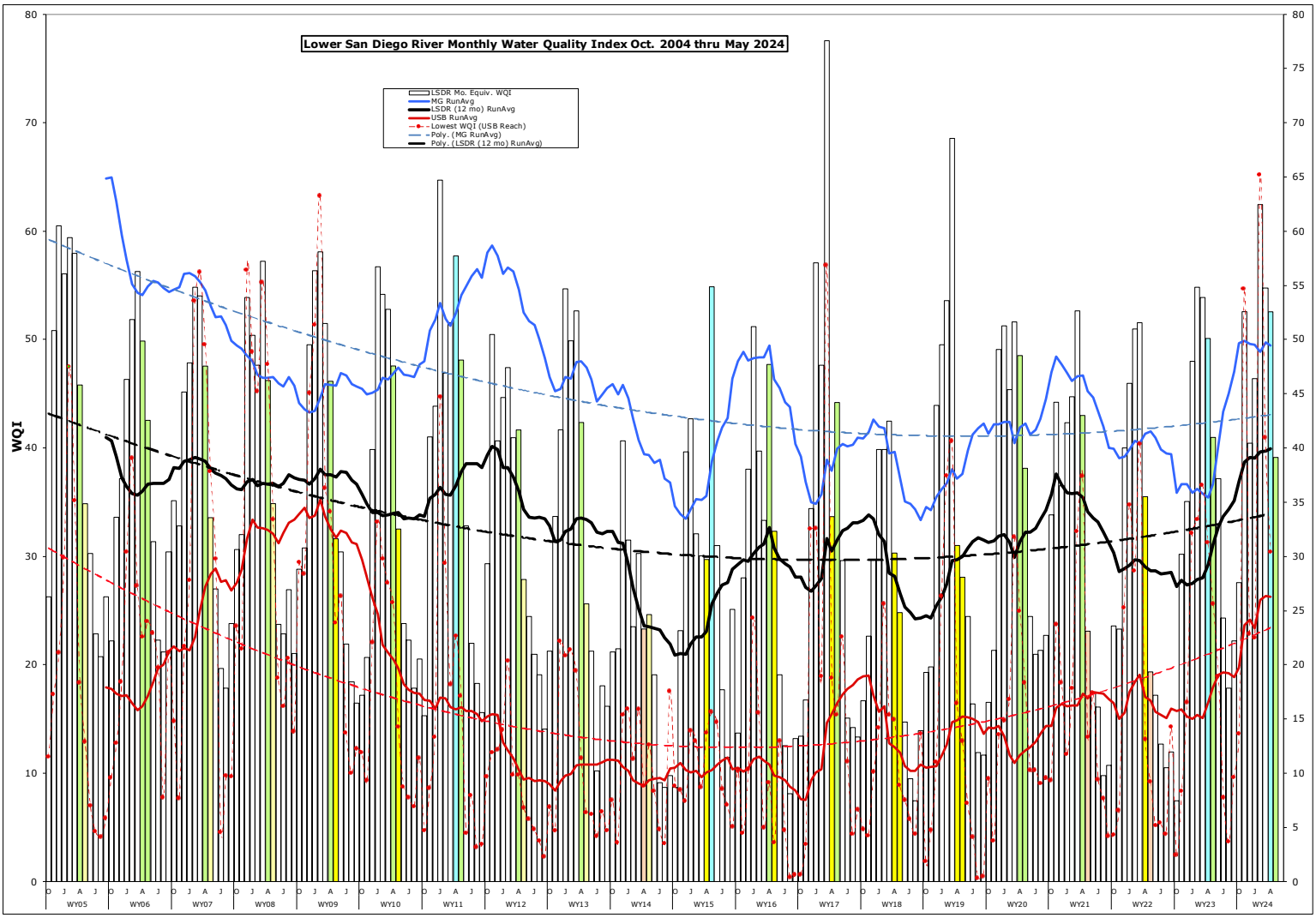
Monthly WQM Report

Lower San Diego River - May 2024



Lower SDR Water Quality Monitoring Data Summary

Table 1 presents a summary of water quality data monitored by the SDRPF RiverWatch Team within the Lower San Diego River (LSDR) watershed over the last two months. This month's overall index of 53 is just two points below last month, remaining three points above a year ago and 11 points above the 20-yr April norm of 42.

