Rebuttal Testimony of David Dettman

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El Sur Ranch Water Rights Hearing

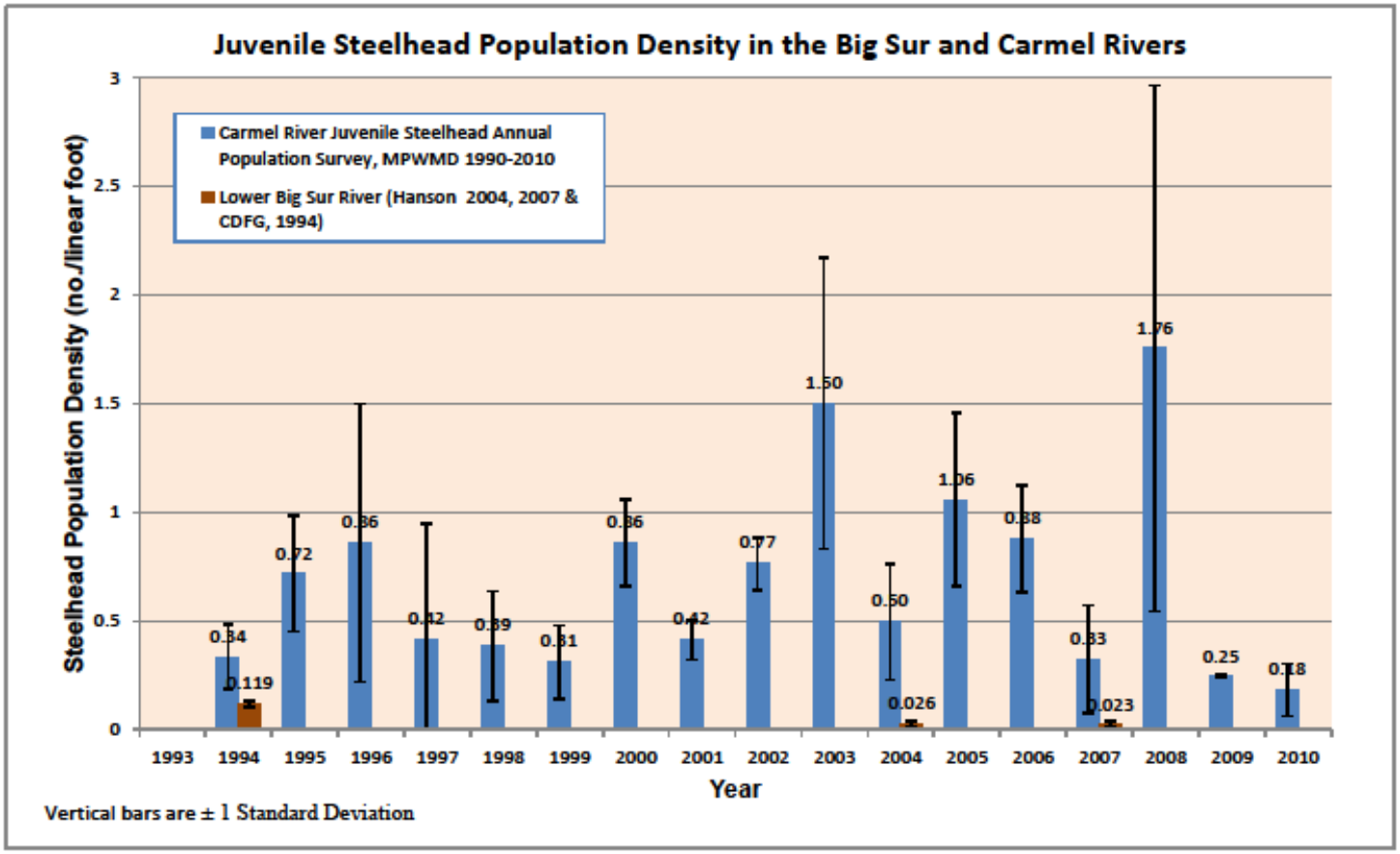
June 16-17, 2011

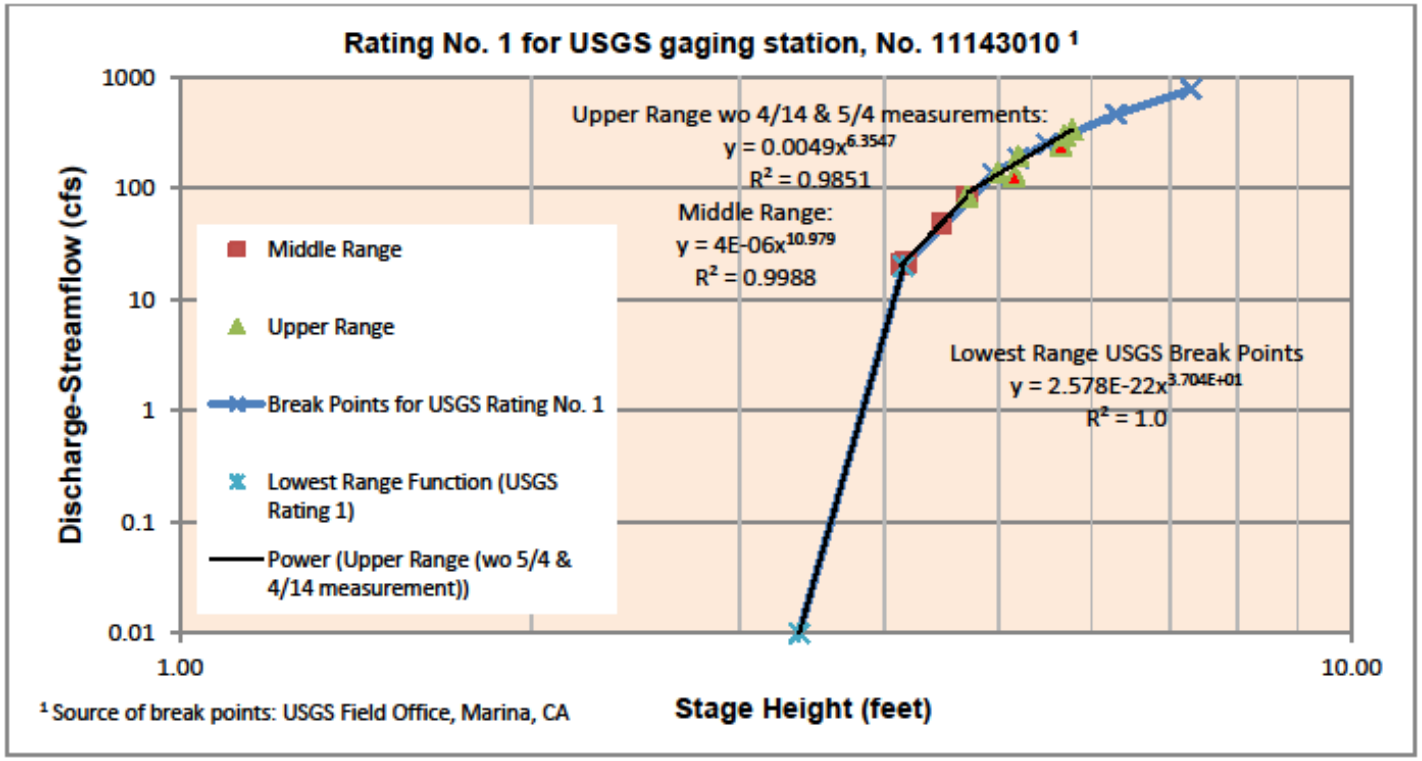
Number and density (number per foot) of juvenile steelhead/rainbow trout observed in each reach of the lower Big Sur River and Lagoon surveyed during 2004 and 2007. Source: ESR-21, Table 9 and ESR-24, Appendix B, unlabeled table, last page.

	Number of Steelhead Observed							
Reach	Lagoon	2/B	3/C	4/D	5/E	6/F	7/C	8/H
27-Jul-04	272	43	7	77	2	4	1	11
16-Oct-04	299	0	2	23	12	9	2	11
22-Oct-07	270	24	7	10	16	50	3	0
Average Abundance:	280	22	5	37	10	21	2	7
Length (ft)	553	738	1024	197	950	1146	312	306
Population Density Index: fish per linear foot								
27-Jul-04	0.492	0.058	0.007	0.391	0.002	0.003	0.003	0.036
16-Oct-04	0.541	0.000	0.002	0.117	0.013	0.008	0.006	0.036
22-Oct-07	0.488	0.033	0.007	0.051	0.017	0.044	0.010	0.000
Averages:	0.507	0.030	0.005	0.186	0.011	0.018	0.006	0.024

