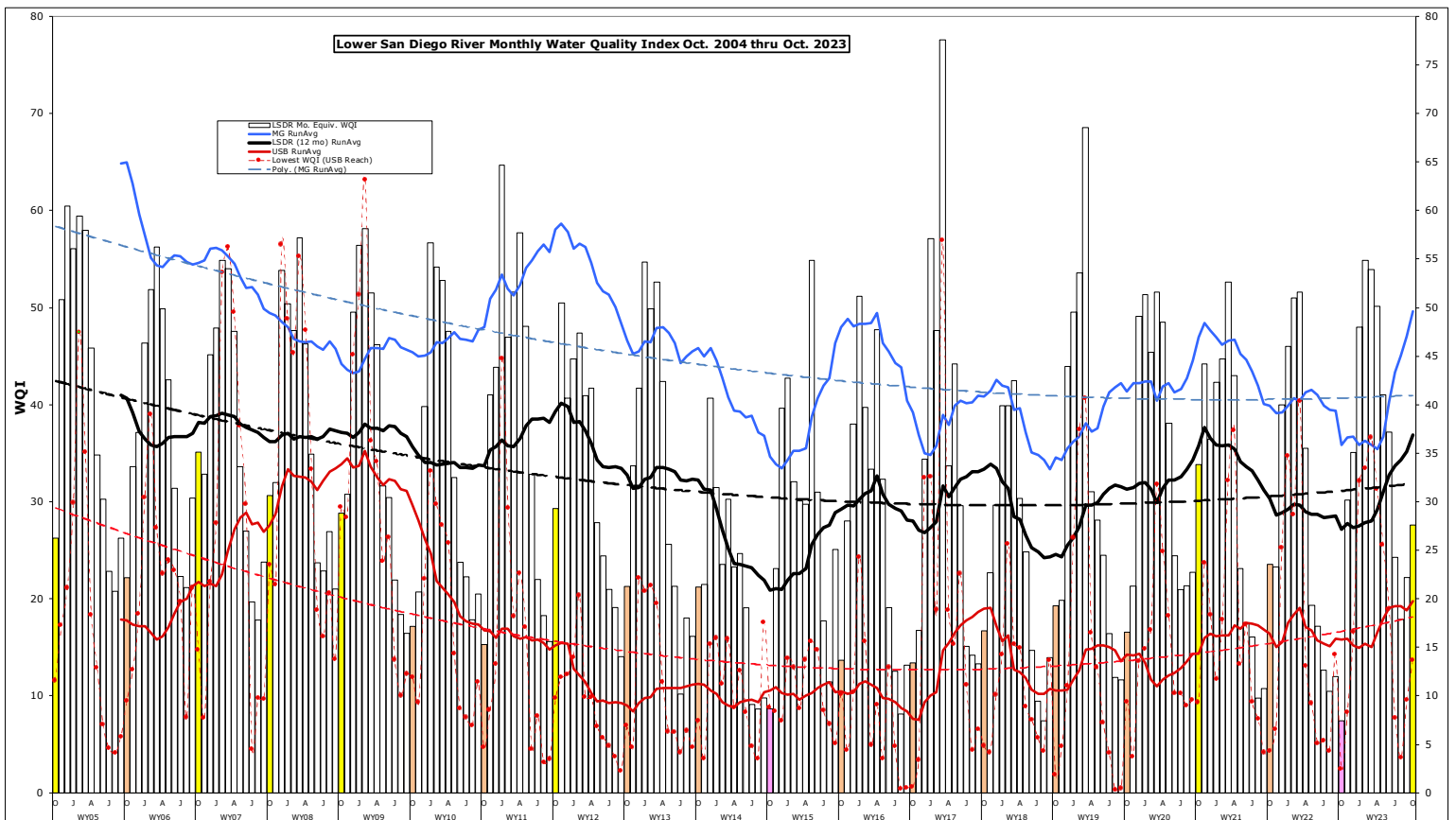


# Monthly WQM Report

## Lower San Diego River - October 2023



## 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 (Sept/Oct) of 2023. This month's overall index is six points (24%) above last month and 31% above the 19-yr Oct. norm of 21, improving from Poor (E) to Marginal (D).

<b>Table 1 - Sept/Oct. 2023 WQM Data Summary</b>							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Sept/Oct	[8-10] Sept/Oct	[11-15] Sept/Oct	[1-15] Sept/Oct	Last Mo. (9/'23)	Last Yr. (10/'22)	19-yr Avg. (Oct)
Temperature, oC	22.4/21.5	21.1/18.1	21.5/19.8	21.8/20.1	-8%	-2%	9%
Sp.Cond., mS/cm	2.40/2.83	0.96/1.09	1.59/1.51	1.97/2.13	8%	-30%	-24%
DO, mg/L	2.23/4.27	5.85/5.54	3.46/3.46	3.44/4.14	20%	136%	10%
DO, % of Sat.	26/50	66/59	40/38	40/46			
pH	7.47/7.68	8.05/8.09	7.57/7.58	7.52/7.62	1.2%	1.3%	-1.2%
3-day ADF, cfs	7.2/7.5	3.1/4.2	2.4/3.6	4.4/4.9	19%	542%	186%
WQ Index	17/31	35/34	22/21	22/28	24%	271%	31%
Sept/Oct.	E/D	D/D	E/E	E/D			
Sept/Oct.	Poor/ Marginal	Marginal/ Marginal	Poor/ Poor	Poor/ Marginal	<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** declined 1.7oC (-8%) from last month remaining 9% above the 19-yr norm of 18.5oC. The overall **specific conductance** of 2.13 mS/cm constitutes an 8% increase from last month but remaining 24% below from the 19-yr norm of 2.81 mS/cm. The overall **dissolved oxygen** level of 4.14 mg/L (46%Sat.) is 20% above last month, 136% above last Oct. and 10% above the 19-yr norm of 3.95 mg/L (41%Sat). **Streamflow** over the antecedent 3-day period of 4.9 cfs is 19% more than last month, over five times a year ago and nearly twice the Oct. norm. This month's overall LSDR **water quality index** (WQI) of 28(D) is 24% greater than last month, 271% greater than a year ago and 31% above the 19-yr norm of 21(E).

Monthly WQI values occurring over the past two years 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 (Sept,'21 - Oct '23)</b>							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
Sept.	12 (F+)	11 (F+)	10 (F)	11 (F+)	DW	0.6	0.00
<b>Oct.'21</b>	<b>19 (E)</b>	<b>46 (C)</b>	<b>18 (E)</b>	<b>24 (E+)</b>	<b>T</b>	<b>6.4</b>	<b>0.80</b>
Nov.	16 (E)	47 (C)	22 (E)	23 (E+)	T	2.4	0.21
Dec.	35 (D)	53 (B-)	38 (C-)	40 (C)	WW	21	1.10
Jan.'22	44 (C)	68 (B)	38 (C-)	46 (C)	WW	30	1.64
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
<b>Oct. '22</b>	<b>9 (F)</b>	<b>3 (F-)</b>	<b>7 (F)</b>	<b>7 (F)</b>	<b>T</b>	<b>0.9</b>	<b>0.03</b>
Nov.	25 (D-)	59 (B)	24 (E+)	32 (D)	WW	17	1.16
Dec.	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	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	25.5	1.75
<b>Oct '23</b>	<b>31 (D)</b>	<b>34 (D)</b>	<b>21 (E)</b>	<b>28 (D)</b>	<b>T</b>	<b>4.9</b>	<b>0.01</b>

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the last 19 plus years of monitoring. Each year's October 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 (reach-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 (19+yr) trends. This month's value of 37 is the 7th time the index has been at a grade level of D (Marginal) for October.

WQI values extending from Sept.'04 thru Oct.'23 are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five reaches of the lower watershed as well as overall (i.e., LSDR). The current overall WQI of 37 is 12% above the 19-yr norm of 33. The running average low for Oct. of 21 (36% below norm) occurred in 2014. The highest running average WQI for this month of 41 (16% above norm) occurred in 2004. The greatest improvement in water quality this month occurred within the Mission Gorge section; the least change was in the Upper Mission Valley reach.