Table 1 - May/April '24 WQM Data Summary

	West - MV	Mid - MG	East - SB	LSDR	Percent Variance from		
[Site #s]	[1-7] May/Apr	[8-10] May/Aprl	[11-15] May/Aprl	[1-15] Mar/Aprl	Last Mo. (4/'24)	Last Yr. (5/'23)	20-yr Avg. (May)
Temperature, oC	20.6/18.9	18.6/17.8	19.4/17.5	19.7/18.1	9%	2%	-1%
Sp.Cond., mS/cm	2.05/1.55	1.43/1.15	1.32/1.22	1.61/1.33	21%	-16%	-27%
DO, mg/L	4.69/7.21	7.52/7.56	4.32/5.31	5.02/6.35	-20%	-5%	1.2%
DO, % of Sat.	52/78	81/80	48/57	55/68			
pH	7.72/8.01	8.08/8.17	7.70/7.45	7.71/7.68	0.4%	-0.3%	-0.04%
3-day ADF, cfs	15/33	10.2/30	9.4/30	11.8/31	-57%	-70%	32%
WQ Index	40/60	55/61	32/40	39/52	-26%	-6%	13%
May/April	C/B	B/B	D/C	C/B			
May/April	Good/ Good	Good/ Good	Marginal/ Fair	Fair/ Good	**Index down 13 points from last month**		

Negative variance (declines from norms) and DO depletion (DO < 5.0 mg/L or 50% of Sat) expressed in red.

LSDR **water temperatures** climbed 1.6 oC (9%) from last month, and 2% above last year to 1% below the 20-yr May norm of 19.9 oC. The overall **specific conductance** of 1.61 mS/cm constitutes a 21% decrease from last month to 16% below last year and 27% less than the 20-yr norm of 2.20 mS/cm. The overall **dissolved oxygen** level of 5.02 mg/L (55%Sat.) is 20% less than last month, 5% below last May, while just 1.2% above the 20-yr norm of 4.96 mg/L (54%Sat). **Streamflow** over the antecedent 3-days of 12 cfs is 57% less than last month, 70% less than a year ago, remaing 32% greater than the May norm of 9 cfs. This month's overall LSDR **water quality index** (WQI) of 39 (C) is down 13 points from last month, at six percent below a year ago but remaining 5 points (13%) above the 20-yr May norm of 34 (D).

Monthly WQI values occurring over the past 25 months of RiverWatch record for the three main sections of the lower river system, the overall LSDR average, plus 30-day antecedent average daily streamflow (ADF) and total monthly rainfall (MRF) values, are expressed in **Table 2** on the next page.

Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (April '22 - May '24)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMRF,in
April	32 (D)	69 (B)	25 (D-)	36 (D)	WW	14	1.01
May '22	**17 (E)**	**32 (D)**	**15 (E)**	**19 (E)**	**T**	**4.1**	**0.03**
June	19 (E)	16 (E)	15 (E)	17 (E)	DW	1.1	0.00
July	17 (E)	2 (F-)	12 (F+)	13 (E-)	DW	0.6	0.00
Aug.	15 (E)	2 (F-)	8 (F)	10 (F)	DW	0.4	0.00
Sept.	8 (F)	11 (F+)	16 (E)	12 (F+)	DW	2.0	0.64
Oct.	9 (F)	3 (F-)	7 (F)	7 (F)	T	0.9	0.03
Nov.	25 (D-)	59 (B)	24 (E+)	32 (D)	WW	17	1.16
Dec. '22	32 (D)	53 (B-)	30 (D)	35 (D)	WW	18	0.93
Jan. '23	49 (C+)	58 (B)	42 (C)	48 (C+)	WW	190	3.48
Feb.	56 (B)	71 (B)	47 (C)	55 (B)	WW	36	2.76
March	58 (B)	57 (B)	52 (B-)	55 (B)	WW	132	4.86
April	52 (B-)	65 (B)	43 (C)	50 (B-)	WW	77	0.54
May '23	**40 (C)**	**47 (C+)**	**39 (C)**	**41 (C)**	**T**	**19**	**0.12**
June	33 (D)	59 (B)	33 (D)	37 (D+)	T	18	0.03
July	19 (E)	39 (C-)	23 (E)	24 (E+)	DW	4.9	0.00
Aug	20 (E)	22 (E)	15 (E)	18 (E)	DW	3.1	0.10
Sept	17 (E)	35 (D)	22 (E)	22 (E)	T	26	1.75
Oct.	31(D)	34 (D)	21 (E)	28 (D)	DW	4.2	0.01
Nov.	49 (C+)	59 (B)	51 (B-)	53 (B-)	T	28	0.15
Dec. '23	45 (C)	50 (B-)	31 (D)	40 (C)	T	15	0.46
Jan.'24	50(B-)	58 (B)	36 (D)	46 (C)	WW	13	2.07
Feb.	58(B)	64(B)	65(B)	63(B)	WW	192	6.12
March	55(B)	67(B)	48(C+)	55(B)	WW	46	1.62
April	60(B)	61(B)	40(C)	52(B)	WW	62	1.92
May '24	**40 (C)**	**55 (B)**	**32 (D)**	**39(C-)**	**T**	**16**	**0.03**

