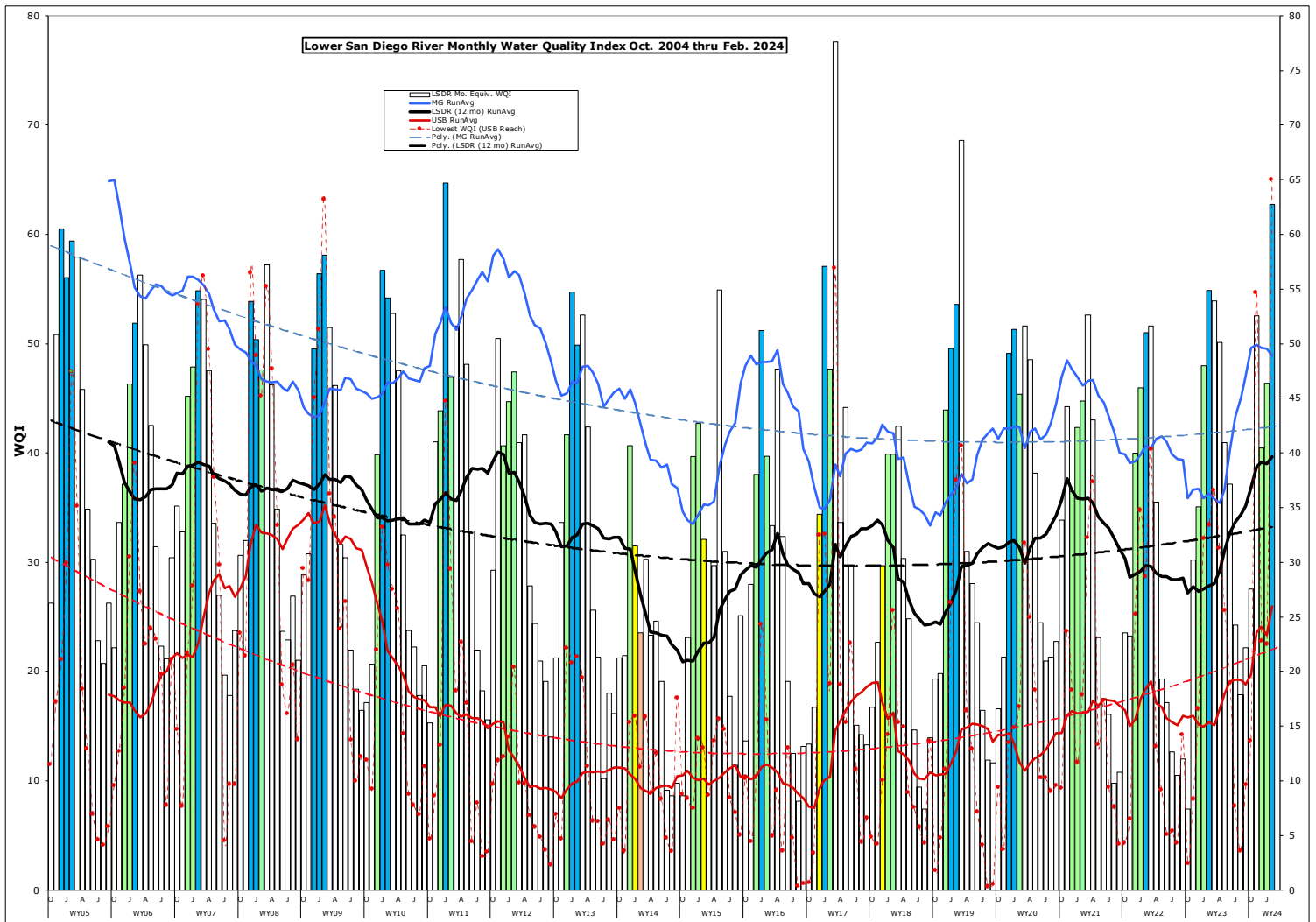


Monthly WQM Report

Lower San Diego River - February 2024



Lower SDR Water Quality Monitoring Data Summary

Table 1 presents a summary of water quality data monitored by the SDRPF RiverWatch Team within the Lower San Diego River (LSDR) watershed over the first two months of 2024. This month's overall index of 63 is 13 points higher (35%) than last month, 14% above a year ago and 32% greater than the 20-yr Feb. norm of 48.

