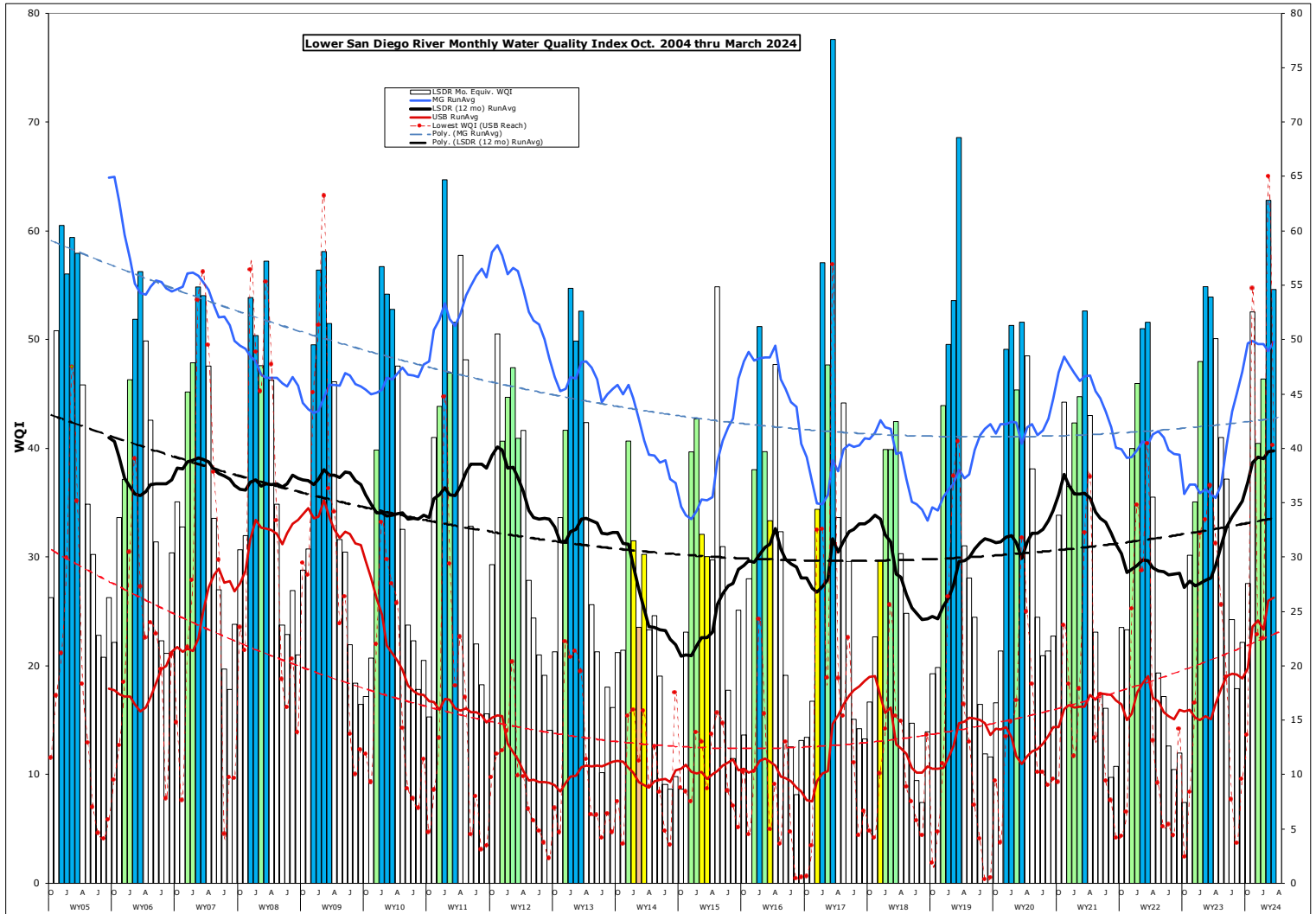


# Monthly WQM Report

## Lower San Diego River - March 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 last two months. This month's overall index of 55 is 8 points lower (-13%) than last month, remaining one point above a year ago March and four points above the 20-yr March norm of 51.