Annual Aveages overall river reaches:	Average	Stdev
27-Jul-04	0.072	0.142
16-Oct-04	0.026	0.042
22-Oct-07	0.023	0.020

Exhibit CSPA/CBD-107




Rating No. 1 for USGS gaging station, No. 11143010 [1]
Discharge-Streamflow (cfs)
1000
100
10
1
0.1
0.01
1.00
10.00
Stage Height (feet)
Upper Range wo 4/14 & 5/4 measurements:
y = 0.0049x^6.3547
R² = 0.9851
Middle Range:
y = 4E-06x^10.979
R² = 0.9988
Lowest Range USGS Break Points
y = 2.578E-22x^3.704E+01
R² = 1.0
Middle Range
Upper Range
Break Points for USGS Rating No. 1
Lowest Range Function (USGS Rating 1)
Power (Upper Range (wo 5/4 & 4/14 measurement))
[1] Source of break points: USGS Field Office, Marina, CA

Simulated effect of incremental stage changes of 0.04 feet on discharge at the USGS gaging station No. 11143010 and flows below 20 cfs.

Break Points for USGS Rating No. 1		Simulated Gage Height [2]	Predicted Flow (cfs)[3]	Delta $Q_{-.04}$	% Reduction
Gage Height [1]	Discharge (cfs) [1]				
3.38	0.01	3.38	0.01		
4.15	20	4.15	20.01		
4.95	134	4.12	15.30	4.72	-31%
5.2	185	4.08	10.66	4.64	-44%
5.5	250	4.04	7.40	3.26	-44%
6.3	464	4	5.12	2.28	-45%
7.3	778	3.96	3.53	1.59	-45%
		3.92	2.42	1.11	-46%
		3.88	1.66	0.77	-46%
		3.84	1.13	0.53	-47%
		3.8	0.77	0.36	-47%

[1] Source: Personal Communication, June 8, 2011, Jeff West; USGS hydrologist, USGS Field Office, Marina, CA.

[2] Simulated gage height below 4.12 based on progression of -0.04 foot change in stream elevation, described by P.D. Horton (Exhibit ESR-2) as the theoretical stage reduction associated with El Sur Ranch well production during 2007.

[3] Predicted discharge based on USGS Rating No. 1 for lowest range of break points between 0.01 cfs @ Gage Height 3.38 feet and 20.0 cfs @ Gage Height 4.15 feet

Figure 11: Number of Adult Steelhead Migrating Downstream in Waddell Creek during weekly periods, 1933-1942.

