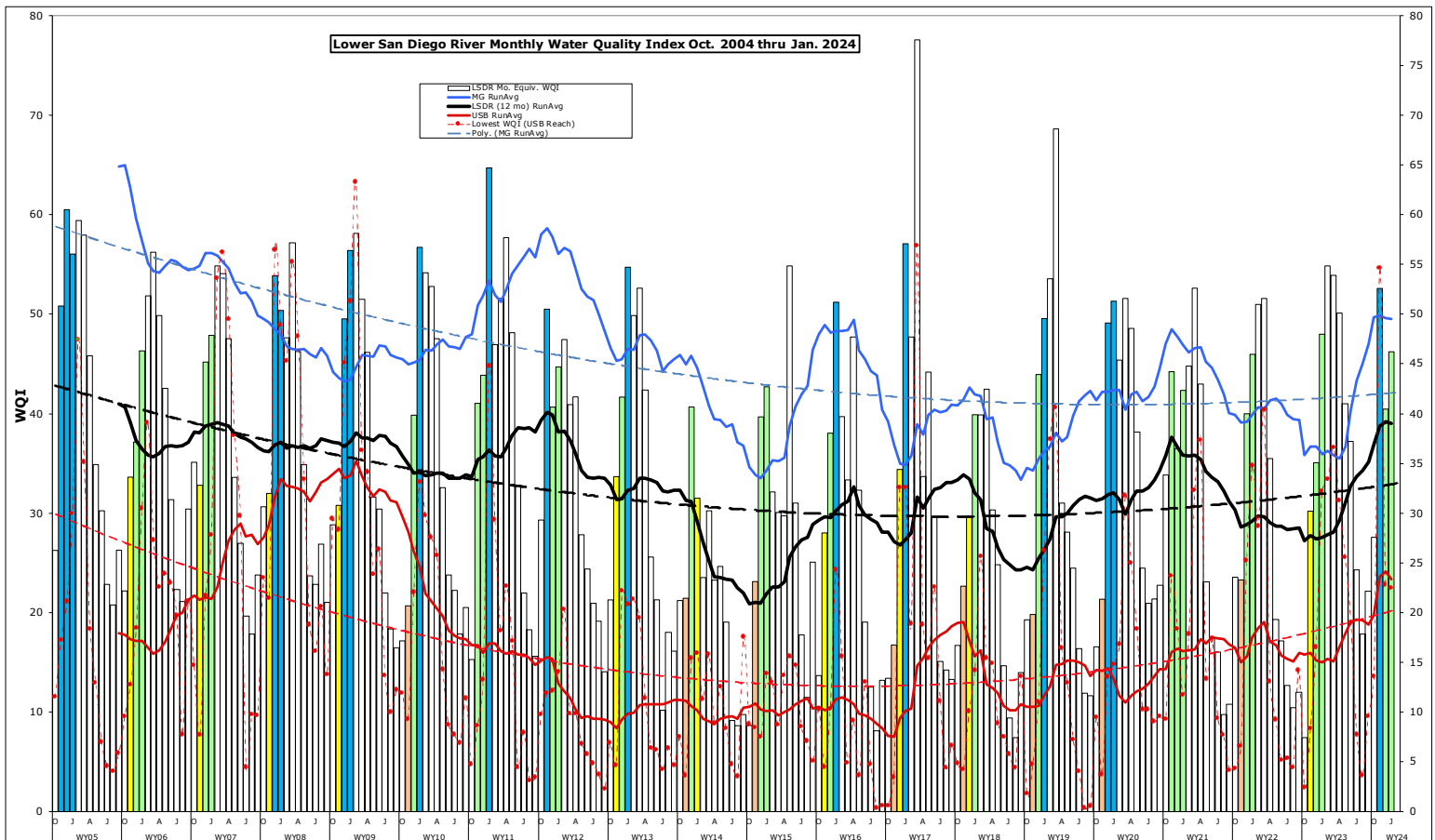


# Monthly WQM Report

## Lower San Diego River - January 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 (Jan'24/Dec'23). This month's overall index of 46 is six points higher (14%) than last month but remaining 4% below a year ago (48) and 6% less than the 20-yr Jan. norm of 49.