The **cover page** of this report presents monthly WQI values and range (high/low) for the Lower San Diego River watershed over the past 20 years. Each year's values are expressed as color-shaded bars; blue (50 or >) A-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 the LSDR (distance weighted averages of all sites) are shown as a heavy black line. Running averages for the consistently highest (best) quality section of the river (Mission Gorge) are shown as a 'blue' line while the consistently lowest (poorest) reach (Upper Santee Basin) is shown in 'red'. The dashed lines represent overall (20-yr) trends. This month's value of 39 is the 6th time the index has been at grade level C (Fair) for May, remaining some 15% above the monthly norm of 34.

WQI values extending from Sept.'04 thru May '24 are presented in **Chart 1** (next page) together with 12-mo. running averages for each of the five reaches and overall (i.e., LSDR) for the entire lower river system. The current running average WQI of 40 is 21% above the 20-yr norm of 33. The running average low for May of 26 (22% below norm) occured in 2015. The previous highest running average WQI for May of 38 (16% above norm) occured in 2007. The greatest decline in water quality this month occured in the Upper Santee Basin (sites 13E and 14).

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 has measurably improved during much of this past year, resurgent growth of aquatic plants and subsequent decomposition associated with accrual of organics, especially in ponded portions of the river, are considered the basic natural cause of deteriorating water quality. The greatest downward trend (red-dashed line) over time is associated with the poorest quality reach (Upper Santee Basin) encompasing Mast Park East (#13E) and Magnolia Ave.(#14) sites. The Mission Gorge (blue line) section from Old Mission Dam through Mission Trails continues to demonstrate the least decline in index values over the 20-yr monitoring period. The lowest quality Mission Valley site is located at the outlet from Kaiser Ponds (Site 6) at San Diego Mission Rd. crossing.

Spatial WQI values determined over the last three months, expressed in order of location upstream, are shown in **Charts 3, 4 and 5** on page 6. This month's results (color bars w/values in black shown on Chart 5) are greater than those from last month at all 16 sites. This month, only three of 16 sites (19%) are B(Good), down significantly from last month's nine (56%) and 13 (81%) in March. Six of the sites were found Marginal(D) this month, opposed to none last month and one in March. Six more sites (38%) were found Fair while only one (13E-Walmart Ponds) was Very Poor at 8(F) this month. The highest index value of 63 (B) was at Mission Trails Crossing (Site 8).

Next month's overall index is expected to further decline due to less streamflow, higher water temperatures and conductivity and lower dissolved oxygen levels. The June index values are typically in the low-30's (Marginal) representing seasonal transition to dry-weather, low-flow summer time conditions.

5/18/24 (JCK)