<b>Table 1 - March/Feb.'24 WQM Data Summary</b>							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] March/Feb	[8-10] March/Feb	[11-15] March/Feb	[1-15] March/Feb	Last Mo. (2/'24)	Last Yr. (3/'23)	20-yr Avg. (March)
Temperature, oC	17.5/14.7	15.3/13.0	16.5/13.5	16.6/13.9	20%	16%	2%
Sp.Cond., mS/cm	1.58/1.10	1.19/0.86	1.26/1.05	1.35/1.04	29%	98%	-12%
DO, mg/L	6.80/8.03	8.73/8.41	6.83/7.99	6.83/8.17	-14%	-9%	-1%
DO, % of Sat.	72/79	88/81	71/79	71/80			
pH	7.87/7.77	8.10/8.14	7.94/7.65	7.91/7.70	2.7%	2.5%	2.2%
3-day ADF, cfs	36/79	25/46	23/41	29/57	-50%	-86%	-13%
WQ Index	55/58	67/64	48/65	55/63	-13%	1%	7%
March/Feb	B/B	B/B	C+/B	B/B			
March/Feb	Good/ Good	Good/ Good	Fair/ Good	Good/ Good	<b>Index down 8 points from last month</b>		

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

LSDR **water temperatures** climbed 2.7 oC (up 20%) from last month and 16% above last March to 2% above the 20-yr norm of 16.3oC. The overall **specific conductance** of 1.35 mS/cm constitutes a 29% increase from last month to nearly twice last year but remaining 12% below the 20-yr norm of 1.53 mS/cm. The overall **dissolved oxygen** level of 6.83 mg/L (71%Sat.) is 14% less than last month and 9% below last March to within one percent of the 20-yr norm of 6.92 mg/L (70%Sat). **Streamflow** over the antecedent 3-days of 29 cfs is 50% less than occurred last month, 86% below a year ago and 13% less than the March norm of 33 cfs. This month's overall LSDR **water quality index** (WQI) of 55(B) fell 13% below last month, remaining one percent greater than a year ago and four points (7%) above the 20-yr March norm of 51.

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.

<b>Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (March '22 - March '24)</b>							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
<b>March</b>	<b>55 (B)</b>	<b>61 (B)</b>	<b>42 (C)</b>	<b>52 (B-)</b>	<b>WW</b>	<b>26</b>	<b>1.04</b>
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
<b>March</b>	<b>58 (B)</b>	<b>57 (B)</b>	<b>52 (B-)</b>	<b>55 (B)</b>	<b>WW</b>	<b>132</b>	<b>4.86</b>
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
<b>March</b>	<b>55(B)</b>	<b>67(B)</b>	<b>48(C+)</b>	<b>55(B)</b>	<b>WW</b>	<b>45</b>	<b>1.62</b>

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 55 is the 15th time the index has been at grade level B (Good) for March, four points above the monthly norm of 51.

WQI values extending from Sept.'04 thru March '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 March of 23 (31% below norm) occurred in 2015. The previous highest running average WQI for March of 39 occurred in 2007. The greatest decline in water quality this month occurred in the Upper Santee Basin at monitoring site 13E Walmart Pond.

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 aquatic plants and subsequent decomposition associated with accrual of organics, especially in ponded portions of the river, are considered the basic cause of poorer 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) 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) at 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 less than those from last month and approximately the same as 20-yr norms (black line). This month 13 out of 16 sites (81%) are B (Good) whereas last month 15 of 16 sites (94%) were Good. Only seven sites (44%) were found Good in January. One site (13E) found Good (B) last month was found Very Poor (F) this month,. The current index values at one-half of the sites are slightly above the 20-yr March norms whereas the other half are less.

The lowest index value of 12 (Very Poor) this month was located at the outlet to Walmart Ponds (Site 13E) while the highest index value of 96 (Very Good) was identified just upstream at Magnolia Ave. Bridge (Site14).

