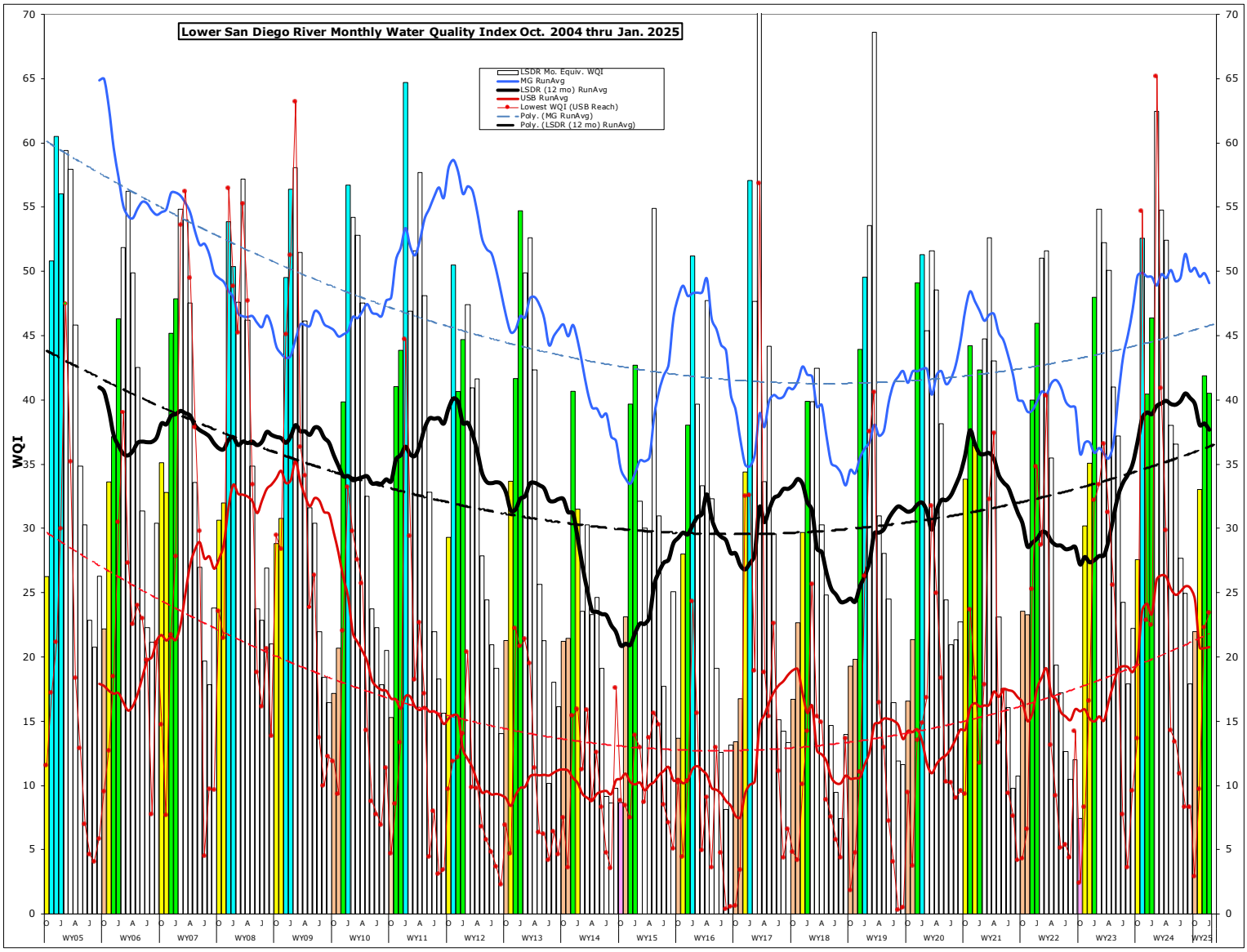
Monthly WQM Report

Lower San Diego River - January 2025



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 down one point from last month, at five points less than a year ago and eight points (-18%) under the 21-yr January norm of 49.