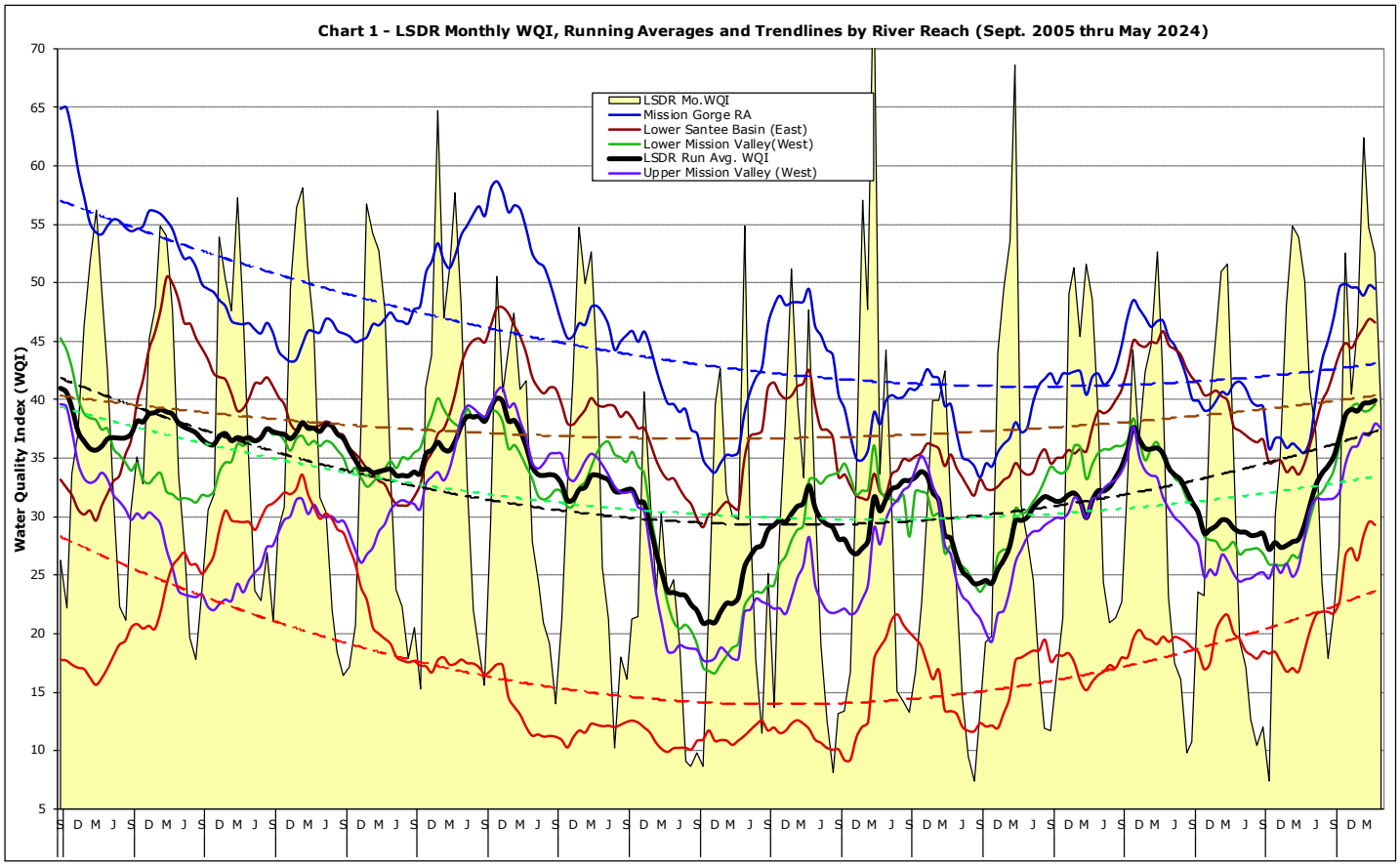


Chart 1 - LSDR Monthly WQI, Running Averages and Trendlines by River Reach (Sept. 2005 thru May 2024)
LSDR Mo.WQI
Mission Gorge RA
Lower Santee Basin (East)
Lower Mission Valley(West)
LSDR Run Avg. WQI
Upper Mission Valley (West)
Water Quality Index (WQI)