Next month's overall index is expected to further decline due to less streamflow, rising water temperatures and lower dissolved oxygen levels at most sites. The April index values are typically in 40's (C-Fair) representing the transition to dry weather conditions.

3/23/24 (JCK)

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

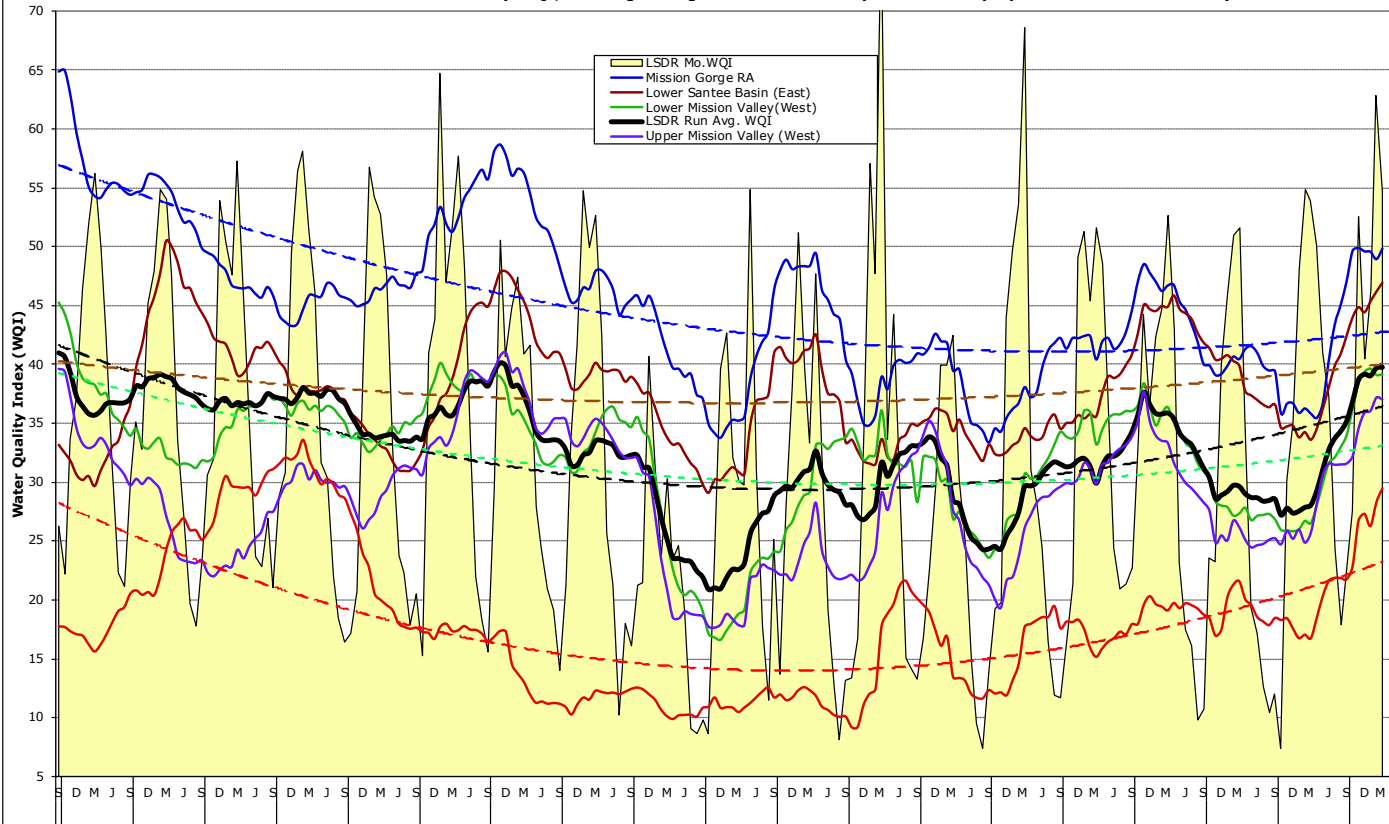


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines