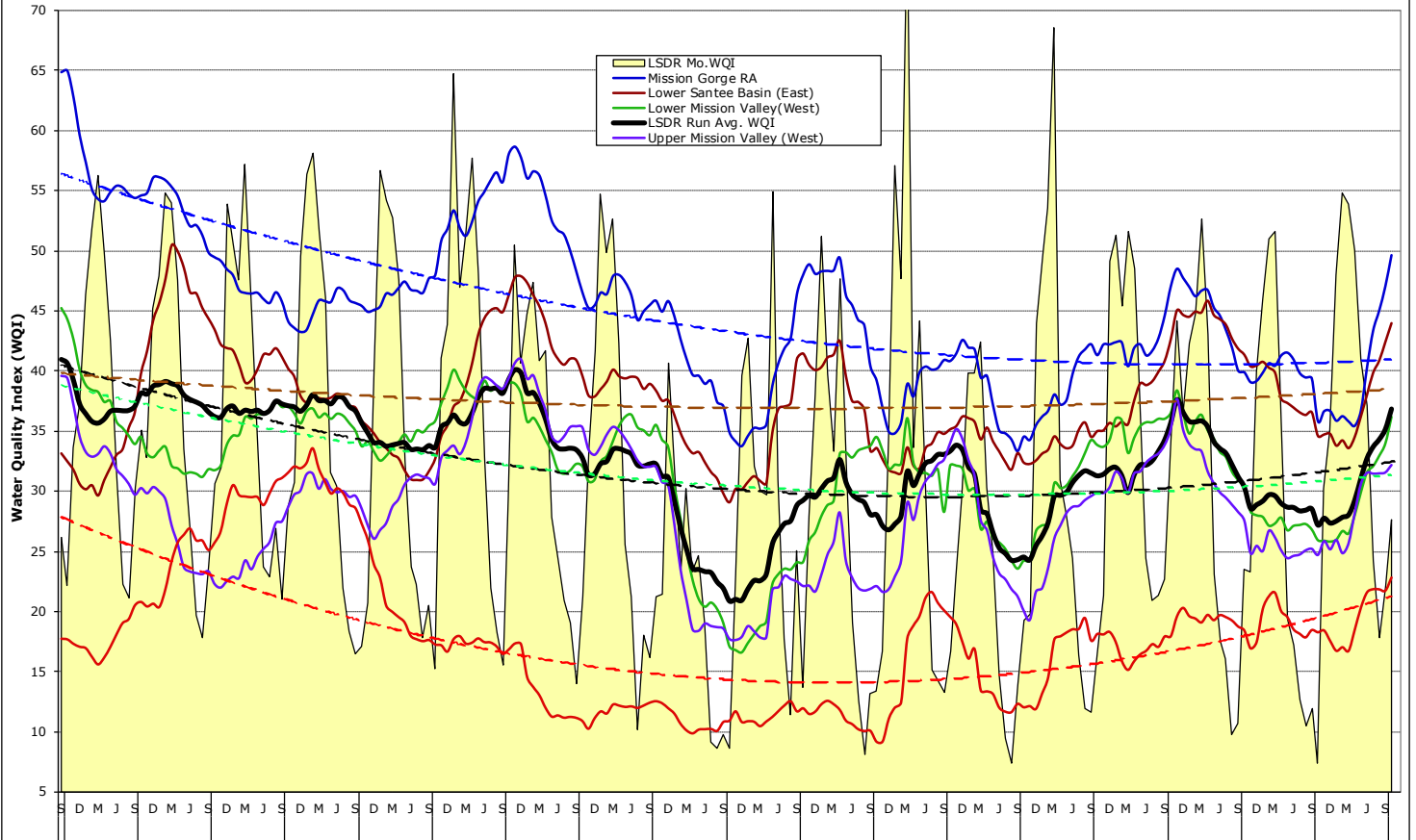
Monthly and 12-mo. running average WQI values for the 'poorest' (Upper Santee Basin) and "best" (Mission Gorge) reaches of the lower watershed are presented in **Chart 2**. Although water quality has improved to an extent in recent years within the upper-most reach, resurgent growth of invasive aquatics and subsequent decomposition with accrual of organics, especially in ponded portions of the river, are considered the primary 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) and Magnolia Ave. (#14) monitoring 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 entire monitoring period. The poorest quality Mission Valley site is the outlet from Kaiser Ponds (Site 6) at San Diego Mission Rd. bridge. The poorest Santee Basin site (13E) Mast Park East, is also referred to as Walmart Pond.

Spatial WQI values determined over the last three months expressed in order of their position 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 considerably above those from the last two months (Charts 3 & 4). This month nine of 16 sites (56%) are graded D (Marginal) whereas last month nine of 16 were Poor(E). This month only three (19%) are Poor while last month only three sites were Marginal(D). The current index values for all 16 sites are well above index values for last Oct. and at all but several sites exceed the 19-yr Oct. norms. The greatest increase in index values are associated with the Mission Valley sites. Mission Gorge and Santee Basin sites rose only slightly in index values from last month.

The November index for LSDR is expected to continue improving due to enhanced streamflow, lower water temperatures, reduced Specific Conductance and elevated dissolved oxygen levels. Likewise, river water quality for the first half of WY24 is anticipated to continue improving throughout the lower watershed.

{ 10/29/23 jck }

**Chart 1 - LSDR Monthly WQI, Running Averages and Trendlines by River Reach (Sept. 2005 thru Oct. 2023)**



**Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 19-yr Trendlines**

