

Report: California Environmental Protection Agency Regional Water Quality Control Board Central Valley Region, Surface Water Ambient Monitoring Program Tulare Lake Basin Annual Report Fiscal Year 2001-2002

Watershed: Tulare Lake Basin

Sampling Period: Two sampling events were conducted in 2002

Report Objective(s): To begin baseline sampling and gather preliminary data from the Kern, Tule, Kaweah, South Fork Kings, Lower Kings River, and associated reservoirs and tributaries draining the west face of the Sierra Nevada. Also to determine if beneficial uses of water were not being supported and/or attained of Tulare Lake Basin Plan’s water quality objectives

Message: Results generally met water quality objectives, with occasional dissolved oxygen (DO) and pH outside of the water quality objectives. In addition, electrical conductivity (EC) exceeded the water quality objectives in an area of the Lower Kings River (see Table 1). To detect possible temporal, spatial, geographical, or other differences both within and between the water bodies sampled additional monitoring is needed, such as monitoring and evaluating baselines and potential sources of reduced DO as well as elevated pH and EC.

KEY STATISTICS

<i>Size of Tulare Lake Basin</i>	<i>10.5 million acres</i>
<i>Number of sites Sampled</i>	<i>10</i>
<i>Number of Constituents measured</i>	<i>23</i>
<i>Samples Taken</i>	<i>~800</i>

Table 1. Summary of Results Exceeding Basin Plan Objectives: Tulare Lake Basin					
	Kings River		Kern River	Tule River	Kaweah River
	South Fork Kings River Hume Lake Tenmile Creek Lewis Creek	Lower Kings River	Kern River Lake Isabella	Tule River Lake Success	Kaweah River Lake Kaweah
Basin Plan Water Quality Objectives					
Dissolved Oxygen (DO) Basin Plan objective: Specified by reach (mg/l)	9 9/16	7 1/5	8 2/8	7	7 1/8
pH Basin Plan objective: 6.5 – 8.3			27/33	14/16	2/8
Electrical Conductivity (EC) Basin Plan objective: Specified by reach (uS/cm)	100	200-300 1/5	200 - 300	450	175

Other constituents sampled, but not shown on Table 1 because they were not discussed in the report include water temperature, water Clarity (reservoirs), total dissolved solids, chloride, sulfate, nitrate, bicarbonate, carbonate, calcium, magnesium, potassium, sodium, ammonia, phosphate, selenium, and molybdenum. Additionally, total coliform, fecal coliform, E. Coli, and fecal streptococcus were not discussed because the data was being evaluated to determine if a baseline for microbiological load could be established.

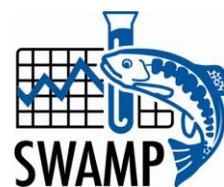
Table 2: Site Locations

Lower Kings River	KIN050	Kings River - Roads End, Above inlet of Copper Creek into Kings River	Lake Isabella	ISA010	Tillie Creek, At entrance of Tille Creek into Lake Isabella	
	KIN010	Kings River - Roads End, Downstream of inflow of Hotel Creek into Kings River		ISA020	Boulder Gulch, Adjacent to Boulder Gulch camping area	
	KIN020	Kings river - Lewis Creek, Downstream of inflow of Lewis Creek into Kings River		ISA040	Main Dam, Near outflow of Lake Isabella - Main Dam	
	LEW010	Lewis Creek, Upstream of California Conservation Corps Primitive camp		ISA050	So. Fork Rec., Adjacent to the South Fork Picnic area	
	KIN040	Kings River - Grizzly Creek, Downstream of inflow of Grizzly Creek into Kings River		ISA060	French Gulch, Near the inflow of French Gulch drainage into Lake Isabella	
	TEN010	Kings River - Tenmile Creek, Downstream of inflow of Tenmile Creek into Kings River		ISA070	Camp 9, Adjacent to Camp 9 camping area	
	HUM030	Hume Lake - Long Meadow Creek, Inlet of Long Meadow Creek into Hume Lake		ISA080	Hanning Flat, Adjacent to Hanning Flat recreation area	
	HUM020	Hume Lake - Tenmile Creek, Inlet of Tenmile Creek into Hume Lake		ISA090	Wofford Heights, Adjacent to community of Wofford Heights	
	HUM010	Hume Lake - Dam Site, At dam				
	South Fork Kings River, Hume Lake, Tenmile Creek, Lower Kings River	LKI010		Kings River - Fresno Weir, Winton Co. Pakr - NE of Centerville on Trimmer Springs Road	Kaweah River - Lake Kaweah	KAR010
LKI020		Kings River - Peoples Weir, Peoples Weir just west of Hwy 99	KAR020	Kaweah River - Dinely Rd., Approx. 4 miles from Sequoia National Park Entrance		
LKI030		Kings River - Island Weir, Island Weir just east of Hwy 41	KAR030	Kaweah River - North Fork, North of Three Rivers - Hwy 198 and N. Fork Dr.		
LKI040		Kings River - S. Fork, At Jackson Avenue bridge SW of Lemoore	KAR040	Kaweah River - Slick Rock Rec. Area, North of Lake Kaweah - Hwy 198		
LKI050		Kings River - S. Fork, Hwy 41 near Stratford	KAL010	Lake Kaweah - Greasy Creek, Inflow of Greasy Creek into Lake Kaweah		
			KAL020	Lake Kaweah - Horse Creek, Inflow of Horse Creek into Lake Kaweah		
Kern River	KER010	Springhill, Hwy 178 - Springhill primitive campground	Kaweah River - Lake Kaweah	KAL030	Lake Kaweah - Inflow, Inflow of Kaweah River	
	KER020	River Kern Beach, Hwy 178 - River Kern Beach day use area		KAL040	Lake Kaweah - Outflow, Outflow of Kaweah River	
	KER030	Riverside Park, Hwy 178 - Riverside Park - Kernville adjacent to playground equipment		Tule River - Lake Success	TUR010	Tule River - Powerhouse, At the head of the Flume - Hwy 190
	KER040	Keyseville Rec Area, Hwy 178 - downstream from Slippery Rock raft launch site			TUR020	Tule River - Lower Coffee Camp, Coffee Camp rec area - Hwy 190
	KER050	Democrat, US Forest Service Rd. 28S67 - Democrat primitive recreation area	TUR030		Tule River - Rio Vista Day Use Park, Day use area - Hwy 190	
	KER060	Lower Richbar, Hwy 178 - Lower Richbar picnic area	TUR040		Tule River - Sequoia National Forest Fire Station, East of Springville - Hwy 190	
	KER070	Ker MM14/MM15, Hwy 178 - site on road between Kern County mile marker 14 and mile marker 15	TUR050		Tule River - Globe Rd. East, Globe Rd. - just south of Hwy 190 - west of Springville	
	KER080	Rancheria Road, Rancheria Road day use area	SUC010		Lake Success, Inflow of Tule River into lake	
	KER090	Hart Park, Alfred Harrell Hwy - South end of Hart Park	SUC020		Lake Success, Middle of Lake	
	KER110	Calloway Weir, Willow Dr. - Oildale - access to weir via Riverview Playground	SUC030	Lake Success - Outflow, Outflow of dam		

