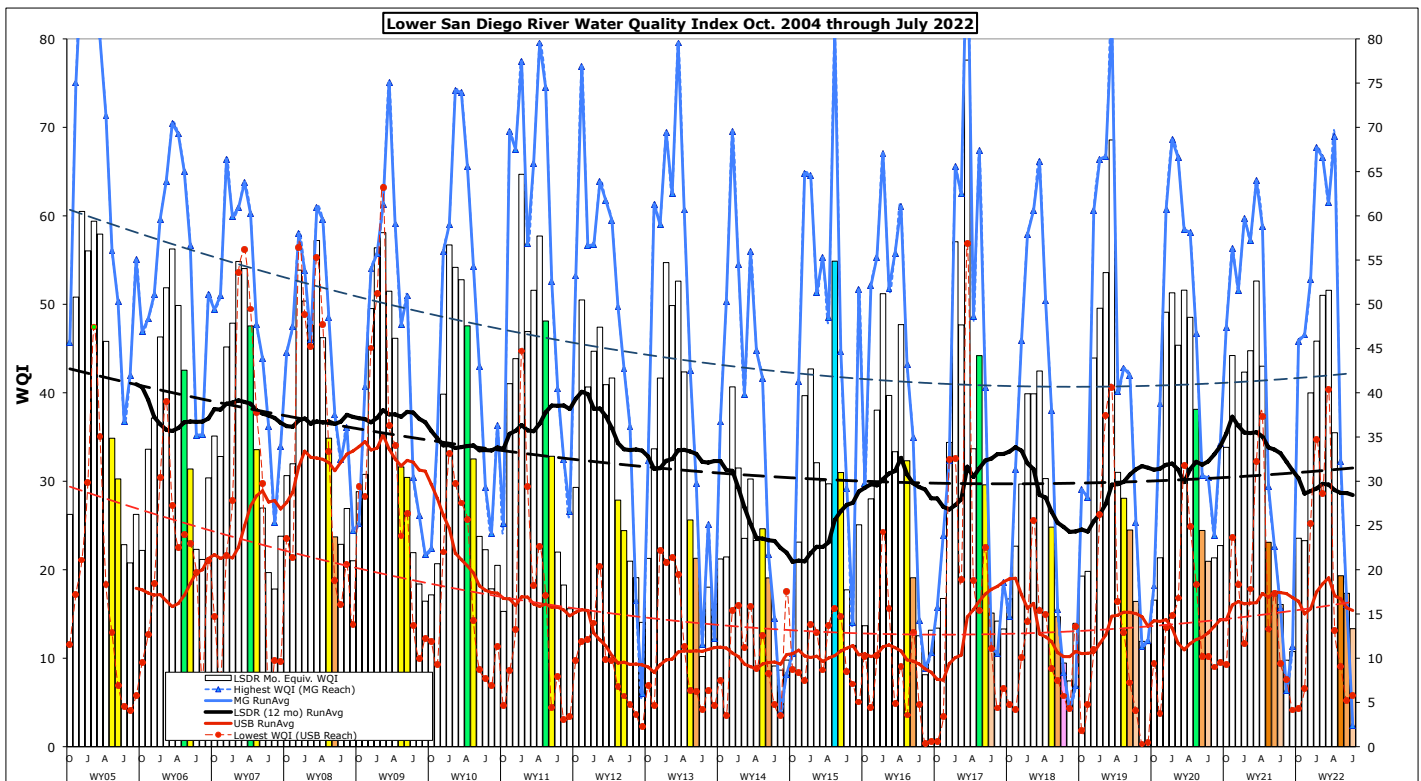


Monthly WQM Report

Lower San Diego River - July 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 watershed over the past two months (May/June). This month's overall index declined 2 points (8%) from last month to a value 3% above last June and 27% below the 18-yr norm. Overall water quality in the lower San Diego River hydrologic unit (HSU 907.1) remained E 'Poor' this month.

Table 1 - July/June 2022 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] July/June	[8-10] July/June	[11-15] July/June	[1-15] July/June	Last Mo. (6/'22)	Last Yr. (7/'21)	18-yr Avg. (July)
Temperature, oC	23.7/22.4	21.3/21.8	22.5/21.3	22.7/21.8	4%	-5%	-2%
Sp.Cond., mS/cm	3.60/3.44	2.20/2.05	2.35/2.28	2.84/2.66	7%	-3%	3%
DO, mg/L	2.99/3.20	2.25/6.20	2.75/3.41	2.76/3.80	-25%	-26%	-20%
DO, % of Sat.	37/37	25/69	32/39	33/43			
pH	7.71/7.66	7.61/7.84	7.66/7.59	7.67/7.61	1%	-1%	0%
3-day ADF, cfs	1.1/1.4	0.7/1.0	0.6/1.0	0.8/1.1	-15%	8%	-73%
WQ Index	18/19	2/16	13/15	13/17	-23%	-17%	-24%
JULY/June	E/E	F-/E	E-/E	E-/E			
JULY/ June '22	Poor/ Poor	VeryPoor/ Poor	Poor/ Poor	Poor/ Poor	Index down 4 points 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 0.9 degrees (4%) from last month to 2% below the 18-yr monthly norm of 23.1 oC. Overall **specific conductance** of 2.84 mS/cm constitutes a 7% increase from last month that is 3% below last July and 3% above the 18-yr monthly norm of 2.75 mS/cm. The overall **dissolved oxygen** level of 2.76 mg/L (33%Sat.) is 25% below last month and 26% less than last July and 20% below the 18-yr norm of 3.51 mg/L (41%Sat). **Streamflow** over the antecedent 3-day period of 1.1 cfs is 15% less than last month, 8% more than a year ago but 73% below the 18-yr average of 3.1 cfs. This month's overall LSDR **water quality index** (WQI) of 13 is down 23% from last month, 17% lowerer than a year ago and 24% less than the 18-yr July norm of 18.

