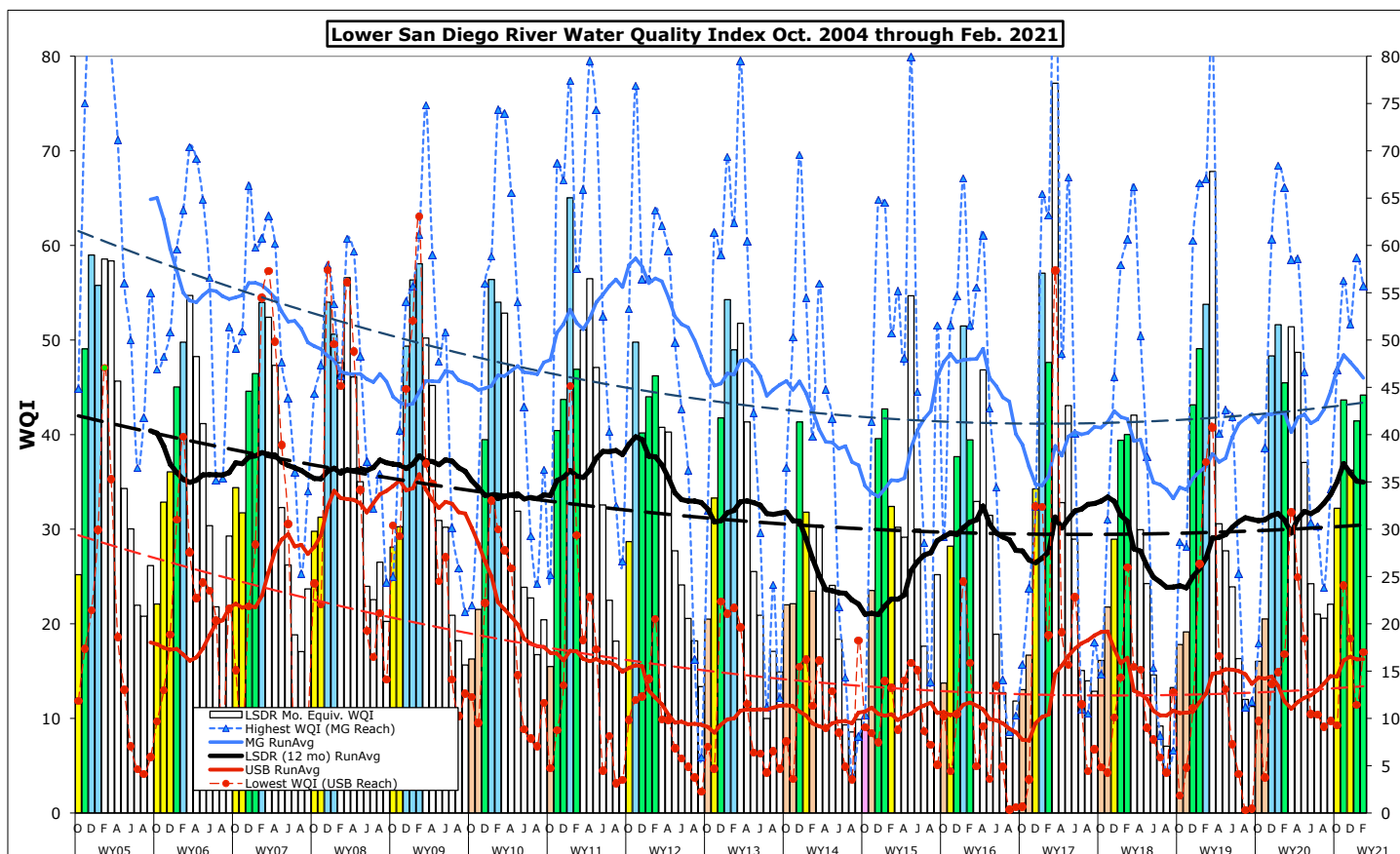


Monthly WQM Report

Lower San Diego River - February 2021



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/Feb). This month's overall index of 44 is 3 points (7%) above last month and two points (-4%) less than both last Feb. and the 17-yr mo. average of 46. Overall water quality in the lower San Diego River hydrologic unit (HSU 907.1) improved slightly over the last four weeks remaining in the range of Fair (C).