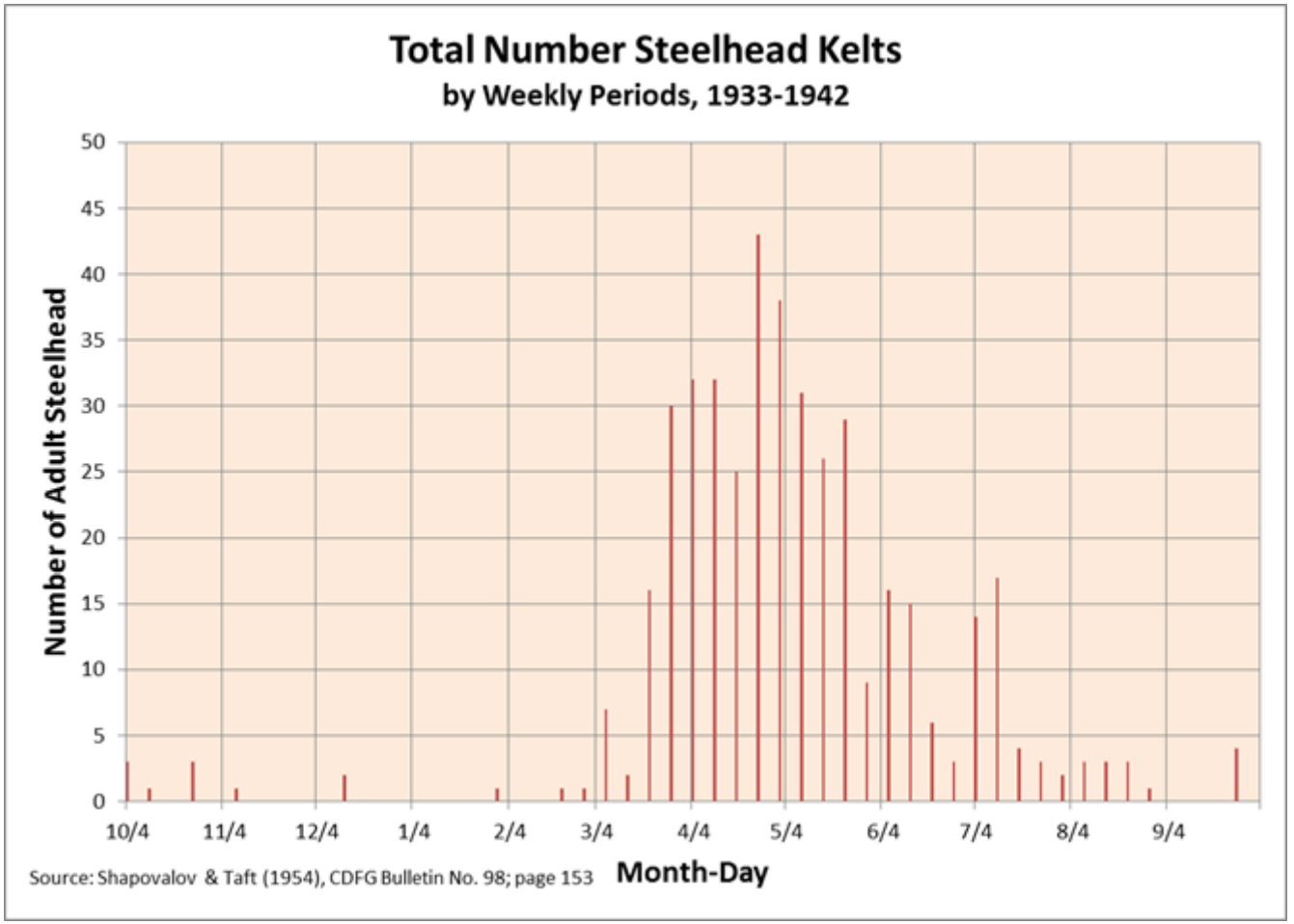


Figure 1: Dissolved oxygen (mg/L) measured at ten sites within the Santa Lucia region, extending from southernmost Salmon Creek to northernmost San Jose Creek, during the period 2001-2009.

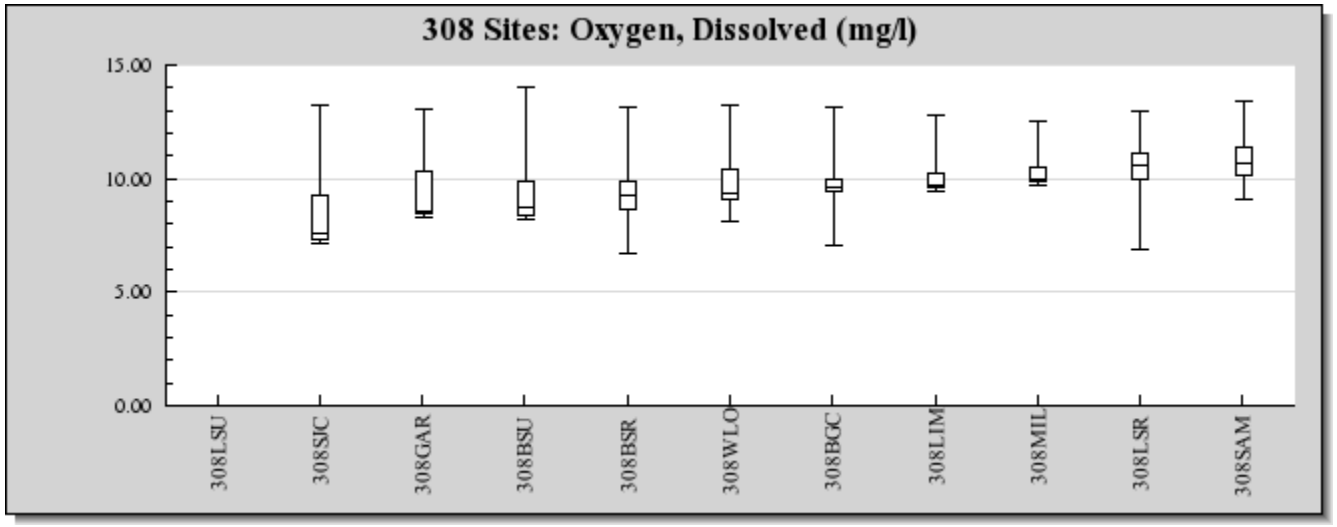


Figure 2: Dissolved oxygen (mg/L) measured at Andrew Molera State Park during the period 2001-2009.

