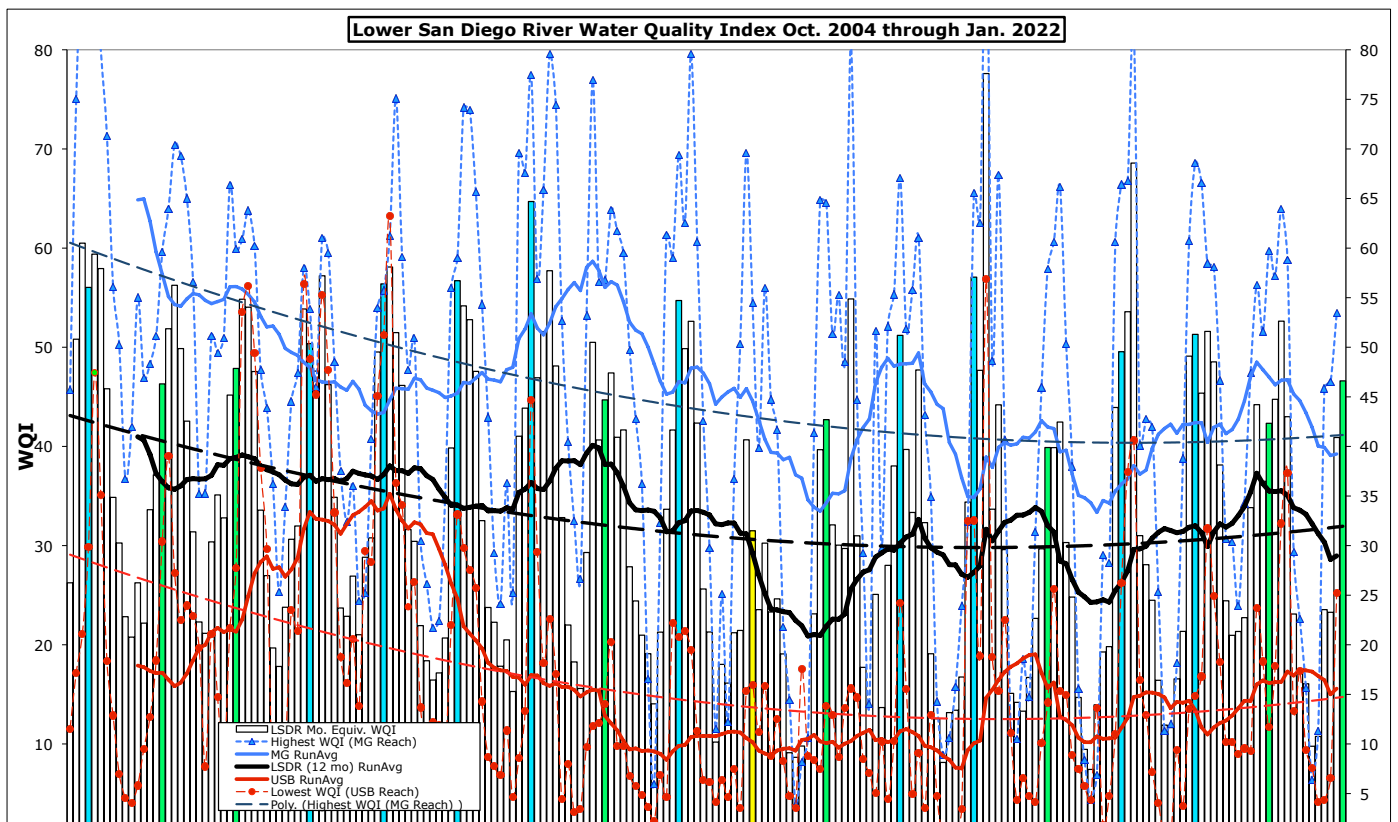


Monthly WQM Report

Lower San Diego River - January 2022



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 subbasin over the past two months (Jan/Dec). This month's overall index of 46 is 6 points higher than last month, 4 points (9%) over last Jan. and only 3 points below the 18-yr average of 49. Overall water quality in the lower San Diego River hydrologic unit (HSU 907.1) was graded C (Fair) for both December and January.

Table 1 - Jan. 2022/Dec. 2021 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/'21)	Last Yr. (1/'21)	17-yr Avg (Jan)
Temperature, oC	14.0/12.6	13.8/11.0	13.6/12.3	13.8/12.1	13%	24%	17%
Sp.Cond., mS/cm	2.20/1.47	1.82/1.11	1.76/1.43	2.00/1.31	53%	2%	16%
DO, mg/L	6.11/5.74	10.07/7.67	7.22/5.70	6.84/6.04	14%	-2%	-10%
DO, % of Sat.	60/54	95/73	70/53	66/57			
pH	7.68/7.28	8.33/7.73	7.73/7.50	7.71/7.41	4%	-2%	0%
3-day ADF, cfs	13/163	7.5/91	6.5/78	9.2/115	-92%	30%	-69%
WQ Index	44/35	68/53	38/38	46/40	15%	9%	-7%
Jan/Dec, Grade	C/D+	B/B-	C-/C-	C/C			
Jan. '22/ Dec. '21	Fair / Marginal	Good/ Good	Fair/ Marginal	Fair/ Fair	Index up 6 points overall from last month		

Negative variance (declines from norms) and DO depletion (DO < 5.0 mg/L or 55% of Sat) expressed in red.

