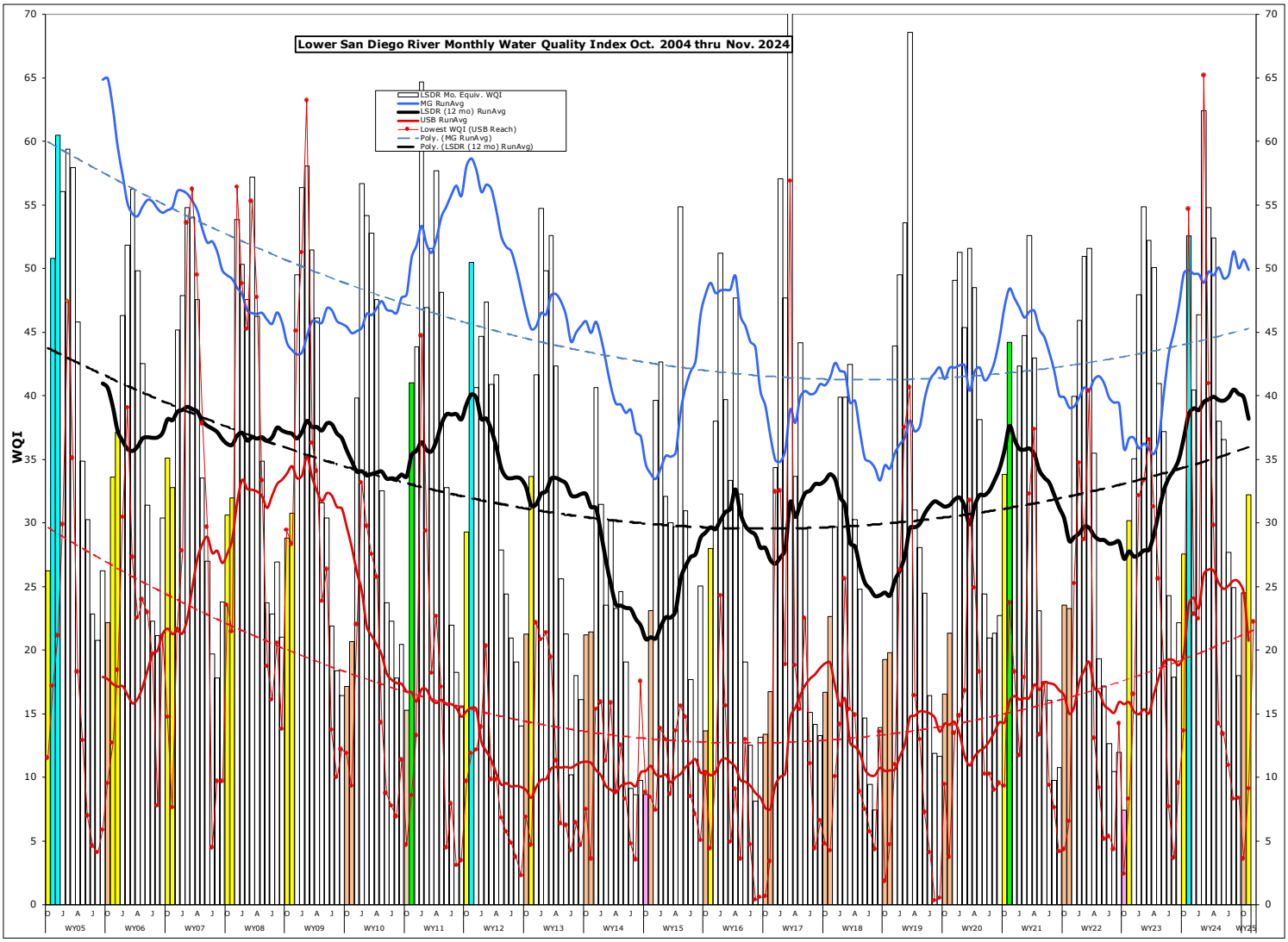
Monthly WQM Report

Lower San Diego River - December 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 41 (C) is up nine points from last month, remaining one point greater than a year ago and a point less than the 20-yr December norm of 42.