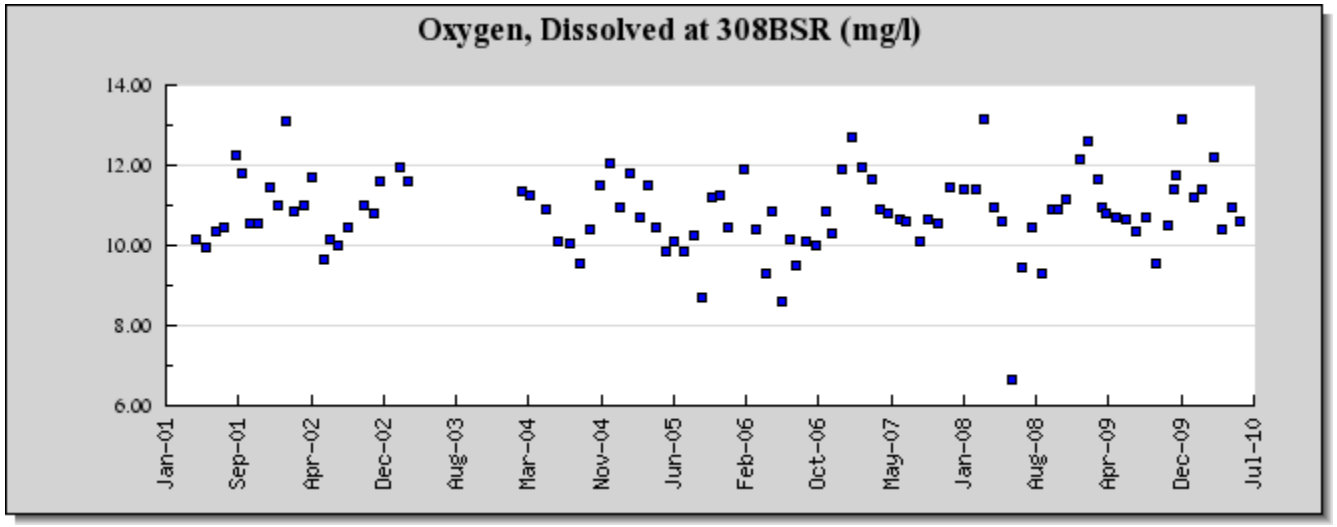


Figure 3: Dissolved oxygen (Percent Saturation) measured at Andrew Molera State Park during the period 2001-2009.

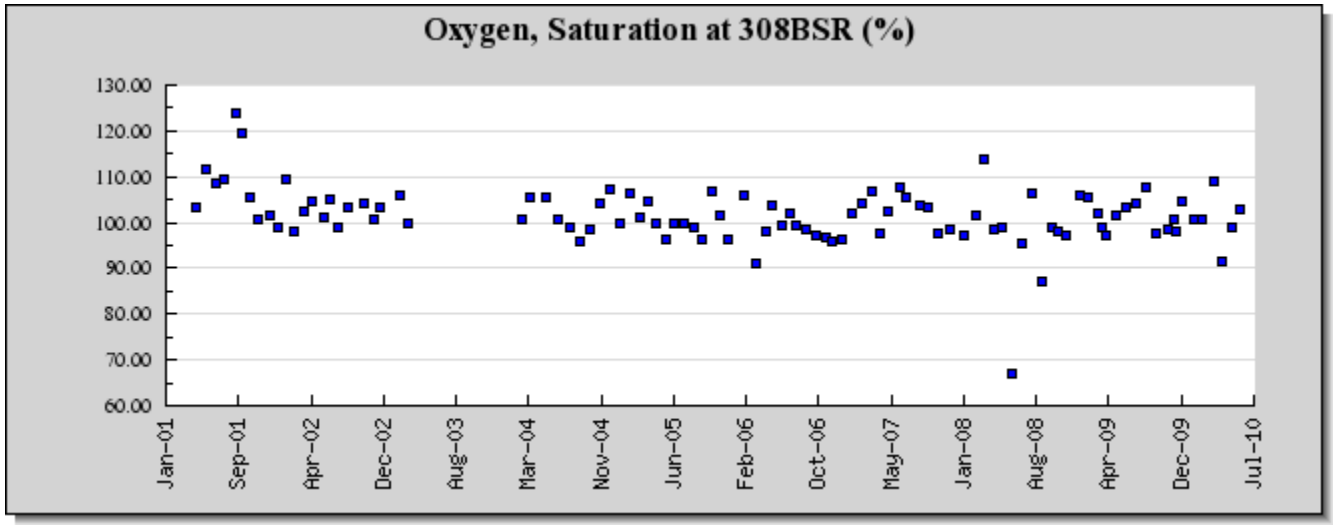


Figure 4: Instantaneous measurements of dissolved oxygen at the reference Station VT-1 and the lower footbridge located adjacent to parking lot at Andrew Molera State Park picnic grounds.