LSDR **water temperatures** rose 1.7 degrees (13%) from last month to 17% above the 18-yr monthly norm of 11.8 oC. Overall **specific conductance** of 2.00 mS/cm constitutes a 53% increase from last month that is 2% greater than last year and 16% above the 18-yr monthly norm of 1.73 mS/cm. The overall **dissolved oxygen** level of 6.84 mg/L (66%Sat.) is 14% greater than last month, but remains 2% less than a year ago and 10% below the 18-yr norm of 7.79 mg/L (71%Sat). **Streamflow** over the antecedent 3-day period of 10.6 cfs is 90% less than last month, 51% more than a year ago and 64% less than an 18-yr average of 29 cfs. This month's overall LSDR **water quality index** (WQI) of 46 rose 15% from last month and 9% above a year ago to just 7% less than the 18-yr monthly norm of 49.

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 monthly rainfall (MRF) values, are expressed in **Table 2** on the next page.

Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (Dec. '19 - Jan. '22)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
Dec. '19	60 (B)	61 (B)	31 (D)	49 (C+)	WW	79	3.51
Jan.'20	62 (B)	69 (B)	34 (D)	51 (B-)	WW	18	2.90
Feb.	47 (C)	67 (B)	35 (D)	46 (C)	WW	10	0.38
March	52 (B-)	58 (B)	46 (C)	52 (B-)	WW	48	1.97
April	47 (C)	58 (B)	46 (C)	49 (C+)	WW	181	3.58
May	38 (C-)	47 (C)	34 (D)	38 (C-)	t	13	0.06
June	25 (D-)	31 (D)	21 (E)	24 (E+)	t	5.7	0.02
July '20	18 (E)	30 (D)	21 (E)	21 (E)	DW	2.1	0.001
Aug. '20	23 (E+)	24 (E+)	18 (E)	21 (E)	DW	1.3	0.00
Sept '20	21 (E)	34 (D)	19 (E)	23 (E)	DW	1.3	0.00
Oct.'20	32 (D)	47 (C)	27 (D-)	34 (D)	t	2.4	0.21
Nov. '20	45 (C)	56 (B)	37 (D+)	44 (C)	t	7.6	0.11
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 '21	15 (E)	16 (E)	16 (E)	16 (E)	DW	0.8	0.004
Aug. '21	11 (F+)	6 (F)	10 (F)	10 (F)	DW	0.6	0.22
Sept '21	12 (F+)	11 (F+)	10 (F)	11 (F+)	DW	0.6	0.004
Oct. '21	19 (E)	46 (C)	18 (E)	24 (E+)	t	6.4	0.80
Nov. '21	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	41	1.64

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the past 17+ years of monitoring. January, the second month of winter, 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 LSDR (weighted averages of all sites) are shown as a heavy black line. Running averages for the consistently highest (best) quality section (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 the dashed trendlines, are primarily attributed to depleted DO levels extending throughout protracted low-flow periods of time. The dashed lines express an overall negative slope of -0.71 points per annum in index value over the entire monitoring period. The irregular solid black line (12-month running average index values), generally increasing since reaching a low of 21 in late 2014, is currently at 29, 11% below the 18-yr norm. This month's overall value of 47 is the 15th time the Jan. index has reached a Fair (C) or better water quality range since the monitoring program was initiated in 2004.

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 29 is 11% below the 18-yr to-date LSDR weighted average value of 32.9. The running average low of 21 (37% below the current norm) occurred in late 2014. The highest running average WQI for Jan. of 38 (16% above norm) occurred in 2012. The fact the river has experienced below average rainfall (and runoff) over the past several years suggests significant improvement in water quality will require above normal runoff/streamflow within the watershed over an extended period of time.

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 improved somewhat within the upper-most reach over the last several years, resurgent invasive aquatic plants and subsequent decay in conjunction with low streamflow with accrual of rich organics in ponded portions are considered the principal causes of poor water quality. The greatest downward trend (red-dashed line) is associated with the poorest reach (Upper Santee Basin) encompassing Mast Park (13E/W) and Magnolia Ave. (14) monitoring sites. The Mission Gorge (blue line) section continues to demonstrate the least decline in index values over the entire monitoring period. The poorest quality Mission Valley location is Kaiser Ponds outlet (site 6) at San Diego Mission Rd. crossing.

Spatial WQI values determined over the last three months in order of occurrence upstream are shown in **Charts 3, 4 and 5** on page 6. Jan. results (color bars w/values in black shown on Chart 5) are above those from last month (Chart 4) and November (Chart 3). Two out of 15 sites (13%) this month are graded Poor (E), while six (40%) are 'Marginal-to-Fair' and seven are Good (B) or Very Good (A). This month's index values (solid colored columns) remain slightly lower than a year ago (dashed columns) and the 18-yr running averages (solid back line) for most sites. The overall water quality index of 47 for Jan. constitutes the fifth time over the last decade that the monthly value has been in the Fair (C) range (38-49).

(1/22/22JCK)

