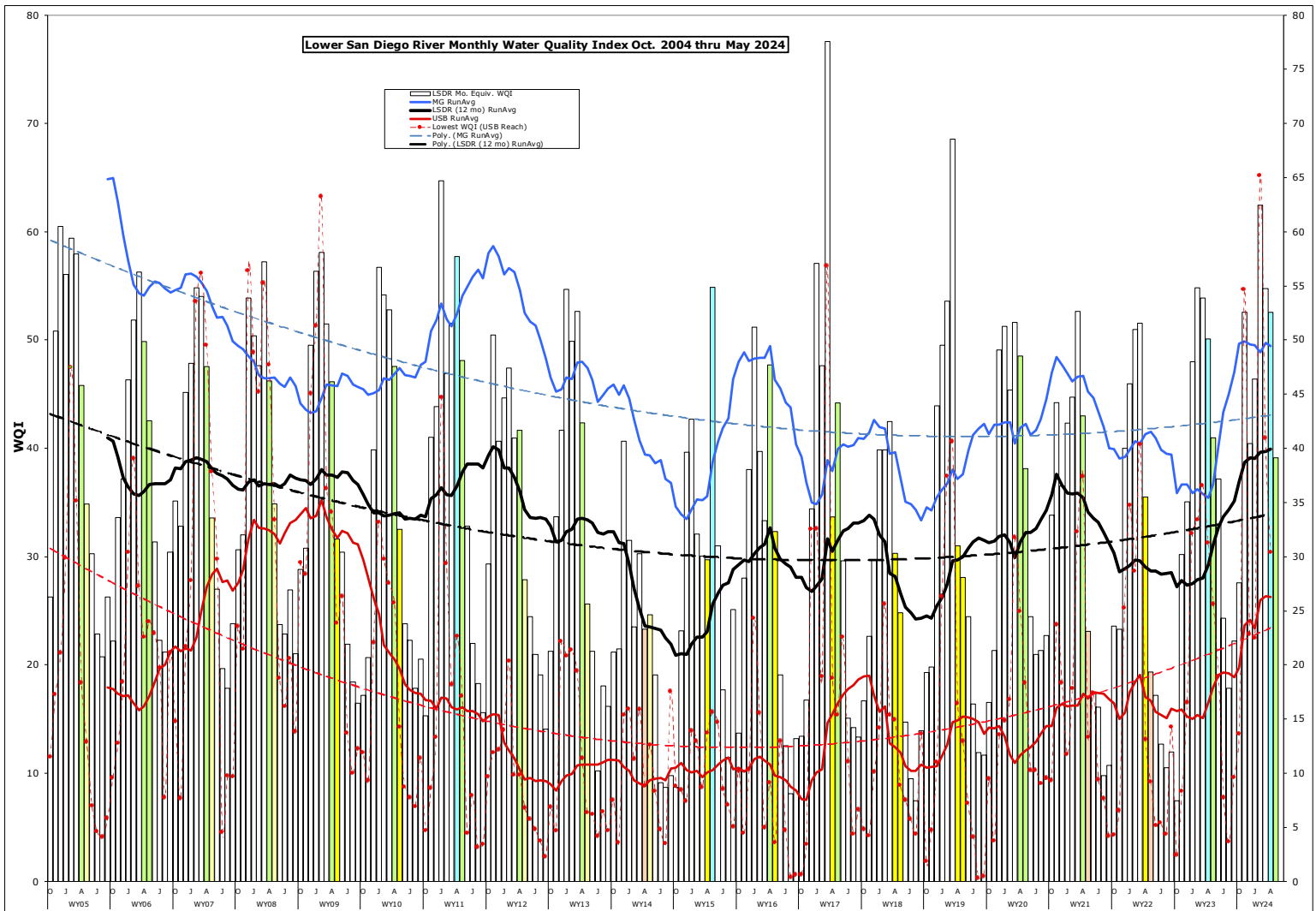


# Monthly WQM Report

## Lower San Diego River - June 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 38 is one point below last month, remaining one point above one year ago and 12 points (48%) above the 20-yr June norm of 26 .