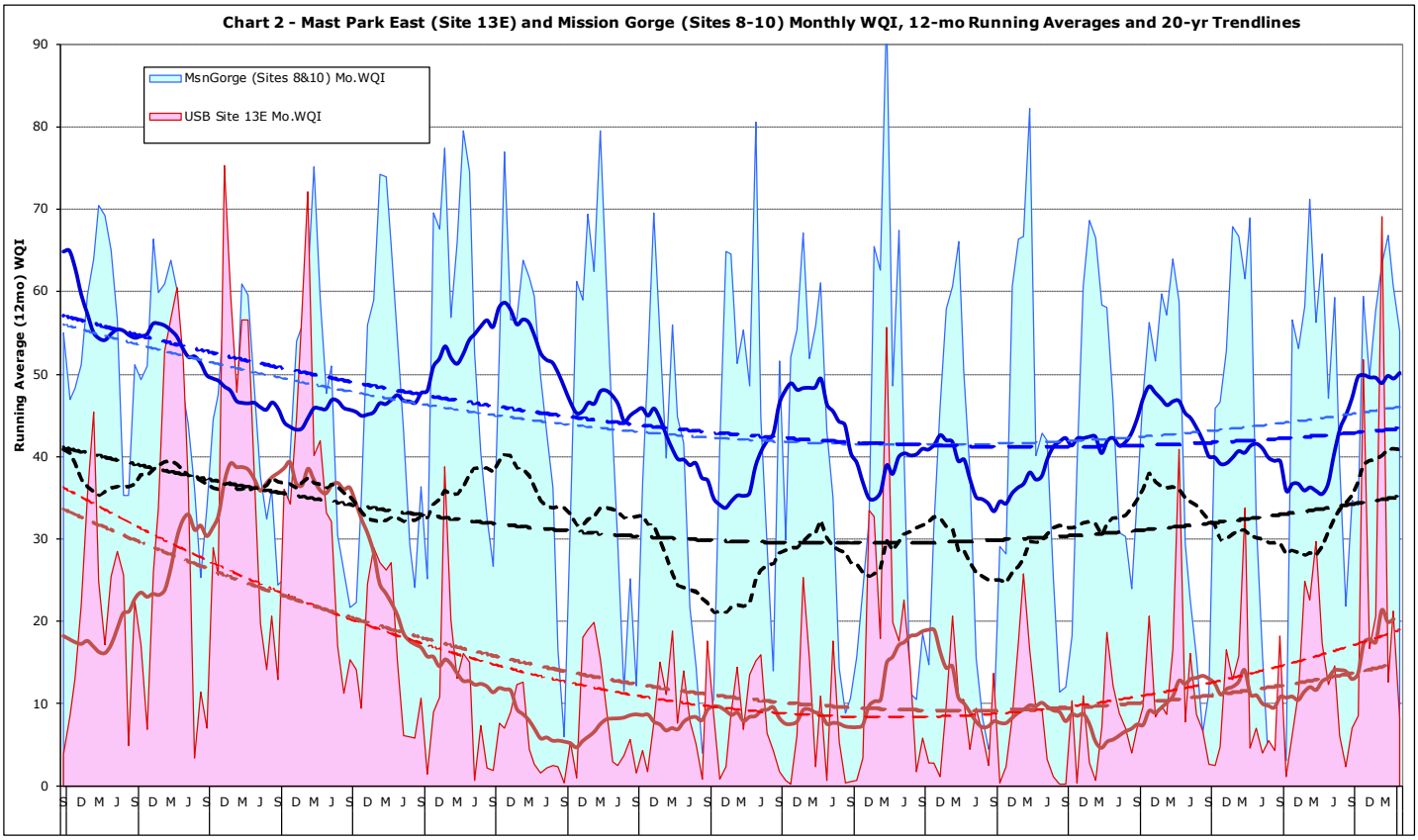


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines
MsnGorge (Sites 8&10) Mo.WQI
USB Site 13E Mo.WQI
Running Average (12mo) WQI

