

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 collecting baseline water quality data from watershed management areas within the Tulare Lake Basin and to determine if the Tulare Lake Basin Plan's inland surface water quality objectives were being met.

KEY STATISTICS

<i>Size of Tulare Lake Basin</i>	<i>10.5 million acres</i>
<i>Number of sites sampled</i>	<i>48</i>
<i>Number of constituents measured</i>	<i>23</i>
<i>Samples taken</i>	<i>87</i>

Message: Tulare Lake Basin Plan's inland surface water quality objectives for electrical conductivity (EC), dissolved oxygen (DO), and pH were not met in certain watershed management areas (see Table 1). Additional monitoring is needed to determine temporal or spatial relationships, establish baseline water quality, and identify sources of variation in DO as well as elevated pH and EC levels.

Table 1. Summary of Tulare Lake Basin's Analytical Results*									
Tulare Lake Basin Plan's Inland Surface Water Quality Objectives (BPOs)	Watershed Management Areas								
		Kings			Kern		Tule	Kaweah	
	South Fork Kings River Tenmile Creek Hume Lake	Lower Kings River			Kern River Lake Isabella		Tule River Lake Success	Kaweah River Lake Kaweah	
Minimum Dissolved Oxygen (mg/L)‡	9	7			8		7	7	
• Number of DO samples below required minimum BPOs / total number of DO samples analyzed	10/17	1/5			3/33		1/16	1/16	
pH Range	6.5 to 8.3	6.5 to 8.3			6.5 to 8.3		6.5 to 8.3	6.5 to 8.3	
• Number of pH samples outside the required BPO's pH range / total number of pH samples analyzed	-	-			26/32		13/15	2/16	
Maximum Electrical Conductivity (µS/cm)‡	100	100	200	300	200	300	450	175	
• Number of EC samples that exceeded the required BPOs / total number of EC samples analyzed	-	-	-	1/5	-	-	-	-	

- Results satisfied the Tulare Lake Basin Plan's Inland Surface Water Quality Objectives (BPOs).

*Results were interpreted from Attachment B of the 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 (Report).

‡Tulare Lake Basin Plan's Inland Surface Water Quality Objectives (BPOs) for EC and DO are designated specific values by stream reach.

Additional constituents were sampled for the Lower Kings River, but are not shown on Table 1 because they were not discussed in the Report. These constituents include water temperature, water clarity (reservoirs), total dissolved solids, chloride, sulfate, nitrate, bicarbonate, carbonate, calcium, magnesium, potassium, sodium, ammonia, phosphate, selenium, and molybdenum. Also total coliform, fecal coliform, *E.coli*, and fecal streptococcus are not shown on Table 1 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 Tillie Creek into Lake Isabella
	KIN010	Kings River, 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 site			
	South Fork Kings River	LKI010		Kings River - Fresno Weir, Winton Co. Park - NE of Centerville on Trimmer Springs Road	Kaweah River - Lake Kaweah
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			
	KER040	Keyseville Rec Area, Hwy 178 - downstream from Slippery Rock raft launch site			
	KER050	Democrat, US Forest Service Rd. 28S67 - Democrat primitive recreation area	Tule River - Lake Success	TUR010	Tule River - Powerhouse, At the head of the Flume - Hwy 190
	KER060	Lower Richbar, Hwy 178 - Lower Richbar picnic area		TUR020	Tule River - Lower Coffee Camp, Coffee Camp rec area - Hwy 190
	KER070	Ker MM14/MM15, Hwy 178 - site on road between Kern County mile marker 14 and mile marker 15		TUR030	Tule River - Rio Vista Day Use Park, Day use area - Hwy 190
	KER080	Rancheria Road, Rancheria Road day use area		TUR040	Tule River - Sequoia National Forest Fire Station, East of Springville - Hwy 190
	KER090	Hart Park, Alfred Harrell Hwy - South end of Hart Park		TUR050	Tule River - Globe Rd. East, Globe Rd. - just south of Hwy 190 - west of Springville
	KER110	Calloway Weir, Willow Dr. - Oildale - access to weir via Riverview Playground		SUC010	Lake Success, Inflow of Tule River into lake
				SUC020	Lake Success, Middle of Lake
		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 initial information on inland surface water quality in the Tulare Lake Basin. Results were compared to numeric Tulare Lake Basin Plan inland surface water quality objectives for pH, dissolved oxygen, and electrical conductivity that are summarized in Table 1.

The potential concerns in Tulare Lake Basin Watershed Management Areas are determined to be due to low dissolved oxygen and high pH inland surface water quality conditions. Additionally, water quality in the Lower Kings River has potential concern for Tulare Lake Basin Surface Water Beneficial Uses (Beneficial Uses) for municipal, aquatic life, recreation and irrigation.

Why Is This Information Important?

The Tulare Lake Basin Plan's inland surface water quality objectives were used to determine potential impacts to beneficial uses of water. 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.

What Factors Influence The Measurements?

Land Use: Land use influences consist of foothill community development, recreation, industrial processes, irrigated agriculture, and livestock grazing.

Hydrology: The Tulare Lake Basin comprises the drainage area of the San Joaquin Valley south of the San Joaquin River. Essentially it is a closed basin since inland surface water drains north into the San Joaquin River only in years with well above average rainfall.

Technical Considerations:

- Total coliform, fecal coliform, *E. coli*, and fecal 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.
3. State Water Resources Control Board, Porter-Cologne Water Quality Control Act.