Table 1 - November/December '24 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Variance From		
[Site #s]	[1-7] Nov/Dec	[8-10] Nov/Dec	[11-15] Nov/Dec	[1-15] Nov/Dec	Last Mo. (11/'24)	Last Yr. (12/'23)	20-yr Avg. (Dec.)
Temperature, oC	14.9/12.9	12.5/9.6	15.4/13.8	14.6/12.6	-14%	8%	7%
Sp.Cond., mS/cm	3.44/3.44	1.93/1.89	2.09/2.00	2.67/2.52	-6%	50%	38%
DO, mg/L	5.62/7.79	8.68/10.2	4.54/6.50	5.61/7.56	32%	11%	13%
DO, % of Sat.	56/73	82/90	45/60	55/70			
pH	7.69/7.75	8.05/8.12	7.63/7.74	7.65/7.74	1.2%	4.0%	0.6%
3-day ADF, cfs	3.2/4.3	1.8/4.1	3.4/4.0	3.3/4.1	25%	-43%	-85%
WQ Index	34/44	49/53	23/33	32/41	28%	2%	-1%
Nov/Dec	D/C	C+/B-	E/D	D/C			
Nov/Dec	Marginal/ Fair	Fair/ Good	Poor/ Marginal	Marginal/ Fair	**Index up 9 points from last month**		

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

LSDR **water temperatures** declined 2.0 oC (-14%) from last month to one degree above last Dec. and 0.9 oC over the 20-yr norm of 11.7 oC. The overall **specific conductance** of 2.52 mS/cm constitutes a 6% decline from last month remaining 50% greater than last year and 38% more than the 20-yr norm of 1.83 mS/cm. The overall **dissolved oxygen** level of 7.56 mg/L (70%Sat.) is 32% above last month, 11% more than last Dec. and 13% greater than the 20-yr norm of 6.74 mg/L (62%Sat). **Streamflow** over the antecedent 3-days of 4.1 cfs is 25% above last month but remains 43% below a year ago and 85% less than the 20-yr norm of 27 cfs. This month's overall LSDR **water quality index** (WQI) of 41 is 28% greater than last month and one point above last December while remaining one point below the 20-yr Dec. norm of 42 (C).

Monthly WQI values occurring over the past two years 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 (Nov. '22 - Dec. '24)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMRF,in
Nov. 22	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	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 '23	17 (E)	35 (D)	22 (E)	22 (E)	T	26	1.75
Oct. 23	31(D)	34 (D)	21 (E)	28 (D)	DW	4.2	0.01
Nov. 23	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)	62(B)	WW	202	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	40 (C)	54 (B-)	31 (D)	38 (C-)	T	16	0.03
June	40 (C)	51 (B-)	30 (D)	38 (C-)	DW	8	0.01
July	27 (D)	43 (C)	25 (D)	28 (D)	DW	4.7	0.00
Aug.	22 (E)	44 (C)	22 (E)	25 (E+)	DW	2.8	0.00
Sept '24	18 (E)	19 (E)	20 (E)	18 (E)	DW	1.6	0.01
Oct. 24	17 (E)	42 (C)	24 (E+)	25 (D-)	T	1.5	0.01
Nov. 24	34 (D)	49 (C+)	23 (E+)	32 (D)	T	2.0	0.08
Dec.24	**44 (C)**	**53(B-)**	**33 (D)**	**41 (C)**	**T**	**3.6**	**0.05**

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 41 is the 14th time over the last 20 years that the index has been at grade level C (Fair) for December.

WQI values extending from Sept.'04 thru Dec. '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 watershed. The current running average WQI of 38 is 15% above the 20-yr norm of 33. The running average low for Dec. of 21 (37% below norm) occured in 2014. The previous highest running average WQI for the month of 40 (20% above norm) occured in 2011. The greatest improvement in water quality this month occured in the Upper Mission Valley reach (sites 5-7).

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 deeper ponded portions of the river, are considered the basic natural causes of localized poor water quality. The greatest downward trend (red-dashed line) over time is associated with the lowest 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 flux in index values over the 20-yr monitoring period. The poorest quality Mission Valley section site is 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 consistantly greater than last month. This month only 6% of the sites (1 out of 16) are Poor(E), five (31%) Marginal(D), seven(44%) Fair(C) and three Good(B). Last month 31% were Poor, 19% Marginal, 38% Fair, and only one site (6%) Good. The greatest change in index values from last month to this were in Upper MV (sites 6-7) while the lowest value of 13 (E) was monitored at Walmat Pond/Mast Park East (Site 13E).