Table 1 - Jan./Feb.'24 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Jan/Feb	[8-10] Jan/Feb	[11-15] Jan/Feb	[1-15] Jan/Feb	Last Mo. (1/'24)	Last Yr. (2/'23)	20-yr Avg. (Feb)
Temperature, oC	11.1/14.7	8.6/13.0	10.8/13.5	10.4/13.9	33%	26%	1%
Sp.Cond., mS/cm	1.85/1.10	1.16/0.86	1.22/1.05	1.44/1.04	-27%	-53%	-39%
DO, mg/L	7.82/8.03	10.63/8.41	6.40/7.99	7.84/8.17	8%	-6%	15%
DO, % of Sat.	71/79	92/81	59/79	71/80			
pH	7.88/7.77	8.09/8.14	7.82/7.65	7.84/7.70	5%	4%	2%
3-day ADF, cfs	18/80	7/46	5/41	10/58	455%	172%	0.4%
WQ Index	50/58	58/64	36/65	46/63	35%	14%	32%
Jan/Feb	B-/B	B/B	D/B	C/B			
Jan/Feb	Good/ Good	Good/ Good	Marginal/ Good	Fair/ Good	Index up 13 points from last month		

Negative variance (declines from norms) and DO depletion (DO < 5.0 mg/L or 50% of Sat) expressed in red.

LSDR **water temperatures** climbed 3.5 oC (up 33%) from last month and 26% above last Feb. to two tenths of a degree above the 20-yr norm of 13.7oC. The overall **specific conductance** of 1.04 mS/cm constitutes a 27% decline from last month to well below the 20-yr norm of 1.72 mS/cm. The overall **dissolved oxygen** level of 8.17 mg/L (80%Sat.) is 8% higher than last month, 6% and 15% above the 20-yr norm of 7.19 mg/L (57%Sat). **Streamflow** over the antecedent 3-days of 58 cfs is 455% greater than measured last month, 172% above a year ago and falling within one percent the 20-yr Feb. norm of 57 cfs. This month's overall LSDR **water quality index** (WQI) of 63(B) is 35% above last month, 14% greater than one year ago and 32% more than the 20-yr February norm.

Monthly WQI values occurring over the past 25 months of RiverWatch record for the three main sections of the lower river system, the overall LSDR average, plus 30-day antecedent average daily streamflow (ADF) and total monthly rainfall (MRF) values, are expressed in **Table 2** on the next page.

Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (Feb.'22 - Feb.'24)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
Feb. '22	55 (B)	67 (B)	38 (C-)	51 (B-)	T	7.1	0.22
March	55 (B)	61 (B)	42 (C)	52 (B-)	WW	26	1.04
April	32 (D)	69 (B)	25 (D-)	36 (D)	WW	14	1.01
May	17 (E)	32 (D)	15 (E)	19 (E)	T	4.1	0.03
June	19 (E)	16 (E)	15 (E)	17 (E)	DW	1.1	0.00
July	17 (E)	2 (F-)	12 (F+)	13 (E-)	DW	0.6	0.00
Aug.	15 (E)	2 (F-)	8 (F)	10 (F)	DW	0.4	0.00
Sept.	8 (F)	11 (F+)	16 (E)	12 (F+)	DW	2.0	0.64
Oct.	9 (F)	3 (F-)	7 (F)	7 (F)	T	0.9	0.03
Nov.	25 (D-)	59 (B)	24 (E+)	32 (D)	WW	17	1.16
Dec. '22	32 (D)	53 (B-)	30 (D)	35 (D)	WW	18	0.93
Jan. '23	49 (C+)	58 (B)	42 (C)	48 (C+)	WW	190	3.48
Feb. '23	56 (B)	71 (B)	47 (C)	55 (B)	WW	36	2.76
March	58 (B)	57 (B)	52 (B-)	55 (B)	WW	132	4.86
April	52 (B-)	65 (B)	43 (C)	50 (B-)	WW	77	0.54
May	40 (C)	47 (C+)	39 (C)	41 (C)	T	19	0.12
June	33 (D)	59 (B)	33 (D)	37 (D+)	T	18	0.03
July	19 (E)	39 (C-)	23 (E)	24 (E+)	DW	4.9	0.00
Aug	20 (E)	22 (E)	15 (E)	18 (E)	DW	3.1	0.10
Sept	17 (E)	35 (D)	22 (E)	22 (E)	T	26	1.75
Oct.	31(D)	34 (D)	21 (E)	28 (D)	DW	4.2	0.01
Nov.	49 (C+)	59 (B)	51 (B-)	53 (B-)	T	28	0.15
Dec. '23	45 (C)	50 (B-)	31 (D)	40 (C)	T	15	0.13
Jan.'24	50(B-)	58 (B)	36 (D)	46 (C)	WW	13	1.27
Feb. '24	58(B)	64(B)	65(B)	63(B)	WW	192	6.20