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 (June '20 - July '22)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMR,F,in
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.	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.	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.	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.	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-)		7.1	0.22
March	55 (B)	61 (B)	42 (C)	52 (B-)	WW	26	1.04
April	32 (D)	69 (B)	25 (D-)	35 (D)	WW	14	1.01
May	18 (E)	32 (D)	15 (E)	19 (E)	T	4.1	0.03
June	19 (E)	16 (E)	15 (E)	17 (E)	DW	1.2	0.00
July '22	18 (E)	2 (F-)	13 (E-)	13 (E-)	DW	0.7	0.00

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the past 18 years of monitoring. The May, June and July 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 periods combined with the fact WY05 constituted the highest recorded dry-weather flows. The dashed lines present a negative slope of -0.7 points per annum in index value over the 18-yr 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; 14 percent below the 18-yr norm of 33. This month's overall value of 13 is the 6th consecutive year the July index has been graded Poor (E).

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 nearly five points below the 18-yr to-date LSDR weighted average value of 32.9. The running average low of 20.9 (37% below the current norm) occurred in Oct. 2014. The highest running average WQI for July of 37 (19% above norm) occurred in 2011. The river has experienced below average rainfall (and runoff) over the last several 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 in recent years, resurgent invasive aquatic vegetation with subsequent decay acting in conjunction with low streamflow and accrual of organics in the deeper 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 the 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 the outlet from Kaiser Ponds (Site #6) immediately past the San Diego Mission Rd. crossing.

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. July results (color bars w/values in black shown on Chart 5) are significantly below those from last month (Chart 4) and May (Chart 3). Seven out of 15 sites (47%) this month are graded Very Poor (F) while six (40%) are Poor (E). The remaining two are Marginal (D). July values (solid colored columns) are generally below those from last month (dashed red line) as well as the 18-yr running averages (solid black line). The overall water quality index of 13 represents the ninth time over the past 18 years that the July value has resided to the Poor (E) range. The outlook for the next several months of summer is continued Poor-to-Very Poor water quality within the Lower San Diego River system.

(8/31/22 jck)

Chart 1 - LSDR Monthly WQI, Running Averages and Trendlines by River Reach (Sept. 2005 thru July 2022)

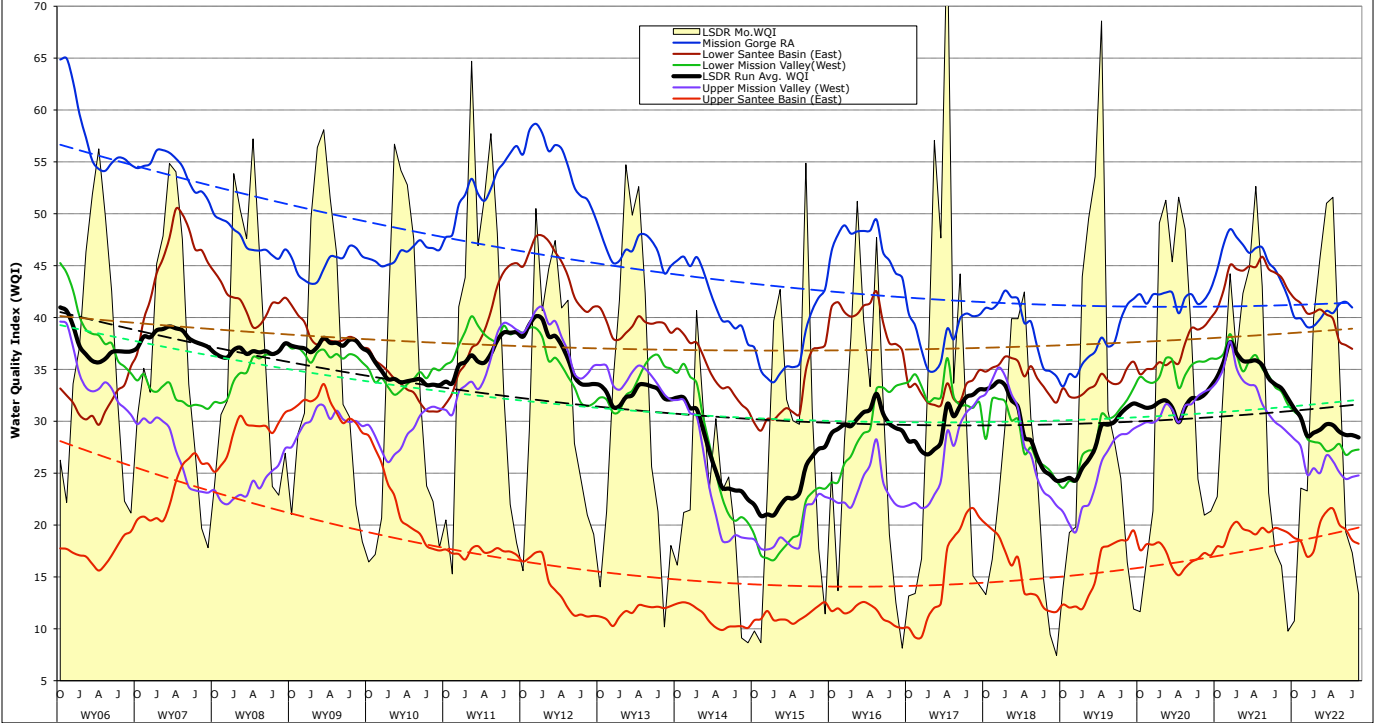


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 17-yr Trendlines