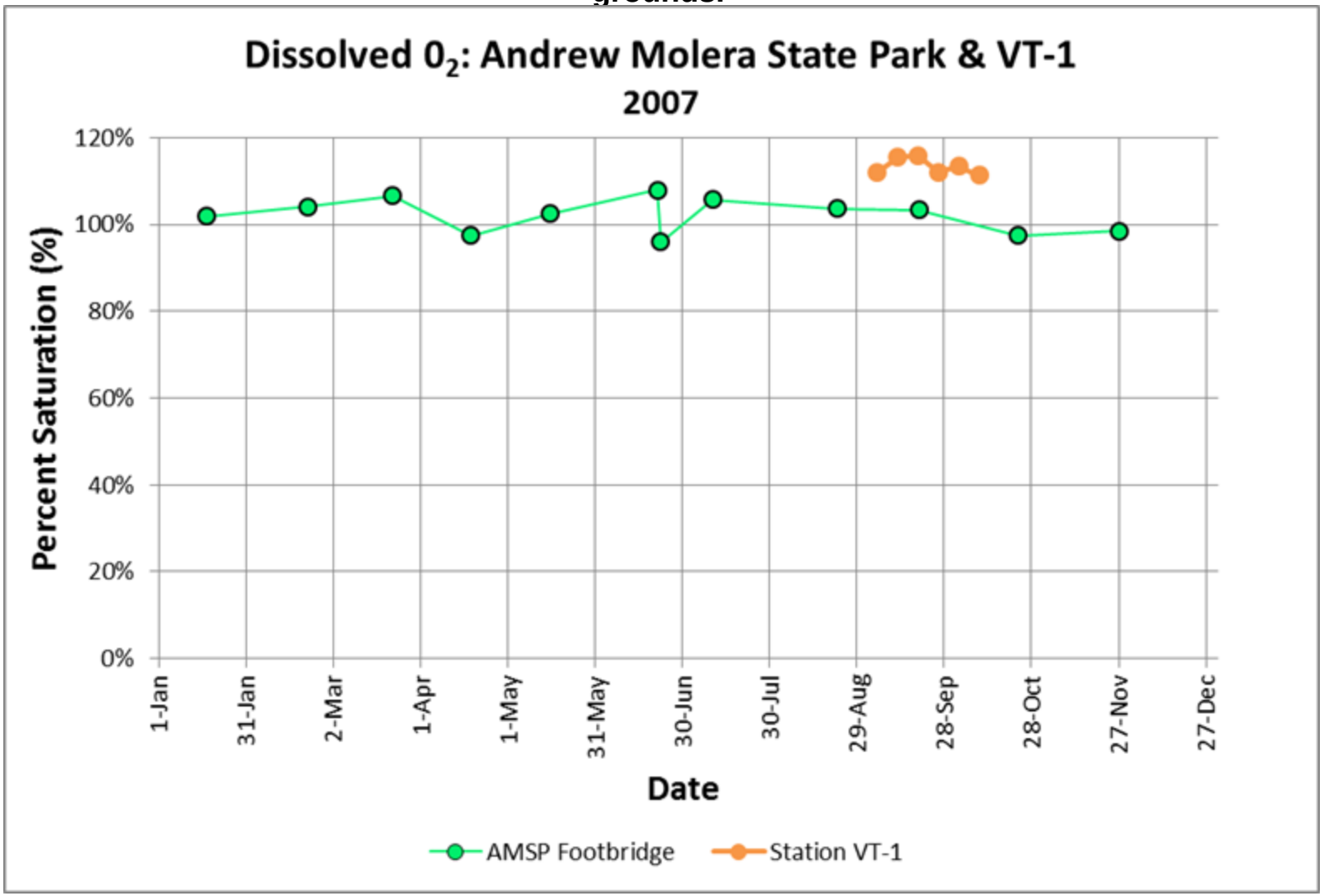


Figure 5: Mean daily dissolved oxygen levels at uppermost monitoring stations in the ESR Study Area, including Stations P4LS, P4RS, P4uLS, P5LS and reference Station VT-1 during September 2007 ESR pump tests