<b>Table 1 - Jan. '24/Dec. '23 WQM Data Summary</b>							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Jan/Dec	[8-10] Jan/Dec	[11-15] Jan/Dec	[1-15] Jan/Dec	Last Mo. (12/'23)	Last Yr. (1/'23)	20-yr Avg. (Jan)
Temperature, oC	11.1/12.9	8.6/9.2	10.8/11.5	10.4/11.6	-10%	-10%	-12%
Sp.Cond., mS/cm	1.85/2.02	1.16/1.10	1.22/1.46	1.44/1.68	-14%	1%	-17%
DO, mg/L	7.82/6.75	10.63/9.13	6.40/6.26	7.84/6.78	14%	2%	0.3%
DO, % of Sat.	71/65	92/82	59/58	71/63			
pH	7.88/7.39	8.09/7.93	7.82/7.48	7.84/7.44	5%	4%	2%
3-day ADF, cfs	15/12	6/5	5/4	9/7	27%	-92%	-72%
WQ Index	50/45	57/50	36/31	46/40	14%	-4%	-6%
Jan/Dec	B-/C	B/B-	D/D	C/C			
Jan/Dec	Good/ Fair	Good/ Good	Marginal/ Marginal	Fair/ Fair	<b>Index up 6 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** dropped 1.2 oC (-10%) from last month and last Jan. to 12% below the 20-yr norm of 11.9oC. The overall **specific conductance** of 1.44 mS/cm constitutes a 14% decline from last month to 17% below the 20-yr norm of 1.73 mS/cm. The overall **dissolved oxygen** level of 7.84 mg/L (71%Sat.) is 14% higher than last month, 2% above last Jan. and within 1% of the 20-yr norm of 7.71 mg/L (71%Sat). **Streamflow** over the antecedent 3-day period of 9 cfs is 27% greater than last month, 92% under a year ago and 72% below the 20-yr Jan. norm of 34 cfs. This month's overall LSDR **water quality index** (WQI) of 46(C) is 14% above last month, 4% less than a year ago and 6% below the 20-yr norm of 49(C+).

Monthly WQI values occurring over the past 25 months of 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 (Jan.'22 - Jan.'24)</b>							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMRf,in
<b>Jan.'22</b>	<b>44 (C)</b>	<b>68 (B)</b>	<b>38 (C-)</b>	<b>46 (C)</b>	<b>WW</b>	<b>30</b>	<b>1.64</b>
Feb.	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
<b>Jan. '23</b>	<b>49 (C+)</b>	<b>58 (B)</b>	<b>42 (C)</b>	<b>48 (C+)</b>	<b>WW</b>	<b>190</b>	<b>3.48</b>
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	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-)	WW	28	0.15
Dec. '23	45 (C)	50 (B-)	31 (D)	40 (C)	WW	15	0.13
<b>Jan.'24</b>	<b>50 (B-)</b>	<b>57 (B)</b>	<b>36 (D)</b>	<b>46 (C)</b>	<b>WW</b>	<b>12</b>	<b>1.27</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 46 is the 9th time the index has been at grade level C (Fair) for Jan, three points below the 20-yr norm of 49.

WQI values extending from Sept.'04 thru Jan.'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 lower river system. The current running average WQI of 39 is 19% above the 20-yr norm of 33. The running average low for Jan. of 22 (33% below norm) occurred in 2015. The previous highest running average WQI for this month occurred in 2007. The greatest improvement in water quality this month occurred on lower Santee Basin at monitoring site 11 West Hills Parkway.