Table 1 - Jan.'25/Dec. '24 WQM Data Summary							
	West - MV	Mid - MG	East - SB	LSDR	Variance From		
[Site #s]	[1-7] Jan/Dec	[8-10] Jan/Dec	[11-15] Jan/Dec	[1-15] Jan/Dec	Last Mo. (12/'24)	Last Yr. (1/'24)	20-yr Avg. (Jan.)
Temperature, oC	10.2/12.9	7.4/9.6	12.4/13.8	10.5/12.6	-16%	1%	-11%
Sp.Cond., mS/cm	3.36/3.44	2.01/1.89	2.14/2.00	2.55/2.52	1%	78%	49%
DO, mg/L	8.27/7.59	10.9/10.2	6.98/6.50	8.23/7.56	5%	4%	4%
DO, % of Sat.	75/73	92/90	61/60	72/70			
pH	7.81/7.75	8.11/8.12	7.68/7.74	7.73/7.74	-0.1%	-1.4%	0.2%
3-day ADF, cfs	5.8/5.3	4.4/4.2	4.2/4.0	4.9/4.6	7%	-53%	-84%
WQ Index	44/45	49/53	32/33	41/42	-3%	-13%	-18%
Jan/Dec	C/C	C+/B-	D/D	C/C			
Jan/Dec	Fair/ Fair	Fair/ Good	Marginal/ Marginal	Fair/ Fair	**Index down 1 point 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 2.7oC (-16%) from last month to one degree above last Jan. but 1.3oC less the 20-yr norm of 11.8oC. The overall **specific conductance** of 2.55 mS/cm is 1% above last month remaining 78% greater than last year and 49% higher than the 20-yr norm of 1.71 mS/cm. The overall **dissolved oxygen** level of 8.23 mg/L (72%Sat.) is 5% above last month, 4% greater than last Jan. and the 20-yr norm of 7.74 mg/L (62%Sat). **Streamflow** over the antecedent 3-days of 4.9 cfs is 7% above last month but remains 53% lass than a year ago and 84% below the 20-yr norm of 31 cfs. This month's overall LSDR **water quality index** (WQI) of 41 is 3% less than last month, 5 points (-13%) below last January and 8 points below the 20-yr norm of 49 (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 (Dec. '22 - Jan. '25)							
	Mission Valley	Mission Gorge	Santee Basin	LSDR		ADF,cfs	TMRF,in
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.	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)	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	7.6	0.01
July	27 (D)	43 (C)	25 (D)	28 (D)	DW	3.8	0.00
Aug.	22 (E)	44 (C)	22 (E)	25 (E+)	DW	2.9	0.00
Sept.	18 (E)	19 (E)	20 (E)	18 (E)	DW	1.6	0.01
Oct.	17 (E)	42 (C)	24 (E+)	25 (D-)	DW	1.2	0.01
Nov.	34 (D)	49 (C+)	23 (E+)	33 (D)	T	2.2	0.08
Dec.24	45 (C)	53(B-)	33 (D)	42 (C)	DW	3.7	0.05
Jan.25	**44 (C)**	**49 (C+)**	**32 (D)**	**41 (C)**	**DW**	**3.8**	**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 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 (21-yr) trends. This month's value of 41 is the 11th time over the past two decades that the index has been at grade level C (Fair).

WQI values extending from Sept.'04 thru Jan. '25 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 37.7 is 14% above the norm of 33. The running average low for Jan. of 22 (34% below norm) occured in 2015. The previous highest running average WQI for the month of 38.2 (15% above norm) occured in 2012. The only reach to show a slight improvement (one point) in water quality this month compared to last occured within the Upper Santee Basin; there were slight decreases in all other reaches of the lower river.

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 monitoring period.

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 nearly the same last month at most sites. This month only 6% of the sites (1 of 16) are Poor(E), five (31%) Marginal(D), seven (44%) Fair(C) and three Good(B). Last month 6% were Poor, 25% Marginal, 50% Fair, and three sites (19%) Good. The greatest change in index values from last month to this was at Mast Park East (13E) where the WQI rose from 13 (E-) to 21 (E), both values remaing Poor.

Iindex values over the next two months of winter are expected to remain in the same general range of Fair-to-Good based on below average streamflow, elevated DO levels, average water temps and slightlty higher Specific Conductance (i.e., more total dissolved solids). February water quality index values are commonly found in the upper-30's (C) through low-50s (B) should streamflow rise with the advent of rain storms. In contrast, little improvement in lower river water quality can be anticipated should there be little-to-no precipition over the next 30 days. There is a very high probabilty of experiencing one or more storm events over the next several months.

