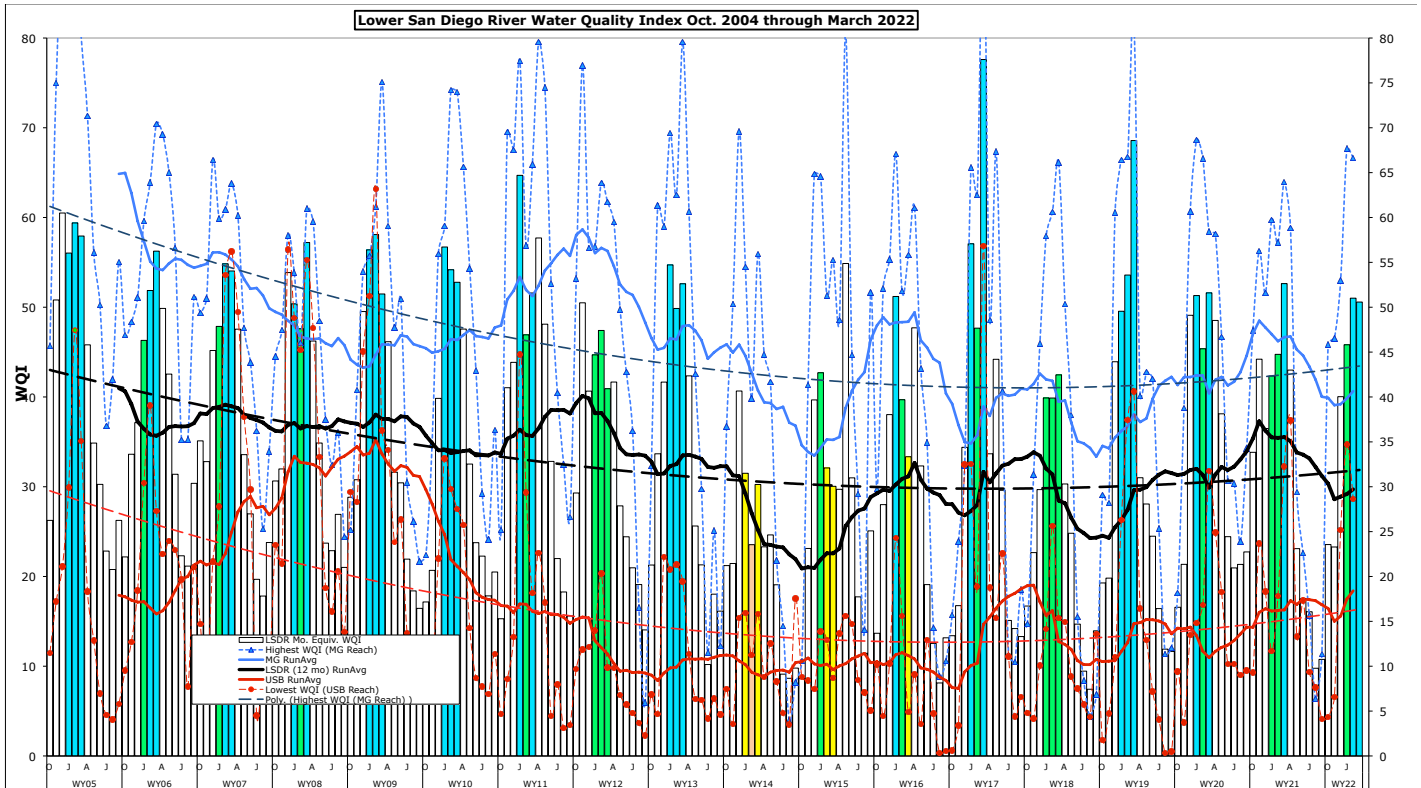


Monthly WQM Report

Lower San Diego River - March 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 (March/Feb). This month's overall index is the same as last month and the 18-yr average of 51; it is also 7 points (18%) above last March. Overall water quality in the lower San Diego River hydrologic unit (HSU 907.1) remains grade B- (low Good) for March.