| <b>Table 1 - May/June '24 WQM Data Summary</b> |                   |                    |                     |                    |   |                     |                      |
|--|-------------------|--------------------|---------------------|--------------------|---|---------------------|----------------------|
|  | West - MV         | Mid - MG           | East - SB           | LSDR               | Percent Variance from                         |                     |                      |
| [Site #s]                                      | [1-7]<br>May/June | [8-10]<br>May/June | [11-15]<br>May/June | [1-15]<br>Mar/June | Last Mo.<br>(5/'24)                           | Last Yr.<br>(6/'23) | 20-yr Avg.<br>(June) |
| Temperature, oC                                | 20.6/22.1         | 18.6/21.1          | 19.4/21.6           | 19.7/21.7          | 10%   | 2%                  | -1%                  |
| Sp.Cond., mS/cm                                | 2.05/2.37         | 1.43/1.56          | 1.32/1.61           | 1.61/1.89          | 17%   | 1%                  | -25%                 |
| DO, mg/L                                       | 4.69/5.25         | 7.52/7.34          | 4.32/4.97           | 5.02/5.35          | 10%   | 4%                  | 26%                  |
| DO, % of Sat.                                  | 52/62             | 81/83              | 48/57               | 55/61              |   |                     |                      |
| pH   | 7.72/7.83         | 8.08/8.19          | 7.70/7.79           | 7.71/7.81          | 1.3%  | 2.6%                | 0.8%                 |
| 3-day ADF, cfs                                 | 14/9              | 10/7               | 9/6                 | 11/8               | -34%  | 9%                  | 160%                 |
| WQ Index                                       | 40/40             | 54/51              | 32/30               | 39/38              | -1%   | 3%                  | 48%                  |
| May/June                                       | C/C               | B/B-               | D/D                 | C-/C-              |   |                     |                      |
| May/June                                       | Good/<br>Good     | Good/<br>Good      | Marginal/<br>Fair   | Fair/<br>Good      | <b>Index down 1 point<br/>from last month</b> |                     |                      |

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

LSDR **water temperatures** climbed 2.0oC (10%) from last month, 2% above last year to just below the 20-yr June norm of 21.9oC. The overall **specific conductance** of 1.89 mS/cm constitutes a 17% increase from last month, 1% greater than last year and 25% below the 20-yr norm of 2.52 mS/cm. The overall **dissolved oxygen** level of 5.35 mg/L (61%Sat.) is 10% more than last month, 4% above last June, and 26% more than the 20-yr norm of 4.29 mg/L (49%Sat). **Streamflow** over the antecedent 3-days of 8 cfs is 34% less than last month, 9% above a year ago, and 160% greater than the June norm of 4 cfs. This month's overall LSDR **water quality index** (WQI) of 38 (C-) is one point below last month, 3% more than a year ago and 12 points (48%) above the 20-yr June norm of 26 (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.

| <b>Table 2 - WQI Values, Average Daily Flow and Monthly Rainfall (May '22 - June '24)</b> |                |                |               |                |           |            |             |
|---|----------------|----------------|---------------|----------------|-----------|------------|-------------|
|   | Mission Valley | Mission Gorge  | Santee Basin  | LSDR           |           | ADF,cfs    | TMR,F,in    |
| May '22   | 17 (E)         | 32 (D)         | 15 (E)        | 19 (E)         | T         | 4.1        | 0.03        |
| <b>June'22</b>  | <b>19 (E)</b>  | <b>16 (E)</b>  | <b>15 (E)</b> | <b>17 (E)</b>  | <b>DW</b> | <b>1.1</b> | <b>0.00</b> |
| 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        |
| <b>June'23</b>  | <b>33 (D)</b>  | <b>59 (B)</b>  | <b>33 (D)</b> | <b>37 (D+)</b> | <b>T</b>  | <b>18</b>  | <b>0.03</b> |
| 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        | 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 '24   | 40 (C)         | 54 (B-)        | 32 (D)        | 39 (C-)        | T         | 15         | 0.03        |
| <b>June'24</b>  | <b>40 (C)</b>  | <b>51 (B-)</b> | <b>30 (D)</b> | <b>38 (C-)</b> | <b>T</b>  | <b>7.9</b> | <b>0.01</b> |

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 38 is the first time the index has been at grade level C (Fair) for June, remaining 48% above the monthly norm of 26.

WQI values extending from Sept.'04 thru June '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 June of 26 (22% below norm) occurred in 2015. The previous highest running average WQI for June of 38 (16% above norm) occurred in 2007. The greatest decline in water quality this month occurred 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 deeper 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) encompassing 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 nearly the same as from last month. Slightly lower in the Santee Basin and Mission Gorge, the same in Mission Valley. This month, only two of 16 sites (13%) are B(Good), eight (50%) Fair (C) and four (25%) Marginal(D). Last month (May) 19% were Good, 28% Fair and another 38% Marginal. The highest index value of 54 (B) was at Mission Trails Crossing (Site 8), while the lowest value of five (F) was found at Walmart Pond (13E).