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the past 20 years. Each year's Oct. Nov. and Dec. values are expressed as color-shaded bars; blue (50 or >) A-B/Good, green (38-49) C/Fair, yellow (25-37) D/Marginal, brown (13-24) E/Poor, and pink (12 or <) F/Very Poor. Running average index values for the LSDR (distance weighted averages of all sites) are shown as a heavy black line. Running averages for the consistently highest (best) quality section of the river (Mission Gorge) are shown as a 'blue' line while the consistently lowest (poorest) reach (Upper Santee Basin) is shown in 'red'. The dashed lines represent overall (20-yr) trends. This month's value of 63 is the 11th time the index has been at grade level B (Good) for Feb., 15 points above the 20-yr norm of 48.

WQI values extending from Sept.'04 thru Feb.'24 are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five reaches as well as overall (i.e., LSDR) for the entire lower river system. The current running average WQI of 40 is 21% above the 20-yr norm of 33. The running average low for Feb. of 23 (31% below norm) occurred in 2015. The previous highest running average WQI for Feb. of 38 occurred in 2007. The greatest improvement in water quality this month occurred in the Upper Santee Basin at monitoring site 13E Walmart Pond outlet.

Monthly and 12-mo. running average WQI values for the 'poorest' (Upper Santee Basin) and "best" (Mission Gorge) reaches of the lower watershed are presented in **Chart 2**. Although water quality has measurably improved during much of this past year, resurgent growth of invasive aquatic plants and subsequent decomposition with associated accrual of organics, especially in ponded portions along the river, are considered the underlying cause of poor water quality. The greatest downward trend (**red-dashed line**) over time is associated with the poorest quality reach (Upper Santee Basin) encompassing Mast Park East (#13E), also referred to as 'Walmart Pond', and Magnolia Ave.(#14) sites. The Mission Gorge (**blue line**) section from Old Mission Dam through Mission Trails continues to demonstrate the least decline in index values over the 20-yr monitoring period. The poorest quality Mission Valley site is located at the outlet from Kaiser Ponds (Site 6) San Diego Mission Rd. bridge.

Spatial WQI values determined over the last three months, expressed in order of location upstream, are shown in **Charts 3, 4 and 5** on page 6. This month's results (color bars w/values in black shown on Chart 5) are in general above those from last month and higher than the 20-yr norms. This month 15 out of 16 sites (94%) are B (Good). Last month, only 7 of 16 sites (44%) were graded B (Good), the other nine; 5 Fair (C), 3 Marginal (D) and 1 Poor (E). In December only three sites (19%) were Good (B), 7 Fair (C), 5 Marginal (D) and 1 Poor (E). The current index values at all 16 sites are considerably (20-30%) above the 20-yr Feb. norms. The lowest index value of 41 (Fair) this month was at the transition from lower river-to-estuary (Site 1), whereas, the highest index of 69 (Good) was located at the outlet to Walmart Pond (Site 13E). The last time dissolved oxygen concentrations were measured above 7 mg/L at the Mast Part East site was 16 years ago in Feb. 2008.