WHAT IS THE MEASURE SHOWING?

The data gathered over two sampling events in 2002 (March and June) provided an initial review of water quality in the Tulare Lake Basin against numeric Basin Plan objectives for pH, dissolved oxygen, and electrical conductivity.

The report summarized analytical results for the following constituents: water temperature, DO, pH, EC, TDS, Cl, SO₄, NO₃,



bicarbonate, carbonate, Ca, Mg, K, Na, ammonia, P, Se, Mo, water clarity (reservoirs), total coliform, fecal coliform, *E. coli*, and fecal streptococcus. The analytical results have been evaluated against numeric water quality objectives listed in the Tulare Lake Basin Plan and summarized in Table 1, to determine if there was any indication that the designated existing and potential beneficial uses of water were not being supported and/or attained.

Why is this information important?

Surface water quality in the Tulare Lake Basin has been described as generally good, with excellent quality exhibited by most eastside streams. Protection and enhancement of beneficial uses of water against water quality degradation is a basic requirement of water quality planning under the Porter Cologne Water Quality Control Act. The Tulare Lake Basin Plan's water quality objectives were used to determine potential impacts to beneficial uses of water.

WHAT FACTORS INFLUENCE THE MEASUREMENTS?

Land Use: Publicly and privately owned treatment works, foothill development, individual septic tanks, confined animal facilities, livestock grazing, agriculture, development, and recreation.

Hydrology: The Tulare Lake Basin comprises the drainage area of the San Joaquin Valley south of the San Joaquin River, and includes the historic lakebed. The Tulare Lake Basin is essentially a closed basin since surface water drains north into the San Joaquin River only in years with well above average rainfall.

TECHNICAL CONSIDERATIONS:

- Fecal coliform, *E. coli*, and *Streptococcus* are only indicators of potential pathogens and do not necessarily identify an immediate health concern.
- Report indicates concerns with accuracy and precision of the field meter used to measure pH.
- Public report and fact sheet are available at:
http://www.waterboards.ca.gov/centralvalley/water_issues/swamp/report_summary_sheet/index.shtml
- **Sample collection was conducted by Regional Water Board staff with the exception of Hume Lake, South Fork Kings River, and Tenmile Creek where volunteer monitors from the Friends of the South Fork Kings River provided assistance. Water samples were analyzed by Twining Laboratories, Inc.**

REFERENCES:

1. Data is available to the public in the report and through the California Environmental Data Exchange Network (CEDEN), information on CEDEN is available at www.ceden.org.
2. California Regional Water Quality Control Board Central Valley region, Water Quality Control Plan for the Tulare Lake Basin, Second Edition 1995. Revised January 2004.
3. State Water Resources Control Board, Porter-Cologne Water Quality Control Act, with Additions and Amendments Effective January 1, 2008