Iindex values over the next several months are expected to continue improving with increased streamflow, elevated DO levels, lower water temps and Specific Conductance levels (i.e., less total dissolved solids). January and February water quality index values are commonly determined in the upper-30's (Fair) through low-50s (Good).

12/21/24 (JCK)

Chart 1 - LSDR Monthly WQI, Running Averages and Trendlines by River Reach (Sept. 2005 thru Dec. 2024)

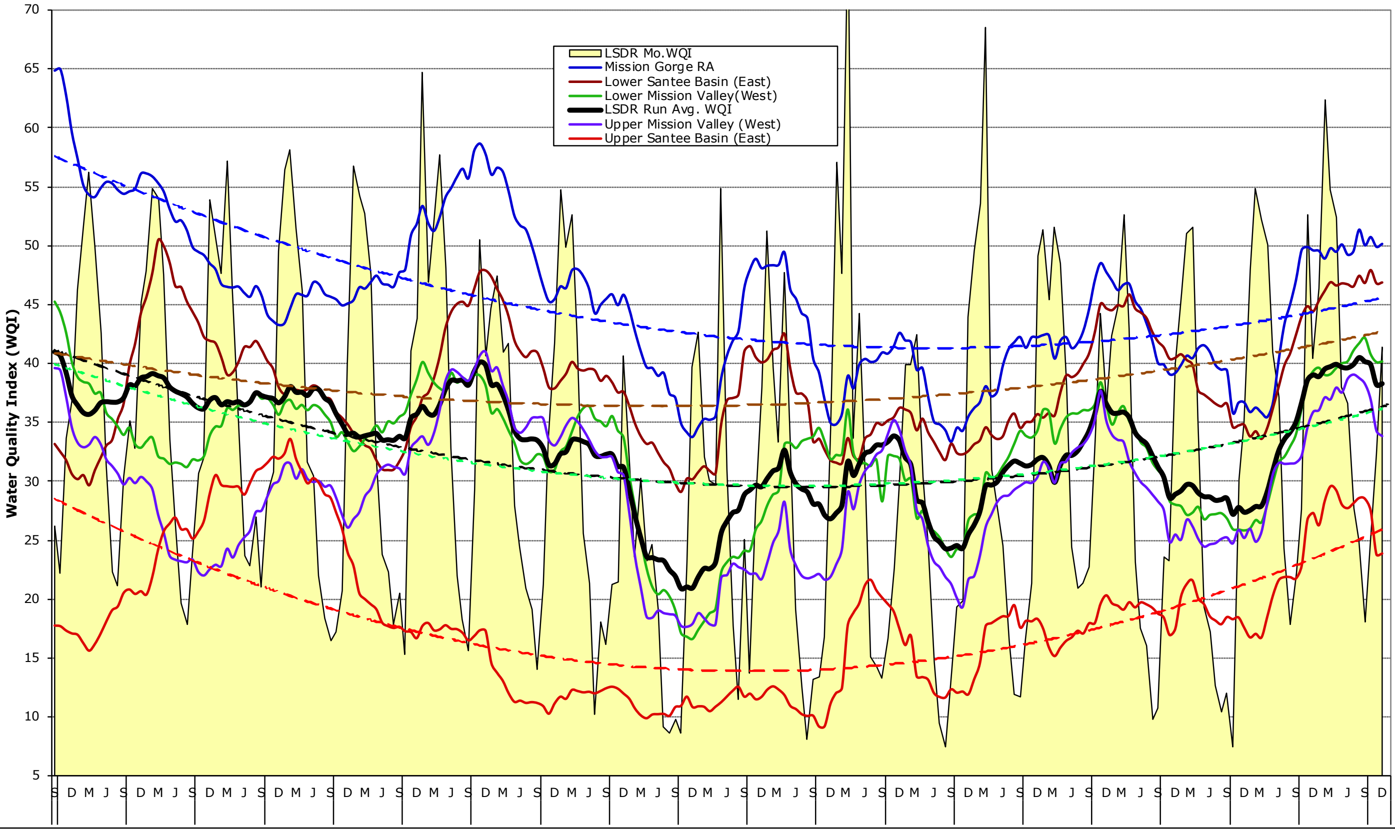
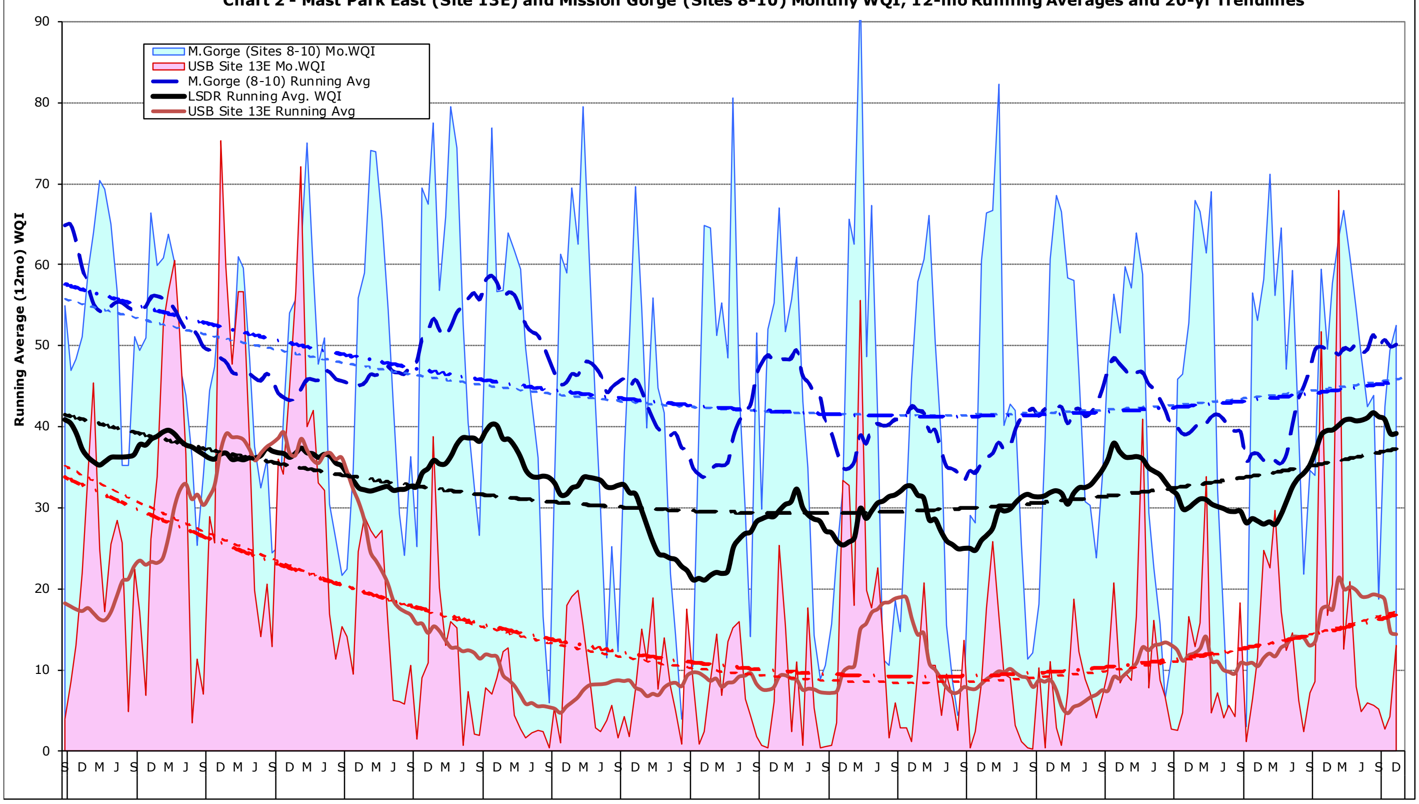