(JCK) 1/19/25

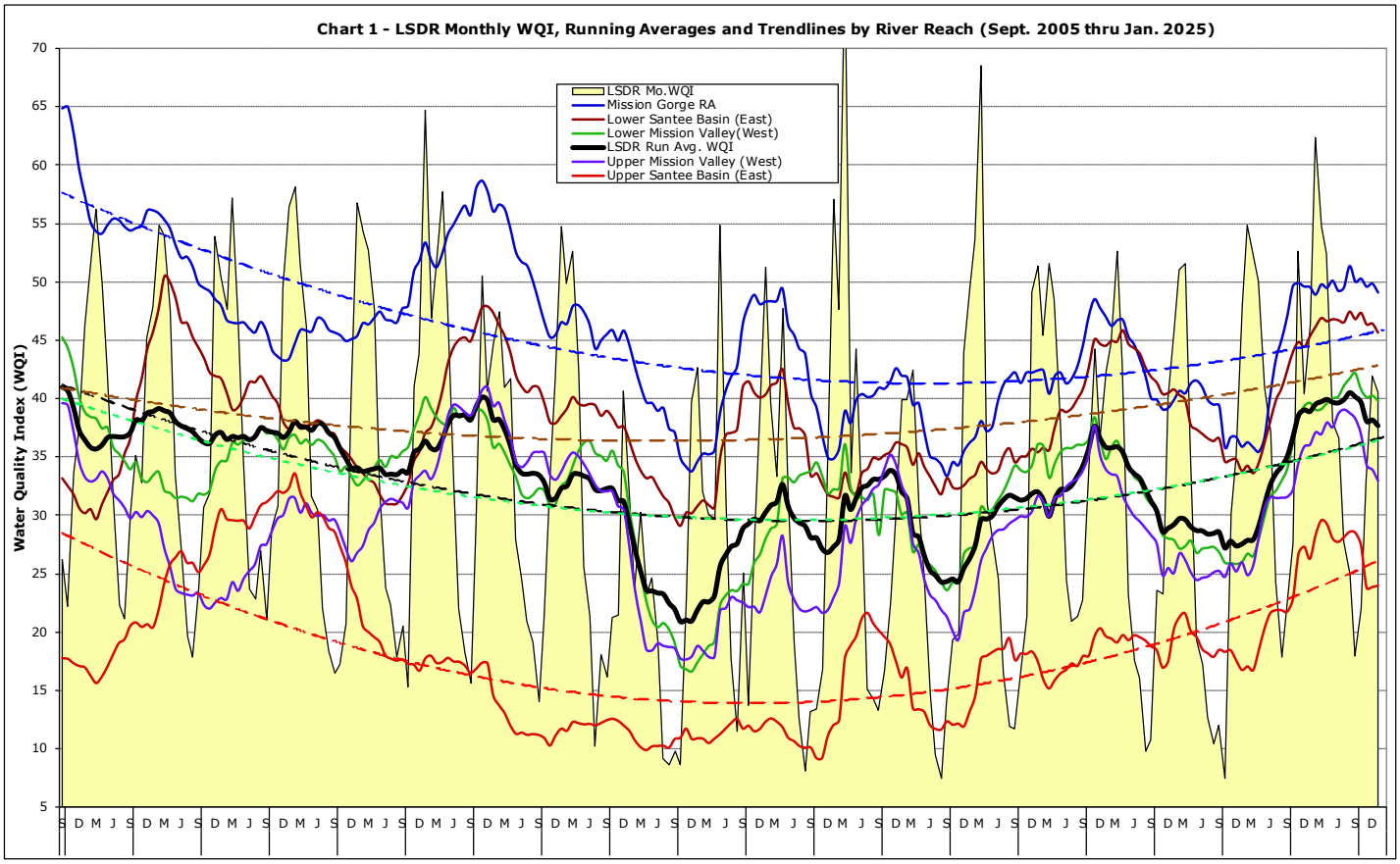


Chart 1 - LSDR Monthly WQI, Running Averages and Trendlines by River Reach (Sept. 2005 thru Jan. 2025)
LSDR Mo.WQI
Mission Gorge RA
Lower Santee Basin (East)
Lower Mission Valley(West)
LSDR Run Avg. WQI
Upper Mission Valley (West)
Upper Santee Basin (East)
Water Quality Index (WQI)