Table 1 - Jan/Feb. 2021 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] Jan/Feb	[8-10] Jan/Feb	[11-15] Jan/Feb	[1-15] Jan/Feb	Last Mo (1'21)	Last Yr (2'20)	17-yr Avg (Feb.)
Temperature, oC	12.5/14.5	9.1/10.8	10.7/12.4	11.1/12.9	16%	-12%	-7%
Sp.Cond., mS/cm	2.16/1.99	1.75/1.53	1.85/1.57	1.96/1.73	-12%	-12%	2%
DO, mg/L	7.52/6.60	10.60/8.21	5.24/5.62	7.21/6.54	-7%	-4%	-8%
DO, % of Sat.	71/66	96/77	47/51	66/63			
pH	7.81/7.83	7.53/8.08	7.88/8.08	7.85/7.98	2%	3%	2%
3-day ADF, cfs	5.4/13.0	6.3/7.0	6.4/6.4	6.0/8.8	46%	-31%	-85%
WQ Index	46/51	59/56	29/34	41/44	7%	-3%	-4%
Jan/Feb Grade	C/B-	B/B	D/D	C/C			
Jan/ Feb '21	Fair/ Good	Good/ Good	Marginal/ Marginal	Fair/ Fair	Index UP 3 points overall from last month		

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

LSDR **water temperatures** rose 1.8 degrees (16%) from last month to 12% below a year ago and 7% below the 17-yr Feb. norm of 14.0 oC. Overall **specific conductivity** of 1.73 mS/cm constitutes a 12% decline from last month and last Feb. to 2% above the 17-yr monthly norm of 1.69 mS/cm. The overall **dissolved oxygen** level of 6.54 mg/L (63%Sat.) is 9% less than last month, slightly lower (-4%) than a year ago and 8% below the 17-yr Feb. norm of 7.11 mg/L (68%Sat). **Streamflow** over the antecedent 3-day period of 8.8 cfs is 46% more than last month but 31% less than a year ago and 85% less than the 17-yr norm. This month's overall LSDR **water quality index** (WQI) is three points (7%) greater than last month; two points below both a year ago and the 17-yr February norm of 46 (C Fair).

Monthly WQI values occurring over the past 26 months of record for the three main sections of the lower river system, the overall LSDR average along with 30-day antecedent average 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'18 - Feb'21)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF, cfs	MRF, in
JAN '19	47 (C)	66 (B)	43 (C)	49 (C+)	WW	39	2.80
Feb. '19	51 (B-)	67 (B)	51 (B-)	54 (B)	WW	179	2.98
Mar.	76 (A-)	82 (A)	55 (B)	68 (B)	WW	25	1.28
April	33 (D)	40 (C)	24 (E+)	31 (D)	t	8.6	0.46
May	28 (D)	43 (C)	21 (E)	28 (D)	t	14	0.51
June	21 (E)	42 (C)	20 (E)	24 (E+)	t	4.3	0.38
July	17 (E)	25 (D-)	13 (E-)	17 (E)	DW	1.2	0.01
Aug.	16 (E)	11 (F)	9 (F)	12 (F+)	DW	0.9	0.02
Sept	15 (E)	12 (F+)	8 (F)	11 (F+)	DW	1.2	0.03
Oct	18 (E)	18 (E)	15 (E)	16 (E)	DW	0.9	0.00
Nov.'19	20 (E)	39 (C)	14 (E)	21 (E)	t	37	0.52
Dec.	60 (B)	61 (B)	31 (D)	49 (C+)	WW	78	3.51
JAN '20	62 (B)	68 (B)	34 (D)	52 (B-)	WW	18	2.90
Feb. '20	47 (C)	66 (B)	35 (D)	46 (C)	ww	10	0.38
March	52 (B-)	58 (B)	46 (C)	51 (B-)	WW	48	1.97
April	47 (C)	59 (B)	45 (C)	49 (C+)	WW	181	3.58
May	38 (C-)	47 (C)	37 (D+)	37 (D+)	t	13	0.06
June	25 (D-)	31 (D)	21 (E)	24 (E+)	dw	5.7	0.02
July	18 (E)	30 (D)	21 (E)	21 (E)	DW	2.1	0.00
Aug	23 (E)	24 (E+)	18 (E)	21 (E)	DW	1.3	0.00
Sept	21 (E)	34 (D)	19 (E)	22 (E)	DW	1.3	0.00
Oct	32 (D)	47 (C)	26 (D-)	32 (D)	t	2.3	0.21
Nov.'20	45 (C)	56 (B)	37 (D+)	44 (C)	t	7.2	0.11
Dec.	34 (D)	52 (B)	32 (D)	36 (D+)	t	7.8	0.06
JAN '21	46 (C)	59 (B)	29 (D)	41 (C)	ww	28.2	1.20
Feb. '21	51 (B-)	56 (B)	34 (D)	44 (C)	ww	11.7	0.40