Table 1 - March/Feb. 2022 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Mar/Feb	[8-10] Mar/Feb	[11-15] Mar/Feb	[1-15] Mar/Feb	Last Mo. (2/'22)	Last Yr. (3/'21)	18-yr Avg. (March)
Temperature, oC	17.5/15.1	14.3/11.3	15.0/12.1	15.8/13.2	20%	-10%	-4%
Sp.Cond., mS/cm	1.56/2.46	1.65/1.92	1.84/1.66	1.75/1.92	-9%	-19%	10%
DO, mg/L	6.81/7.48	9.76/10.4	7.09/6.23	7.30/7.37	1%	13%	6%
DO, % of Sat.	72/75	93/98	71/58	73/71			
pH	7.50/7.61	8.00/7.97	7.73/7.66	7.64/7.64	0%	-2%	-1%
3-day ADF, cfs	9/20	6/16	6/14	7/17	-64%	21%	-70%
WQ Index	54/55	60/67	42/38	51/51	0%	18%	0%
Mar /Feb, Grade	B/B	B/B	C-/C-	C/B-			
March 22 / Feb. '22	Good / Good	Good/ Good	Fair/ Fair	Good / Good	Index unchanged 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 2.6 degrees (20%) from last month to 4% below the 18-yr monthly norm of 16.5 oC. Overall **specific conductance** of 1.75 mS/cm constitutes a 9% decrease from last month that is 19% less than last year but 10% above the 18-yr monthly norm of 1.58 mS/cm. The overall **dissolved oxygen** level of 7.30 mg/L (73%Sat.) is nearly the same as last month and 13% above a year ago as well as 6% more than the 18-yr norm of 6.89 mg/L (69%Sat). **Streamflow** over the antecedent 3-day period of 7 cfs is 64% less than last month and 21% more than a year ago but 70% less than the 18-yr average of 24 cfs. This month's overall LSDR **water quality index** (WQI) is unchanged from last month as well as the 18-yr average of 51; and 18% above a year ago.

Monthly WQI values occurring over the past two years of record for the three main sections of the lower river system, the overall LSDR averages, 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 (Jan. '20 - March '22)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
Feb. '20	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. '21	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	30	1.64
Feb. '22	55 (B)	67 (B)	38 (C-)	51 (B-)	t	6.3	0.22
March	54 (B)	60 (B)	42 (C)	51 (B-)	WW	24	1.04

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the past 17.5 years of monitoring. The Jan, Feb. and March 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 dashed trendlines, are primarily attributed to depleted DO levels extending throughout protracted low-flow hydrologic events. The dashed lines present a negative slope of -0.7 points per annum in index value over the entire 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 30; ten percent below the 18-yr norm of 33. This month's overall value of 51 is the 13th time (out of 18) the March index has been Good (B) or better since the monitoring program started 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 30 is three points below the 18-yr to-date LSDR weighted average value of 32.9. The running average low of 23 (31% below the current norm) occurred in 2015. The highest running average WQI for March of 38 (22% above norm) occurred in 2012. The river has experienced below average rainfall (and runoff) during the past few years. A significant improvement in water quality will require well above normal streamflow throughout the watershed occurring 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 with subsequent decay acting in conjunction with low streamflow and accrual of rich organics in ponded portions are considered the principal cause of poor water quality. The greatest downward trend (red-dashed line) is associated with the poorest 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 entire monitoring period. The poorest quality Mission Valley location is Kaiser Ponds outlet (site #6) at the 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. March results (color bars w/values in black shown on Chart 5) are roughly the same as those from last month (Chart 4), both slightly above January results (Chart 3). Six out of 15 sites (40%) this month are graded Good (B), while five (33%) are Fair (C). One site is Poor (E) and two Very Good (A). The March index values (solid colored columns) are greater than a year ago (dashed columns) and the 18-yr running averages (solid back line) at most sites. The overall water quality index of 51 constitutes the fifth time over the last decade that the index exceeded 50. This past month's rainfall, resulting in freshet flows throughout the watershed, helped maintain index values. (3/20/22 jck)