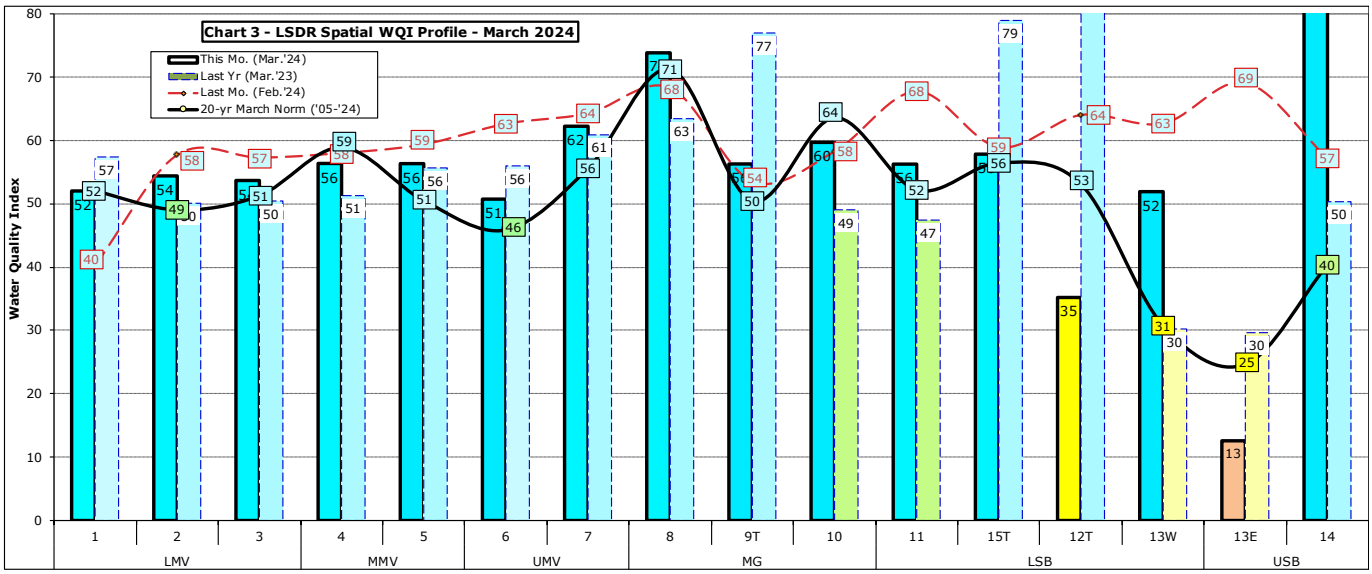


Chart 3 - LSDR Spatial WQI Profile - March 2024
This Mo. (Mar.'24)
Last Yr (Mar.'23)
Last Mo. (Feb.'24)
20-yr March Norm ('05-'24)
Water Quality Index
1 2 3 4 5 6 7 8 9T 10 11 15T 12T 13W 13E 14
LMV MMV UMV MG LSB USB

