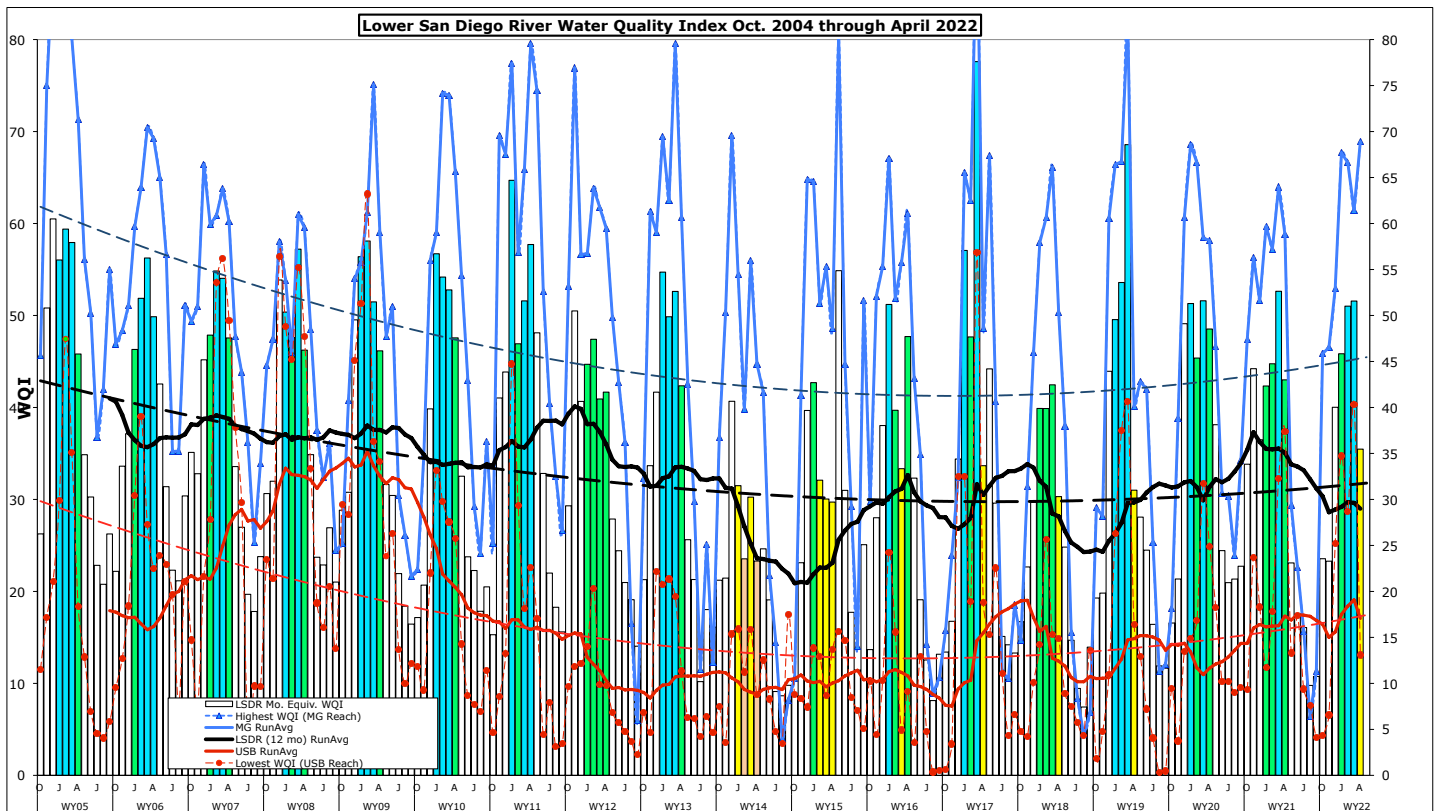


# Monthly WQM Report

## Lower San Diego River - April 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/April). This month's overall index declined 16 points (31%) from last month to a value 15% below the 18-yr April average. Overall water quality in the lower San Diego River hydrologic unit (HSU 907.1) dropped from grade B- (low 'Good') in March to D (mid-'Marginal') in April.