The **cover page** chart presents monthly WQI values and their range (high-low) for the Lower San Diego River watershed as determined over the past 17 years of monitoring. February, the 2nd month of the second quarter of the water year, values for each year are expressed as color-shaded bars; blue-B (50 or >) Good, green-C (38-49) Fair, yellow-D (25-37) Marginal, brown-E (13-24) Poor and pink-F (12 or <) Very Poor. Running average index values for LSDR (weighted averages of all sites) are shown as a heavy black line. Monthly values for the consistently highest (best) quality reach (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 black line, from WY05 through WY17 can be primarily attributed to depleted dissolved oxygen levels extending throughout protracted low-flow periods of each water year at multiple sites. The dashed line represents an overall negative slope of -0.7% per annum in index value over the entire monitoring period. The irregular solid black line (12-month running average index value), generally rising since reaching a low of 21 in Dec. 2014, is currently at 36. This month's overall index of 44 (green) is the 13th time in 17 years that the February value has been in the C -Fair water quality range.

Monthly WQI values from Oct. '04 through Feb.'21 are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five principal reaches of the lower river system and overall (i.e., LSDR). The current running average WQI of 35 is 8% above the to-date LSDR weighted average index; running at a level last experienced in April 2012. The running average Feb. low of 22 (31% below current norm) occurred in 2015. The highest Feb. running average WQI of 38 (16% above norm) occurred in 2005. The fact that the river has not yet experienced significant rainfall and stormflow during the first five months of this water year suggests that WY21 may present below average overall water quality index values.

Monthly and 12-mo. running average WQI values for the "poorest" (Upper Santee Basin) and "best" (Mission Gorge) reaches of the lower river system are presented in **Chart 2**. Although water quality improved somewhat within the uppermost reach over the last 24 months, resurgent invasive aquatic plants and subsequent decay of vegetation such as floating primrose-willow (*Ludwigia peploides*) in conjunction with minimal dry weather flows and increased benthic deposits throughout ponded portions are primary causes of sustained poor water quality within the upper reaches of both the Santee Basin and Mission Valley sections of the river. The greatest downward trend (red-dashed line) is associated with the poorest reach (Upper Santee Basin) encompassing monitoring sites 13 (Mast Park) and 14 (Magnolia Ave.). Mission Gorge (blue line) shows the least decline in water quality index values over the 17-year monitoring period.

Spatial WQI values by monitoring site over the past three months are shown in **Charts 3, 4 and 5** on page 6. Feb. results (color bars w/values in black shown on Chart 5) exceed those from last month (Chart 4) and those in Dec. (Chart 3). Eight of 15 sites are rated Good (B) and six Fair (C) this month whereas only six were Good (blue) and eight Fair (green/yellow) last month. As shown in Chart 5, this month's index values (solid colored columns) are, in general, comparable to a year ago (2/'20) dashed colored columns, last month (dashed red line) and the 17-yr Feb. running average (solid black line). The overall rating of 44 (C) Fair (green) water quality grade, is two points (4%) below the 17-yr norm for the 2nd month of the calendar year. jck 2/22/21