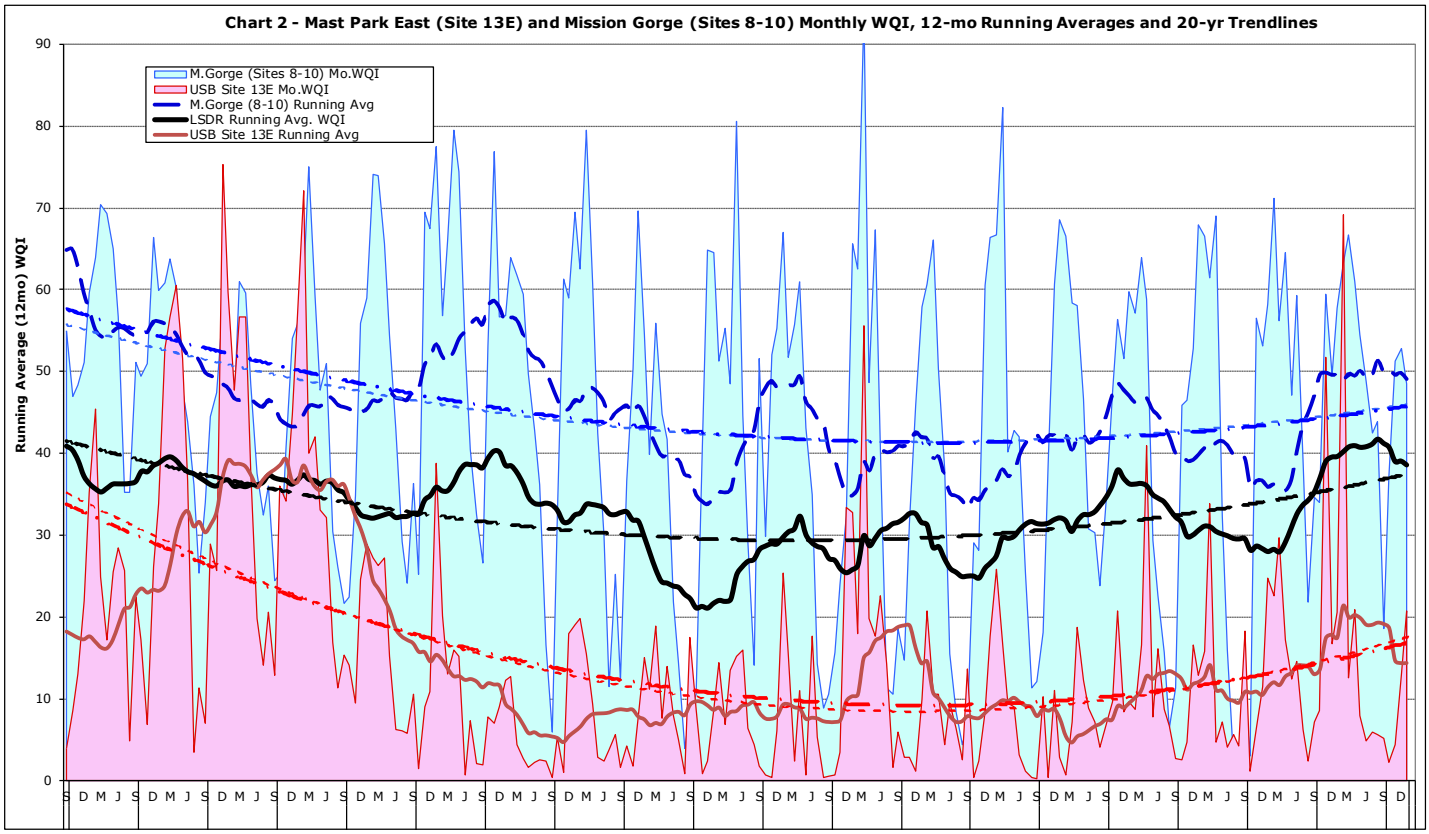


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8-10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines
M.Gorge (Sites 8-10) Mo.WQI
USB Site 13E Mo.WQI
M.Gorge (8-10) Running Avg
LSDR Running Avg. WQI
USB Site 13E Running Avg
Running Average (12mo) WQI

