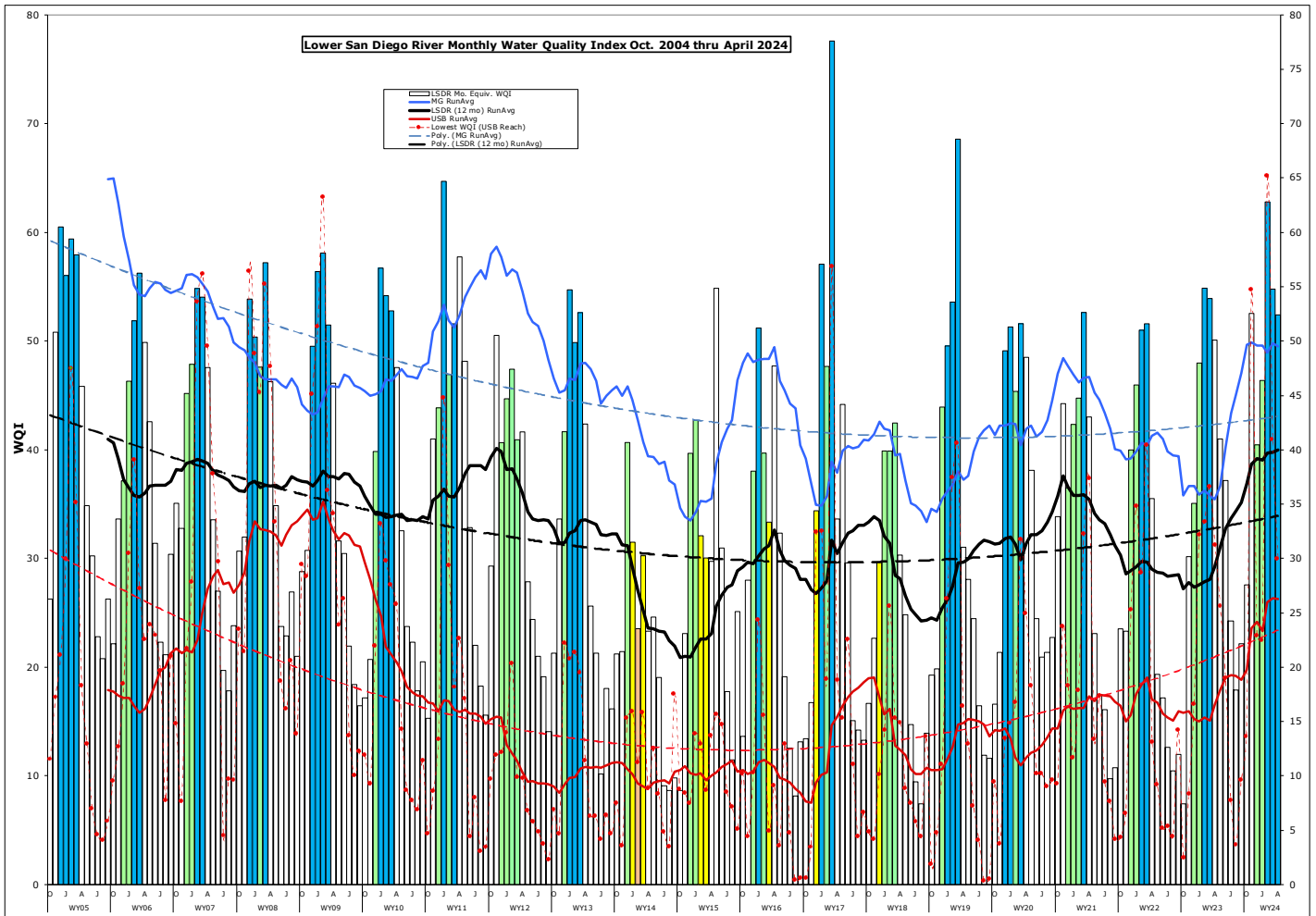


Monthly WQM Report

Lower San Diego River - April 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 53 is just two points below last month, remaining three points above a year ago and 11 points above the 20-yr April norm of 42.

Table 1 - March/April '24 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Mar/Apr	[8-10] Mar/Apr	[11-15] Mar/Apr	[1-15] Mar/Apr	Last Mo. (3/'24)	Last Yr. (4/'23)	20-yr Avg. (April)
Temperature, oC	17.5/18.9	15.3/17.8	16.5/17.5	16.6/18.1	9%	10%	1%
Sp.Cond., mS/cm	1.58/1.55	1.19/1.15	1.26/1.22	1.35/1.33	-1%	-16%	-29%
DO, mg/L	6.80/7.21	8.73/7.56	6.83/5.31	6.83/6.35	-5%	-2%	11%
DO, % of Sat.	72/78	88/80	71/57	71/68			
pH	7.87/8.01	8.10/8.17	7.94/7.45	7.91/7.68	-2.9%	-0.4%	-0.8%
3-day ADF, cfs	36/33	30/25	29/24	32/28	-12%	0%	66%
WQ Index	55/60	67/61	48/40	55/52	-4%	5%	23%
March/April	B/B	B/B	C+/C	B/B-			
March/April	Good/ Good	Good/ Good	Fair/ Fair	Good/ Good	Index down 3 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 1.5 oC (9%) from last month, to 10% above last April and 1% above the 20-yr norm of 17.9 oC. The overall **specific conductance** of 1.33 mS/cm constitutes a 1% decrease from last month to 16% below last year and 29% less than the 20-yr norm of 1.87 mS/cm. The overall **dissolved oxygen** level of 6.35 mg/L (66%Sat.) is 5% less than last month, 2% below last April, and remaining 11% above the 20-yr norm of 5.80 mg/L (61%Sat). **Streamflow** over the antecedent 3-days of 28 cfs is 12% less than last month, same as a year ago and 66% greater than the April norm of 16 cfs. This month's overall LSDR **water quality index** (WQI) of 52 (B-) is down 4% from last month, remaining five percent above a year ago and 11 points (23%) above the 20-yr April norm of 43 (C).

