	0.75
		9/28/2010	1.64	1.03	1.16	1.04	0.64

Shaded cell = Does not meet Water Quality Guideline 1 - Drinking Water 2- Aquatic Life

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Summary of Findings

	2007	2008	2009	2010	2011*	2012*	Total
Site Summary							
# Sites	15	56	29	89	77	89	161
# Sites with Samples >235	2	4	15	17	31	33	57
Sample Summary							
# Samples	44	167	74	161	389	437	1272
# Samples >235	2	6	27	35	86	90	246
% Samples >235	5%	2%	20%	11%	8%	8%	4%

235 MPN/100 mL is the US EPA guideline for a single sample maximum

*2011 and 2012 results are preliminary

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Resources

- SWAMP website: Access to report, fact sheets, and program information
  www.swrcb.ca.gov/rwqcb5/water_issues/swamp/index.shtml
- CEDEN: Query and download data
  www.ceden.org
- My Water Quality Portal: Safe to swim monitoring and assessment information
  www.cawaterquality.net
- Central Valley Monitoring Directory: current monitoring information
  www.centralvalleymonitoring.org

Our Partners

Sierra Streams Institute

River Tree Volunteers
www.rivertreevolunteers.org

Tuolumne River Trust

SYRCL
South Yuba River Citizens League

American River Conservancy
Preserving Rivers and Land for Life

CSUSTAN

Modesto Junior College

Our river, our land, our future
Upper Merced River Watershed Council

Big Chico Creek Watershed Alliance

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More Information

- To find out about participating contact TJ.Ditto@waterboards.ca.gov

- For more information about SWAMP contact Alisha.Wenzel@waterboards.ca.gov

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Questions?

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