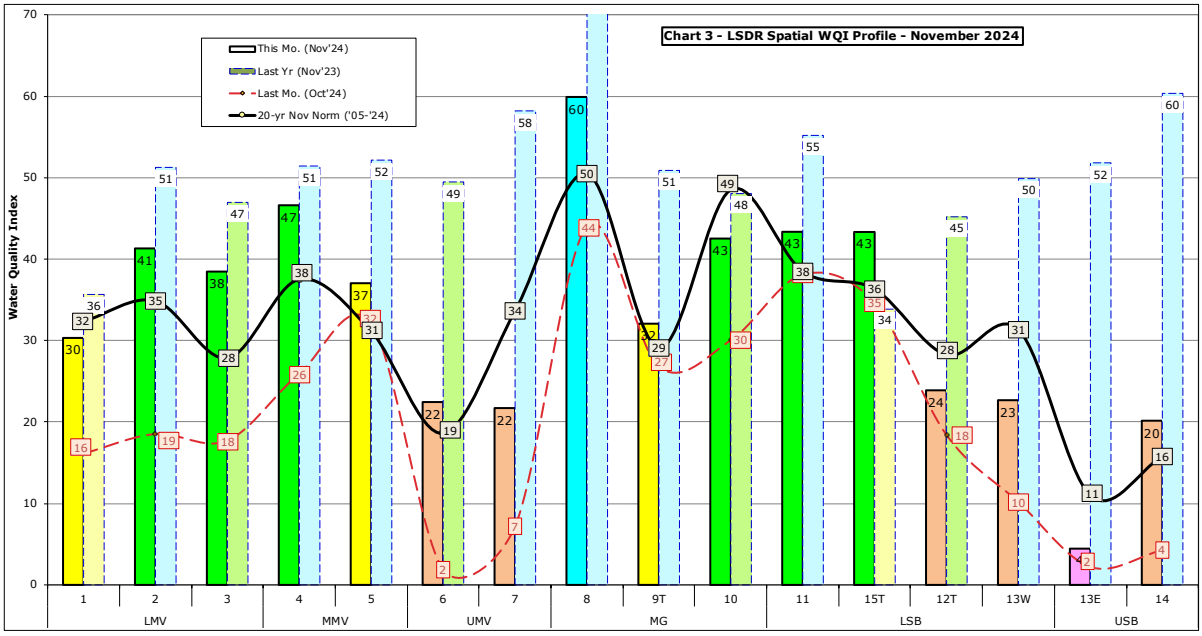


Chart 3 - LSDR Spatial WQI Profile - November 2024
This Mo. (Nov'24)
Last Yr (Nov'23)
Last Mo. (Oct'24)
20-yr Nov Norm ('05-'24)
Water Quality Index
LMV
MMV
UMV
MG
LSB
USB