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 (April '22 - April '24)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
April'22	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.	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'23	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
March	55(B)	67(B)	48(C+)	55(B)	WW	46	1.62
April'24	60(B)	61(B)	40(C)	52(B)	WW	62	1.45

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 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 52 is the 15th time the index has been at grade level B (Good) for April, ten points above the monthly norm of 42.

WQI values extending from Sept.'04 thru April '24 are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five reaches and overall (i.e., LSDR) for the entire lower river system. The current running average WQI of 40 is 22% above the 20-yr norm of 33. The running average low for April of 23 (30% below norm) occurred in 2015. The previous highest running average WQI for April of 39 occurred in 2007. The greatest decline in water quality this month occurred in the Upper Santee Basin (sites 13E and 14).

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. crossing.

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 greater than those from last month at 11 sites (1-8, 15T, 12T & 13E) and less at four sites (9T, 10, 11 & 13W). This month, 9 of 16 sites (56%) were B(Good), down from last month's 13 (81% of total) and February's 15 (94%). Six of 16 sites (all in the Santee Basin) were found Fair(C) this month, opposed to none last month and one in February. Index values at only two sites (10 & 12T) were found below the 20-yr norms. The lowest index value of 21(E) this month was located at the outlet to Walmart Ponds (Site 13E) while the highest index value of 74 (B+) was found at Mission Trails Crossing (Site 8).

Next month's overall index is expected to further decline due to less streamflow, higher water temperatures and lower dissolved oxygen levels. The May index values are typically in mid-30's (C-Fair) representing a transition to dry weather conditions.

4/26/24r (JCK)

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

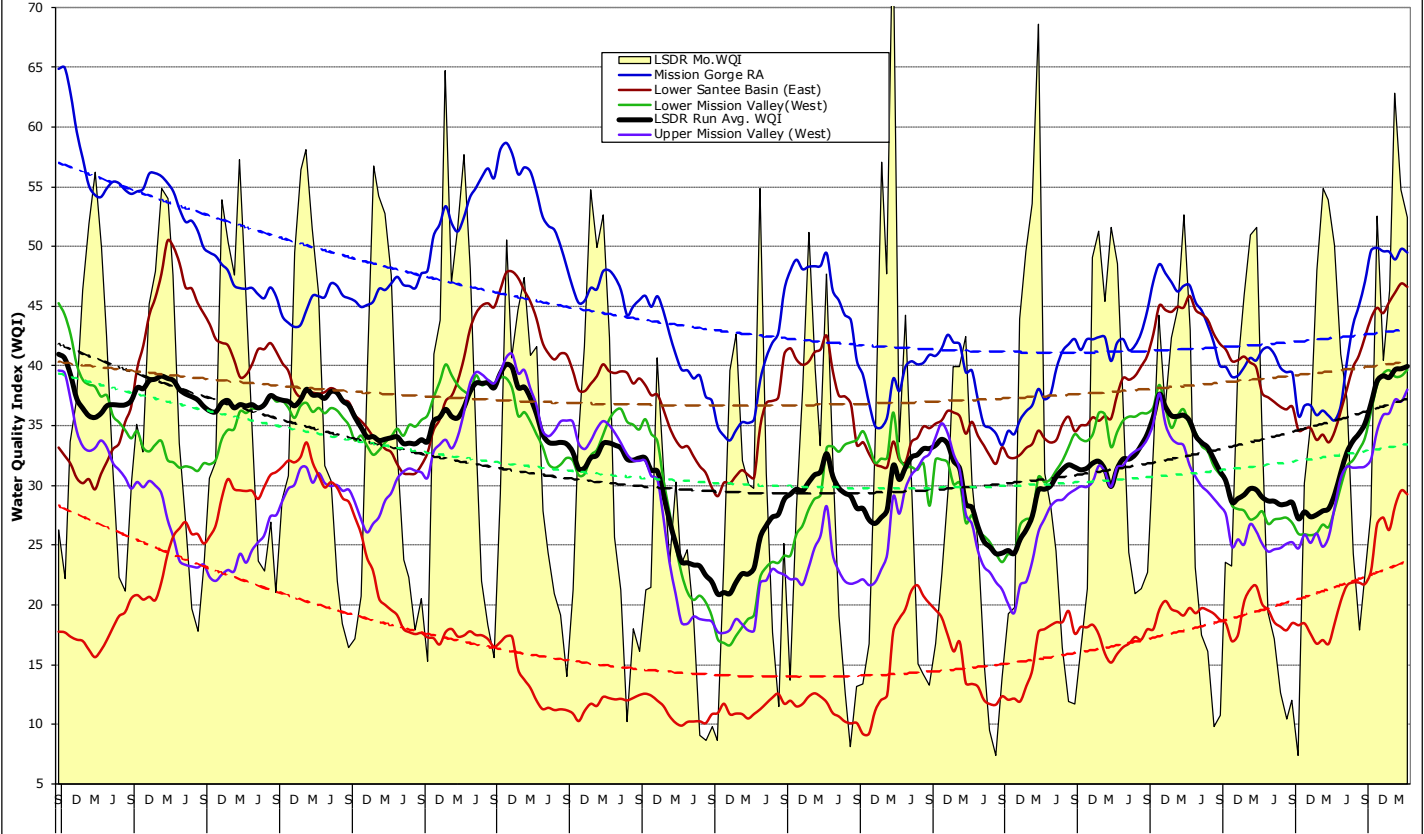


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines