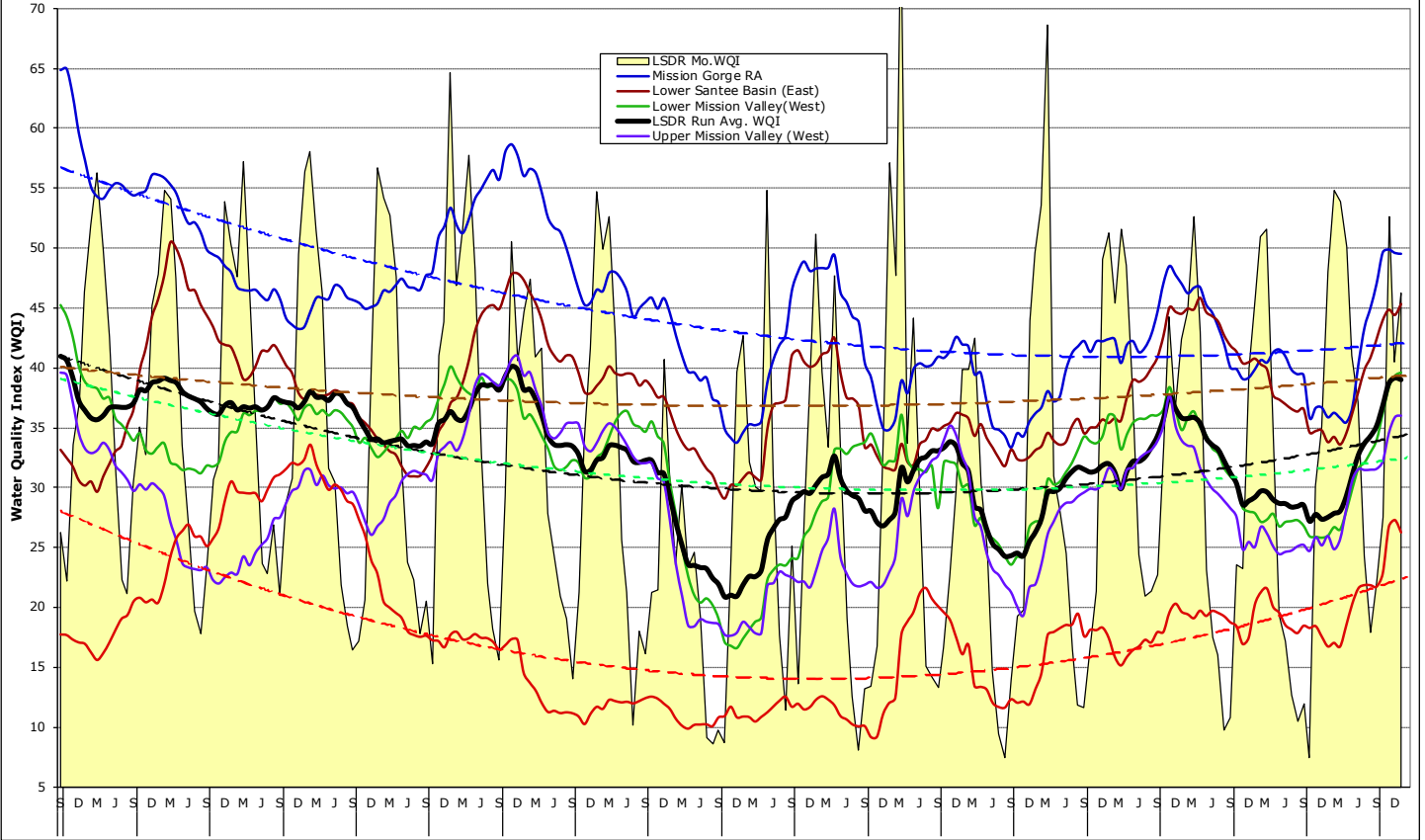
Monthly and 12-mo. running average WQI values for the 'poorest' (Upper Santee Basin) and "best" (Mission Gorge) reaches of the lower watershed are presented in **Chart 2**. Although water quality has measurably improved during much of this past year, resurgent growth of invasive aquatics and subsequent 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. The poorest Santee Basin site (13E) is Mast Park East (aka, 'Walmart Ponds').

Spatial WQI values determined over the last three months, expressed in order of occurrence 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 below those from last Jan. with exception of sites 2 and 11. This month seven out of 16 sites (44%) are graded B (Good), five C (Fair), three D (Marginal) and one E (Poor). Last month five were Marginal (D), seven C (Fair) and only three B (Good). Ten sites were found Good last Nov. The current index values for all 16 sites are within 5% of the 20-yr Jan. norms. The lowest index values are associated with the three upper Santee Basin sites (14, 13E and 13W).

The February index is expected to increase due to greater streamflow, low water temperatures, reduced Specific Conductance and elevated DO levels. Similarly, overall water quality is expected to improve in the lower river watershed during the first half of the water year. .

1/15/24 (JCK)

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



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