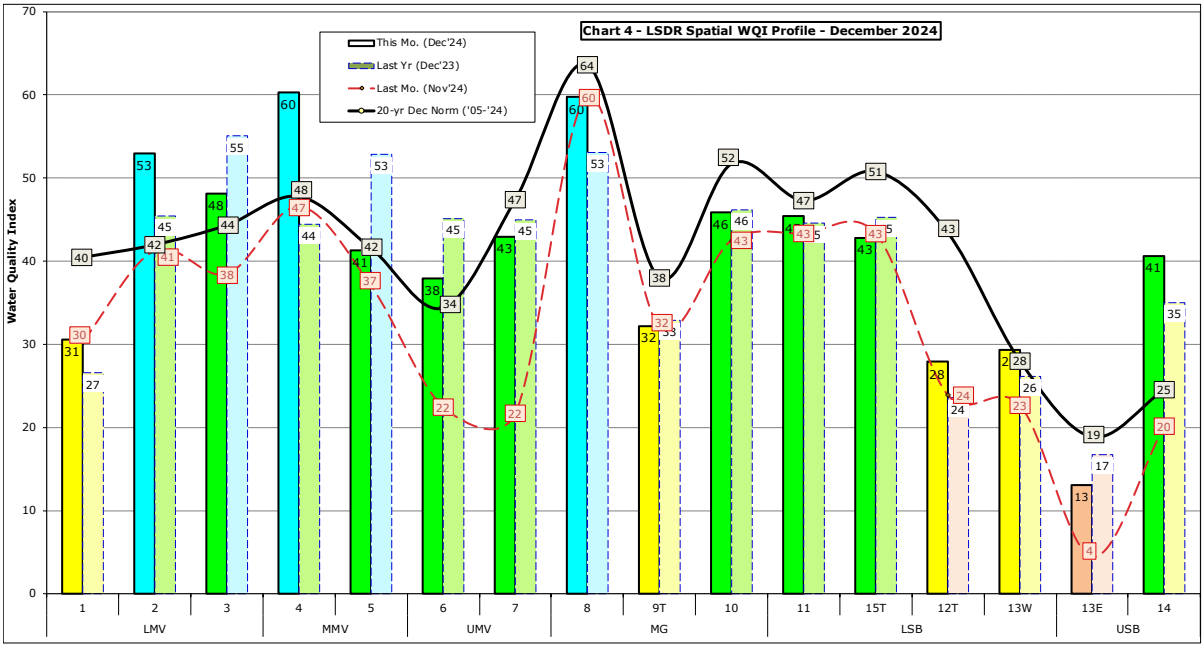


Chart 4 - LSDR Spatial WQI Profile - December 2024
This Mo. (Dec'24)
Last Yr (Dec'23)
Last Mo. (Nov'24)
20-yr Dec Norm ('05-'24)
Water Quality Index
LMV
MMV
UMV
MG
LSB
USB

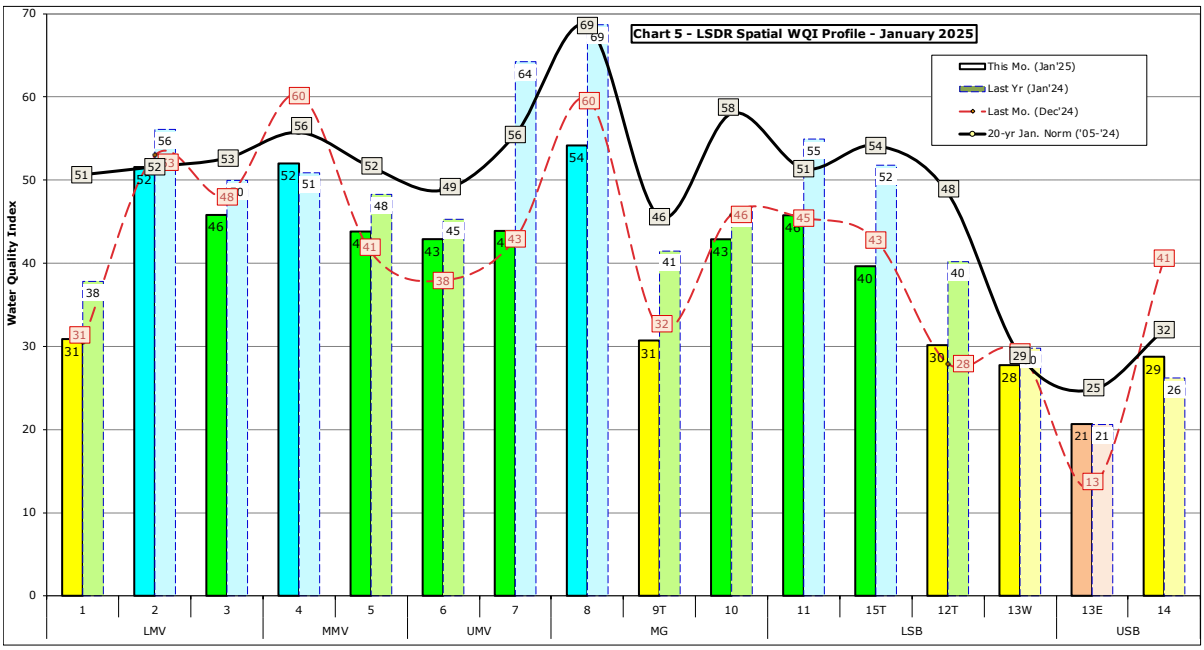


Chart 5 - LSDR Spatial WQI Profile - January 2025
This Mo. (Jan'25)
Last Yr (Jan'24)
Last Mo. (Dec'24)
20-yr Jan. Norm ('05-'24)
Water Quality Index
LMV
MMV
UMV
MG
LSB
USB