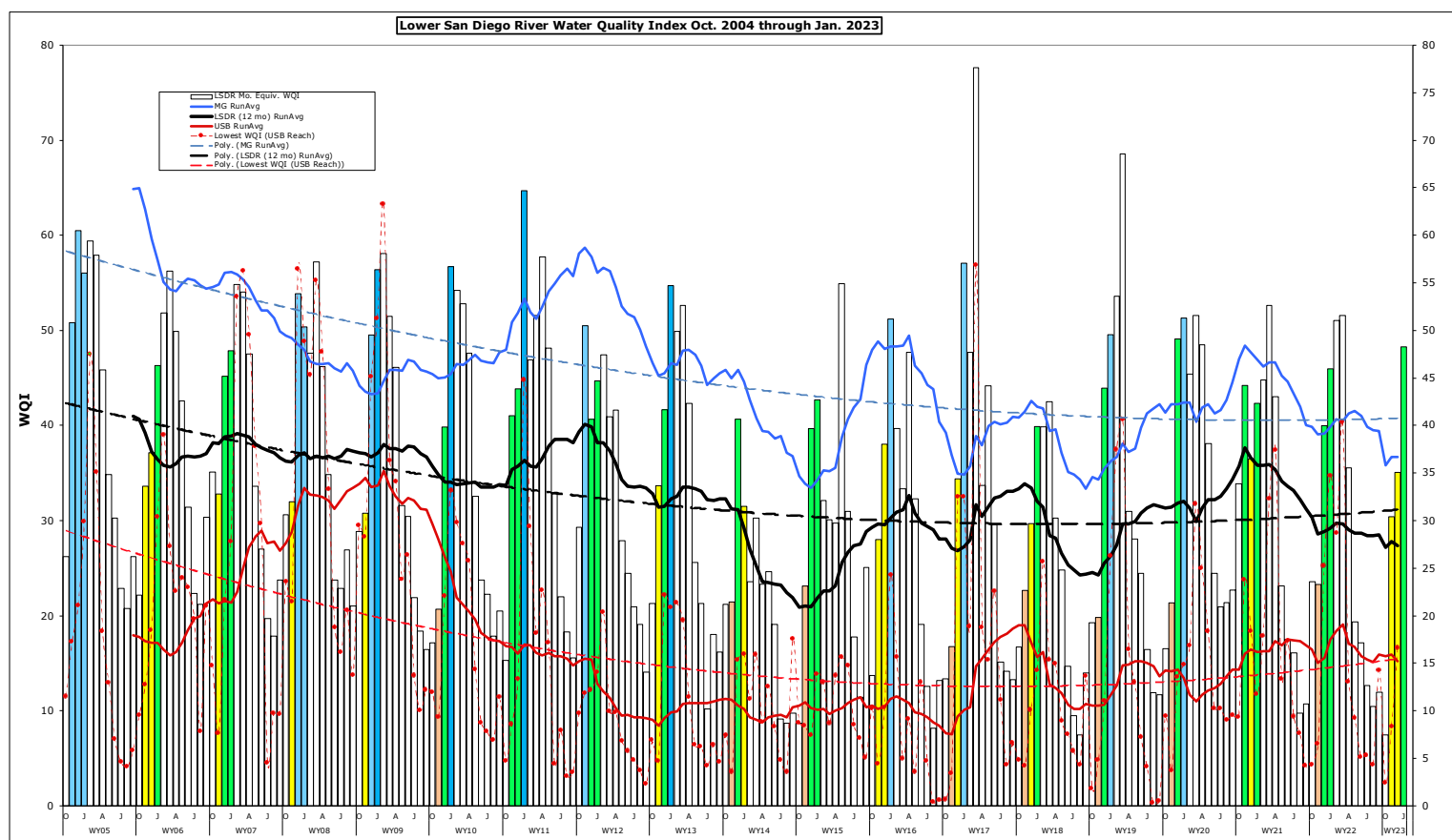


Monthly WQM Report

Lower San Diego River - January 2023



Lower SDRWQ Monitoring Data Summary

Table 1 presents a summary of water quality data monitored by the SDRPF RiverWatch Team within the Lower San Diego River watershed over the past two months (Nov/Dec). This month's overall index rose four points (11%) from last month. Overall water quality in the lower San Diego River hydrologic unit (HSU 907.1) for this month remained within grade D or the 'mid-Marginal' level.