Next month's overall index is expected to further decline due to less streamflow and DO levels, in conjunction with increasing water temperatures and specific conductivities. July index values are typically found in the 20's (E) representing low flow summer conditions.

6/26/24 (JCK)

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

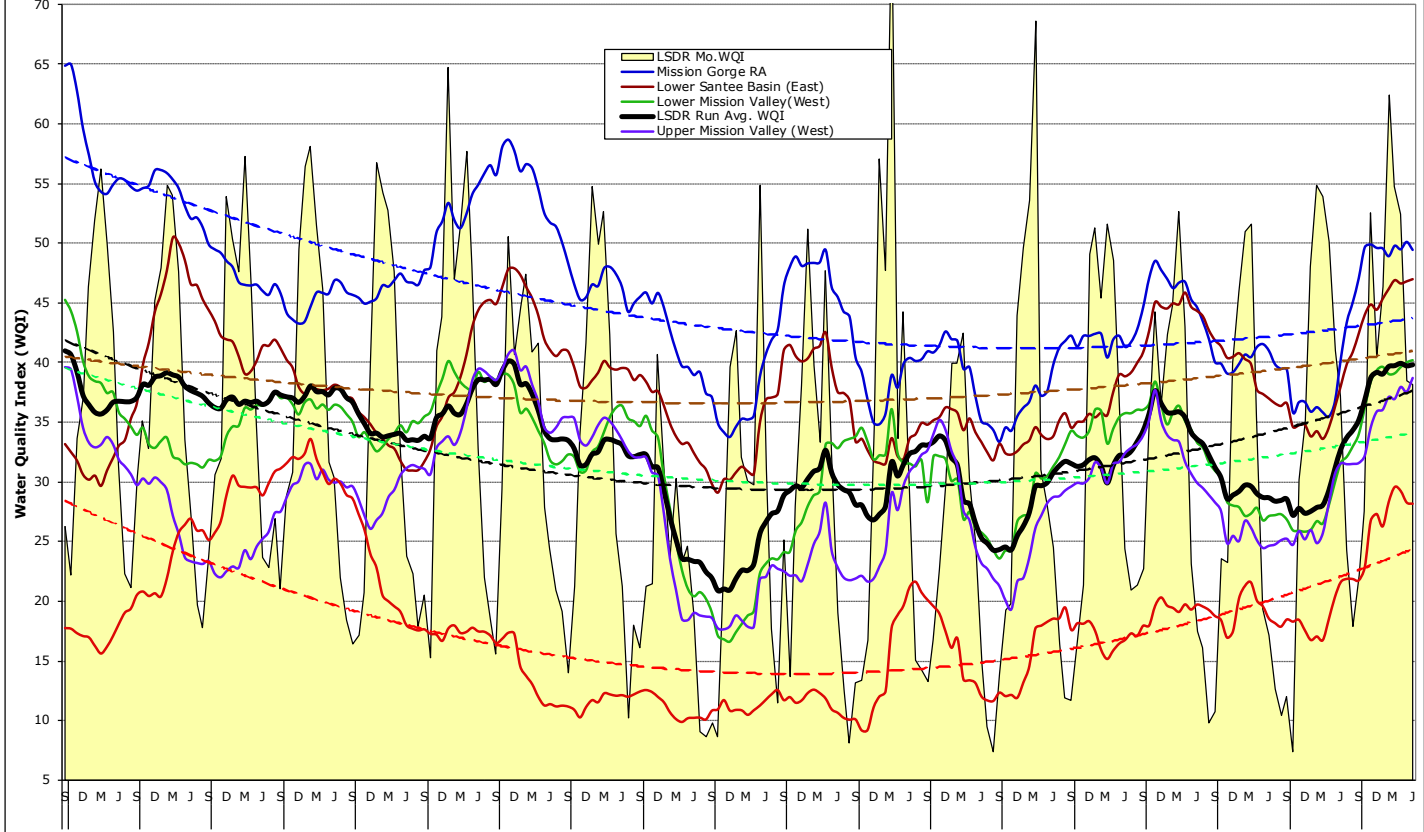


Chart 2 - Mast Park East (Site 13E) and Mission Gorge (Sites 8&10) Monthly WQI, 12-mo Running Averages and 20-yr Trendlines