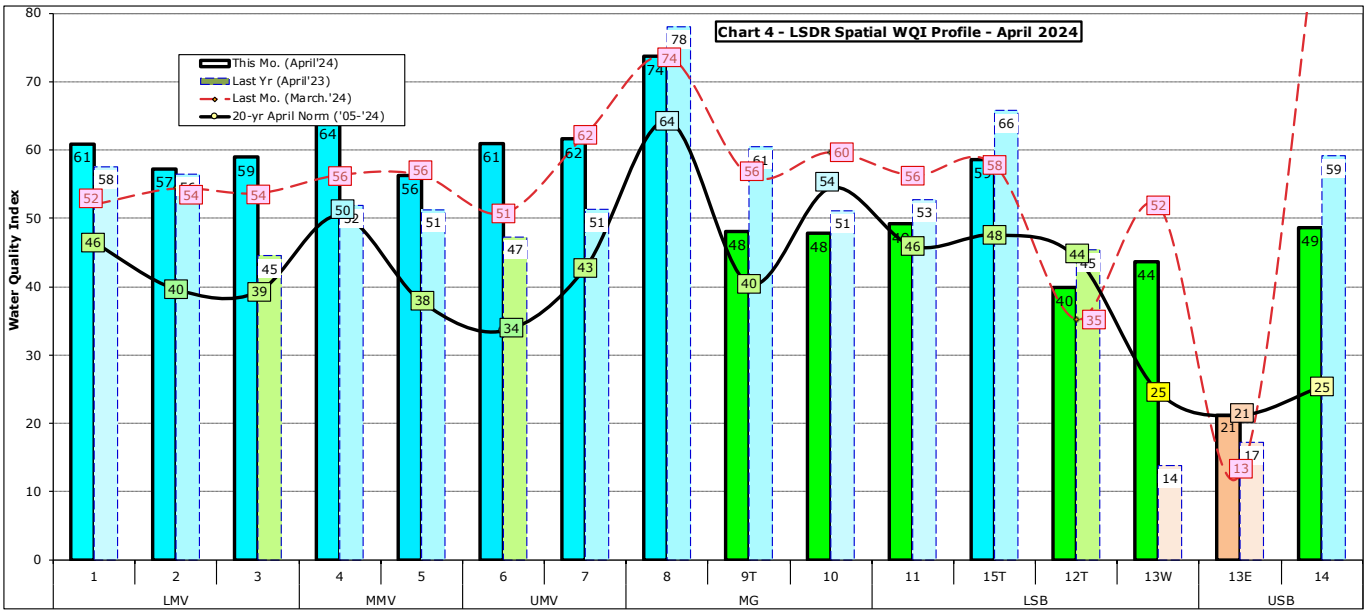


Chart 4 - LSDR Spatial WQI Profile - April 2024
This Mo. (April'24)
Last Yr (April'23)
Last Mo. (March.'24)
20-yr April Norm ('05-'24)
Water Quality Index
1 2 3 4 5 6 7 8 9T 10 11 15T 12T 13W 13E 14
LMV MMV UMV MG LSB USB

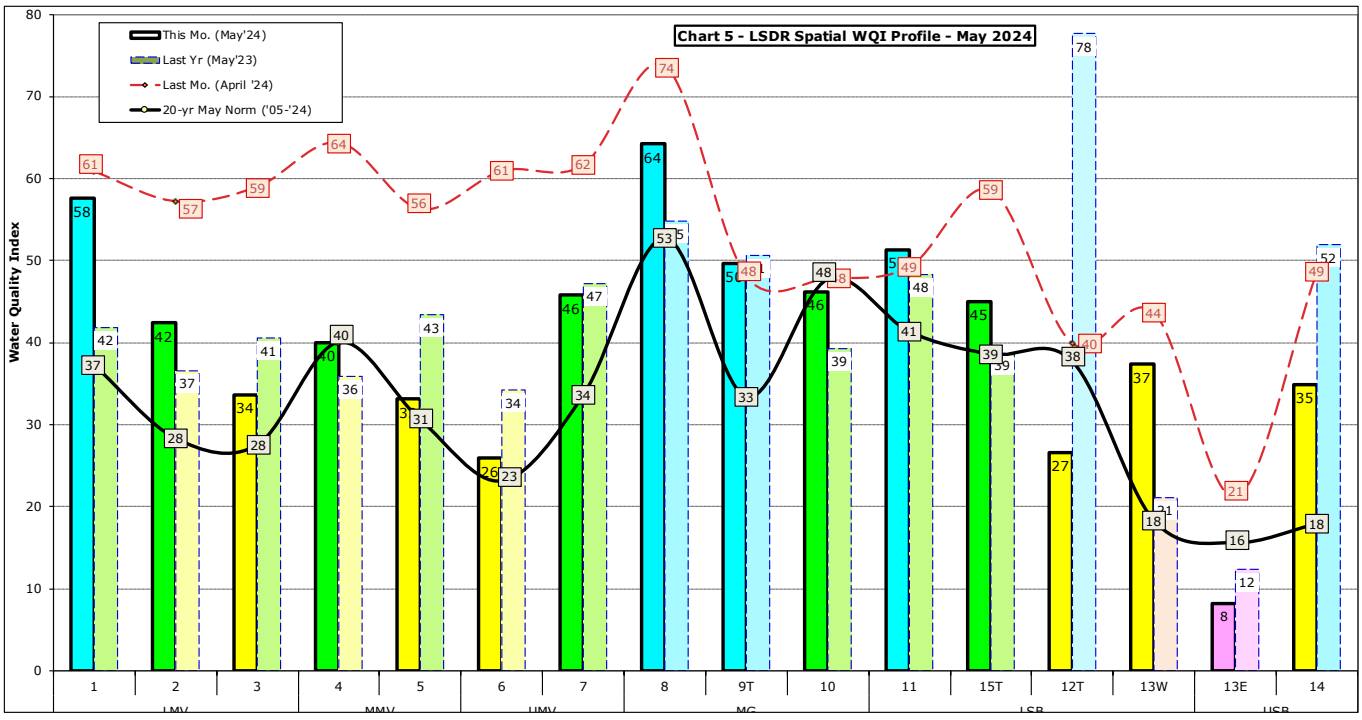


Chart 5 - LSDR Spatial WQI Profile - May 2024
This Mo. (May'24)
Last Yr (May'23)
Last Mo. (April '24)
20-yr May Norm ('05-'24)
Water Quality Index
1 2 3 4 5 6 7 8 9T 10 11 15T 12T 13W 13E 14
LMV MMV UMV MG LSB USB