<b>Table 1 - March/April 2022 WQM Data Summary</b>							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Mar/Aprl	[8-10] Mar/Aprl	[11-15] Mar/Aprl	[1-15] Mar/Aprl	Last Mo. (3/'22)	Last Yr. (4/'21)	18-yr Avg. (April)
Temperature, oC	17.5/19.6	14.3/18.5	15.0/17.9	15.8/18.6	18%	35%	4%
Sp.Cond., mS/cm	1.56/2.07	1.65/1.49	1.84/1.83	1.75./1.87	7%	44%	-1%
DO, mg/L	6.81/ <b>3.72</b>	<b>9.76/10.23</b>	<b>7.09/4.63</b>	<b>7.30/5.11</b>	-28%	-25%	-11%
DO, % of Sat.	<b>72/41</b>	<b>93/107</b>	<b>71/50</b>	<b>73/55</b>			
pH	7.50/7.48	8.00/8.00	7.73/7.74	7.64/7.63	0%	-2%	-1%
3-day ADF, cfs	17/14	7.8/5.3	6.1/3.7	11/8.3	-25%	-67%	-48%
WQ Index	55/ <b>32</b>	61/ <b>69</b>	42/ <b>25</b>	51/ <b>35</b>	-31%	-33%	-15%
March/ <b>April</b>	<b>B/D</b>	<b>B/B</b>	<b>C/D-</b>	<b>B-D</b>			
March/ <b>April '22</b>	Good / <b>Marginal</b>	Good / <b>Good</b>	Fair / <b>Marginal</b>	Good / <b>Marginal</b>	<b>Index down 16 points from last month</b>		

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

LSDR **water temperatures** rose 2.8 degees (18%) from last month to 4% above the 18-yr monthly norm of 18.0 oC. Overall **specific conductance** of 1.87 mS/cm constitutes a 7% increase from last month that is 44% above last year but 1% below the 18-yr monthly norm of 1.89 mS/cm. The overall **dissolved oxygen** level of 5.11 mg/L (55%Sat.) is a 28% drop from last month, 25% less than a year ago and 11% below the 18-yr norm of 5.79 mg/L (61%Sat). **Streamflow** over the antecedent 3-day period of 8.3 cfs is 25% less than last month, 67% below a year ago and 48% less than the 18-yr average of 16 cfs. This month's overall LSDR **water quality index** (WQI) is down 31% from last month, 33% below a year ago and 18% less than the 18-yr average of 52.

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.

<b>Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (Jan. '20 - April '22)</b>							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
March	52 (B-)	58 (B)	46 (C)	52 (B-)	WW	48	1.97
<b>April '20</b>	<b>47 (C)</b>	<b>58 (B)</b>	<b>46 (C)</b>	<b>49 (C+)</b>	<b>WW</b>	<b>181</b>	<b>3.58</b>
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	18 (E)	30 (D)	21 (E)	21 (E)	DW	2.1	0.001
Aug.	23 (E+)	24 (E+)	18 (E)	21 (E)	DW	1.3	0.00
Sept	21 (E)	34 (D)	19 (E)	23 (E)	DW	1.3	0.00
Oct.	32 (D)	47 (C)	27 (D-)	34 (D)	t	2.4	0.21
Nov.	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
<b>April '21</b>	<b>29 (D)</b>	<b>59 (B)</b>	<b>50 (B-)</b>	<b>43 (C)</b>	<b>t</b>	<b>7.9</b>	<b>0.12</b>
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
<b>April '22</b>	<b>32 (D)</b>	<b>69 (B)</b>	<b>25 (D-)</b>	<b>35 (D)</b>	<b>WW</b>	<b>14</b>	<b>1.01</b>

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the past 17.5 years of monitoring. The Jan. through April 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 combined with the fact that WY05 constituted the highest dry-weather flows on record. 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 29; 12 percent below the 18-yr norm of 33. This month's overall value of 35 is the 4th time (out of 18) the April index has been in the Marginal or less range 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 29 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 April of 38 (22% above norm) occurred in 2012. The river has experienced below average rainfall (and runoff) during the past few years.

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 vegetation 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. April results (color bars w/values in black shown on Chart 5) are significantly below those from last month (Chart 4) and February (Chart 3). Five out of 15 sites (33%) this month are graded Marginal (D), while five more are Fair (C). One site is Poor (E) and two Good (B) and one Very Poor (F). The April index values (solid colored columns) are at some sites better than a year ago (dashed columns) but generally less than the 18-yr running averages (solid black line). The overall water quality index of 35 constitutes the fifth time over the past 18 years that the index has been marginal. ( 4/24/22 jck)