The March index is expected to remain 'Good (B)' due to elevated streamflows, cool water temperatures and above monthly normal dissolved oxygen concentration levels. 2/18/24 (JCK)

Chart 1 - LSDR Monthly WQI, Running Averages and Trendlines by River Reach (Sept. 2005 thru Feb. 2024)

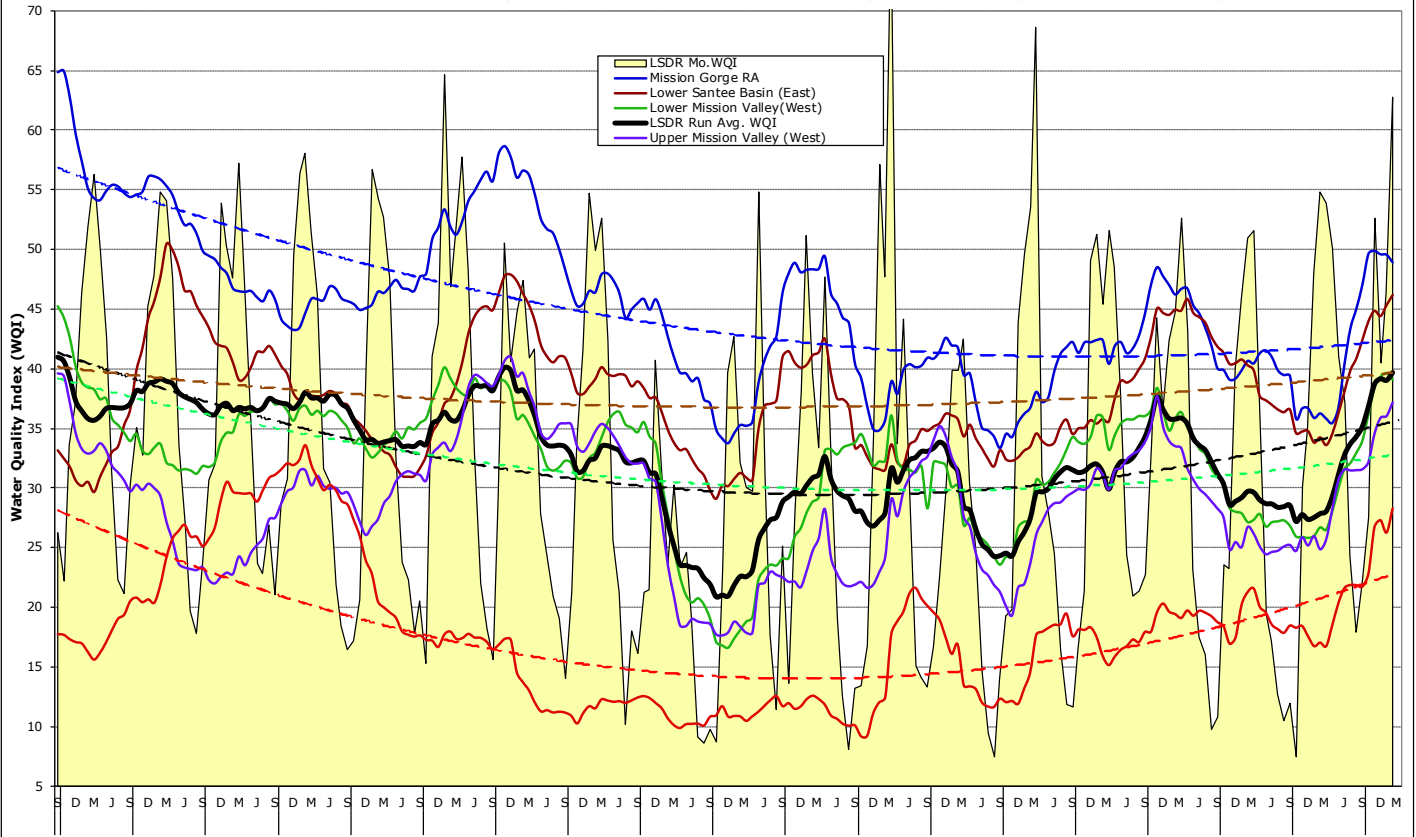


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines