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines



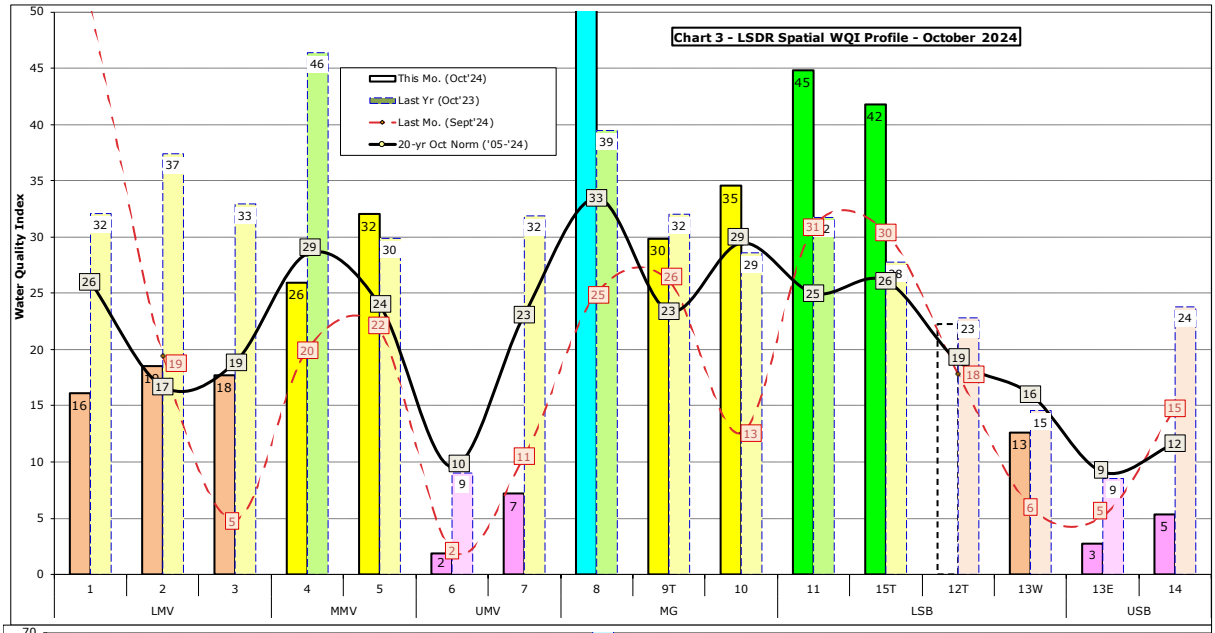


Chart 3 - LSDR Spatial WQI Profile - October 2024
This Mo. (Oct'24)
Last Yr (Oct'23)
Last Mo. (Sept'24)
20-yr Oct Norm ('05-'24)
Water Quality Index
LMV
MMV
UMV
MG
LSB
USB