Table 1 - January 2023/December 2022 WQM Data Summary							
	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/'22)	Last Yr. (1/'22)	19-yr Avg. (Jan.)
Temperature, oC	11.6/10.9	12.1/9.6	11.3/10.6	11.6/10.5	10%	-16%	-3%
Sp.Cond., mS/cm	1.59/2.29	1.54/1.40	1.33/1.95	1.43/1.97	-28%	-29%	-18%
DO, mg/L	7.83/4.69	9.06/9.39	6.50/5.41	7.39/5.80	30%	6%	-4%
DO, % of Sat.	73/43	83/85	61/49	69/53			
pH	7.65/7.55	7.96/8.10	7.50/7.79	7.56/7.69	-2%	-2%	-2%
3-day ADF, cfs	97/16	115/11	118/11	109/13	740%	1010	238%
WQ Index	49/32	58/53	42/30	48/35	38%	5%	-2%
Jan/Dec.	C+/D	B/B-	C/D	C+/D			
Jan. 23/ Dec. 22	Fair/ Marginal	Good/ Good	Fair/ Marginal	Fair/ Marginal	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** rose 10% (1.1oC) from last month to 3% below the 19-yr norm of 11.9oC. The overall **specific conductance** of 1.43 mS/cm constitutes a 28% decrease from last month and a year ago to 18% below the 19-yr Jan. norm of 1.74 mS/cm. The overall **dissolved oxygen** level of 7.72 mg/L (69%Sat.) is 30% above last month, 6% greater than last Jan. and 4% below the 19-yr norm of 6.71 mg/L (71%Sat). **Streamflow** over the antecedent 3-day period of 109 cfs is 7 times more last month, 10 times more than a year ago and 2.4 times the 19-yr Jan. norm. This month's overall LSDR **water quality index** (WQI) of 48 is 13 points higher than last month, 5% higher than last year and 2% below the 19-yr Jan. norm.

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.

Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (Dec.'20 - Jan.'23)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
Dec. 20	34 (D)	52 (B)	32 (D)	36 (D+)	T	2.9	0.06
Jan. '21	46 (C)	60 (B)	30 (D)	42 (C)	WW	10	1.10
Feb.	52 (B-)	57 (B)	35 (D)	45 (C)	WW	35	0.50
March	55 (B)	64 (B)	45 (B)	53 (B-)	WW	28	2.32
April	29 (D)	59 (B)	50 (B-)	43 (C)	T	7.9	0.12
May	25 (D-)	29 (D)	20 (E)	23 (E+)	T	3.7	0.04
June	14 (E)	23 (E+)	19 (E)	17 (E)	DW	1.7	0.002
July	15 (E)	16 (E)	16 (E)	16 (E)	DW	0.8	0.004
Aug.	11 (F+)	6 (F)	10 (F)	10 (F)	DW	0.6	0.22
Sept.	12 (F+)	11 (F+)	10 (F)	11 (F+)	DW	0.6	0.004
Oct.	19 (E)	46 (C)	18 (E)	24(E+)	T	6.4	0.80
Nov.	16 (E)	47 (C)	22 (E)	23 (E+)	T	2.4	0.21
Dec. 21	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)	11 (F+)	DW	0.4	0.00
Sept.	8 (F)	11 (F+)	16 (E)	12 (F+)	DW	2.0	0.64
Oct.	8 (F)	3 (F-)	8 (F)	7 (F)	T	0.9	0.03
Nov.	23 (E+)	57 (B)	24 (E+)	30 (D)	WW	15	1.16
Dec. 22	32 (D)	53 (B-)	30 (D)	35 (D)	WW	12	0.93
JAN. 23	49 (C+)	58 (B)	42 (C)	48 (C+)	WW	191	5.48

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over 18 plus years of monitoring. Nov., Dec. and Jan. values for each year are expressed as color-shaded bars; blue (50 or >) 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 expressed in red. The generally downward slope in index values, represented by dashed trendlines, are attributable to depleted DO levels extending throughout extended low-flow periods of the year. The dashed lines present a negative slope (decline) of 0.8 points per annum in index value over the full monitoring period. The irregular solid black line (12-month running average index), generally increasing since reaching a low of 21 in late 2014, is currently at 28; 16% below the norm of 32.7. This month's index value of 48 is the 8th time the index has been in the Fair (C) range for the month of January.

WQI values extending from Oct.'04 through this month are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five reaches of the lower river system and overall (i.e., LSDR). The current running average WQI of 28 is five points below the to-date LSDR weighted average value of 33. The running average low for Dec. of 21 (36% below norm) occurred in 2014. The highest running Dec. average WQI of 39 (20% above norm) occurred in 2005.

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 somewhat within the upper-most reach in recent years, resurgent invasive aquatic vegetation and subsequent decomposition acting in conjunction with below average streamflow and accrual of benthic organic matter, especially in the deeper ponded portions of the river, are considered the principal causes 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(#13E) and Magnolia Ave.(#14) monitoring sites. The Mission Gorge (blue line) section continues to demonstrate the least decline in index values over the monitoring period. The poorest quality Mission Valley site is the outlet from Kaiser Ponds (Site 6) at the San Diego Mission Rd. crossing. The poorest Santee Basin site is at the Mast Park East ponds (Site 13E)

Spatial WQI values determined over the last three months, shown in **Charts 3, 4 and 5** on page 6, are expressed in order of location upstream. This month's results (color bars w/values in black shown on Chart 5) are well above those from last month (Chart 4) and November (Chart 3) values. Ten out of 16 sites (63%) are graded Fair (C) while four more are Good (B). Only two sites are rated Marginal (D) and none Poor (E). This month's values (solid colored columns) are consistently above those from last month (dashed red line) but remain below the 19-yr running averages (solid black line). The overall water quality index of 48 represents the 8th time over the past 19 years the value has rested in the Marginal (C) range. Further improvement in the water quality index is anticipated next month.

[jck - 1/23/23]