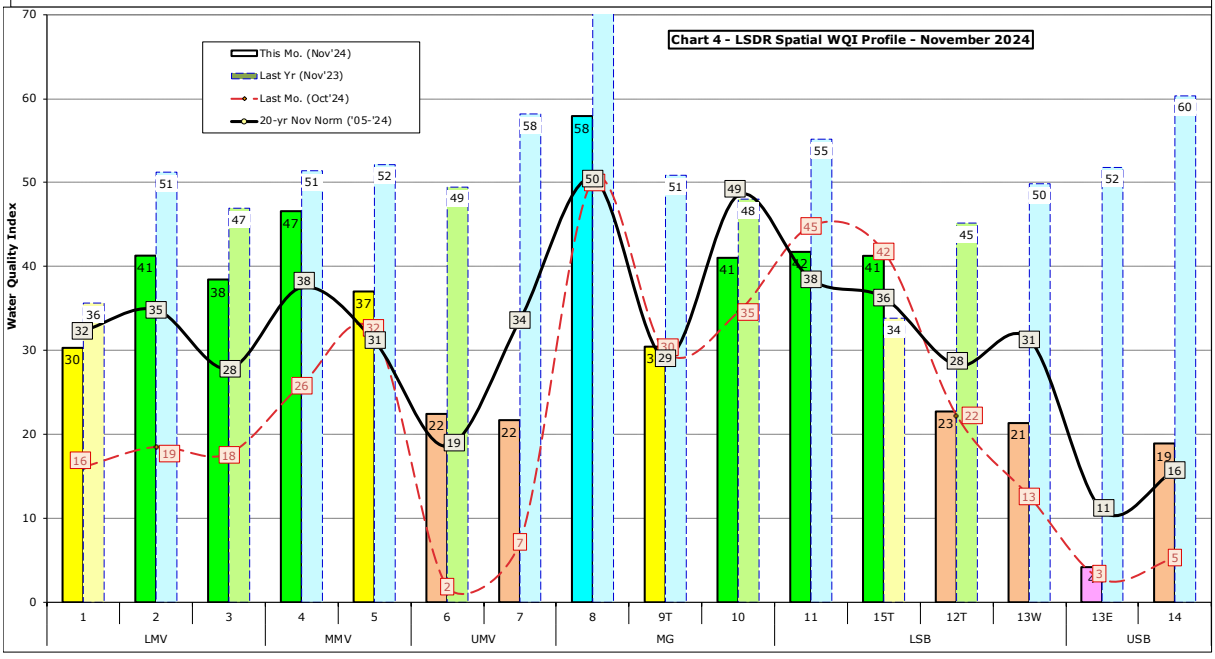


Chart 4 - LSDR Spatial WQI Profile - November 2024
This Mo. (Nov'24)
Last Yr (Nov'23)
Last Mo. (Oct'24)
20-yr Nov Norm ('05-'24)
Water Quality Index
LMV
MMV
UMV
MG
LSB
USB

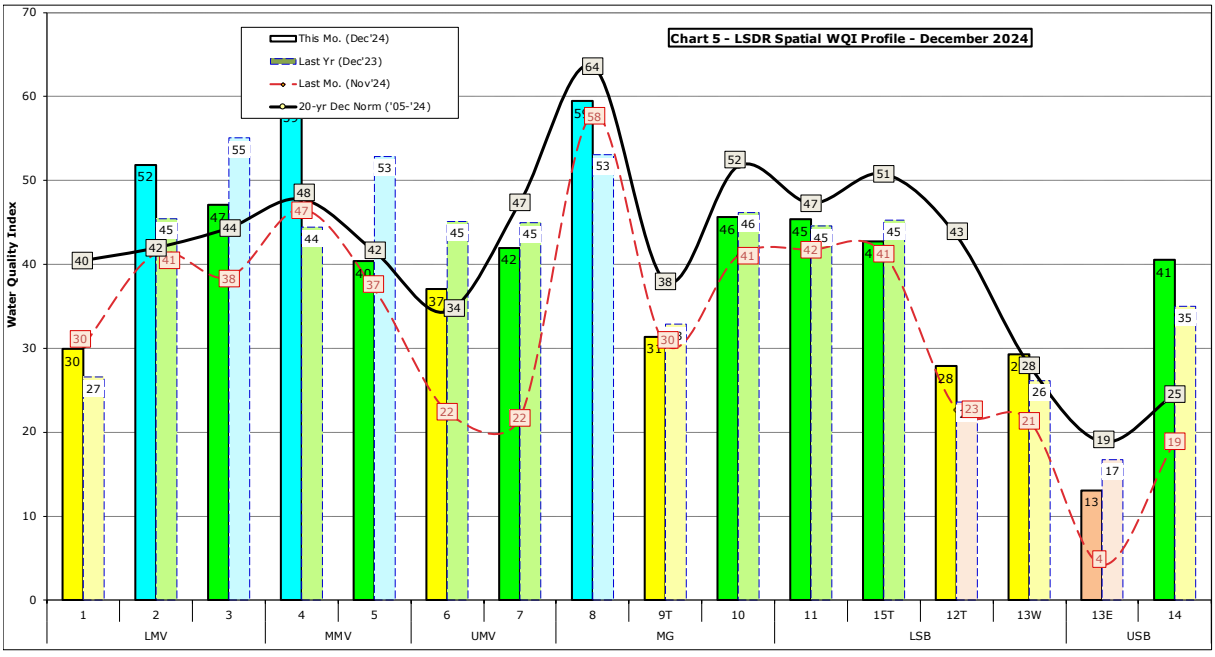


Chart 5 - LSDR Spatial WQI Profile - December 2024
This Mo. (Dec'24)
Last Yr (Dec'23)
Last Mo. (Nov'24)
20-yr Dec Norm ('05-'24)
Water Quality Index
LMV
MMV
UMV
MG
LSB
USB