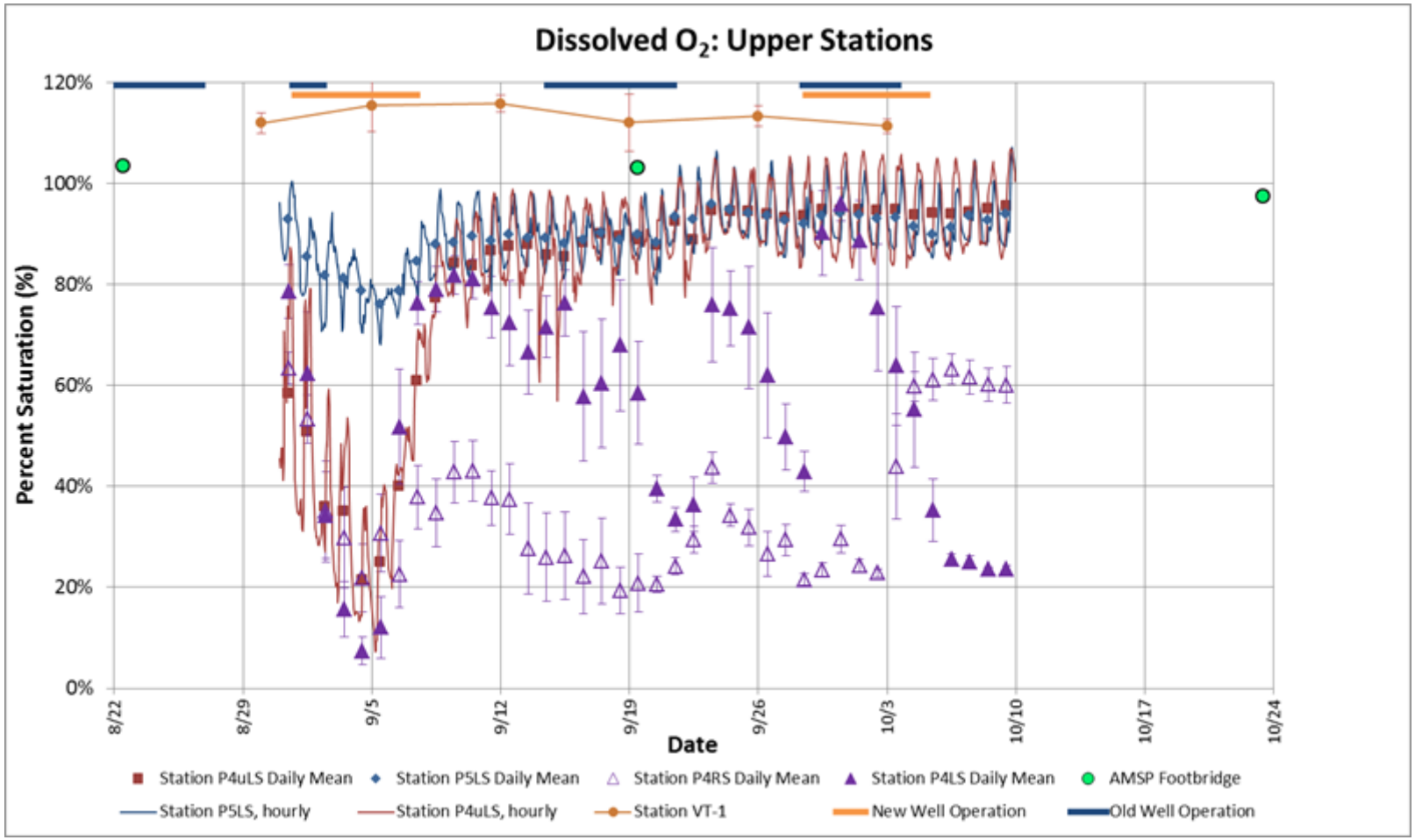


Figure 6: Mean daily dissolved oxygen levels at lower monitoring stations in the ESR Study Area, including Stations P3LS, P3RS, P2LS, P2RS and reference Station VT-1 during September 2007 ESR pump tests.

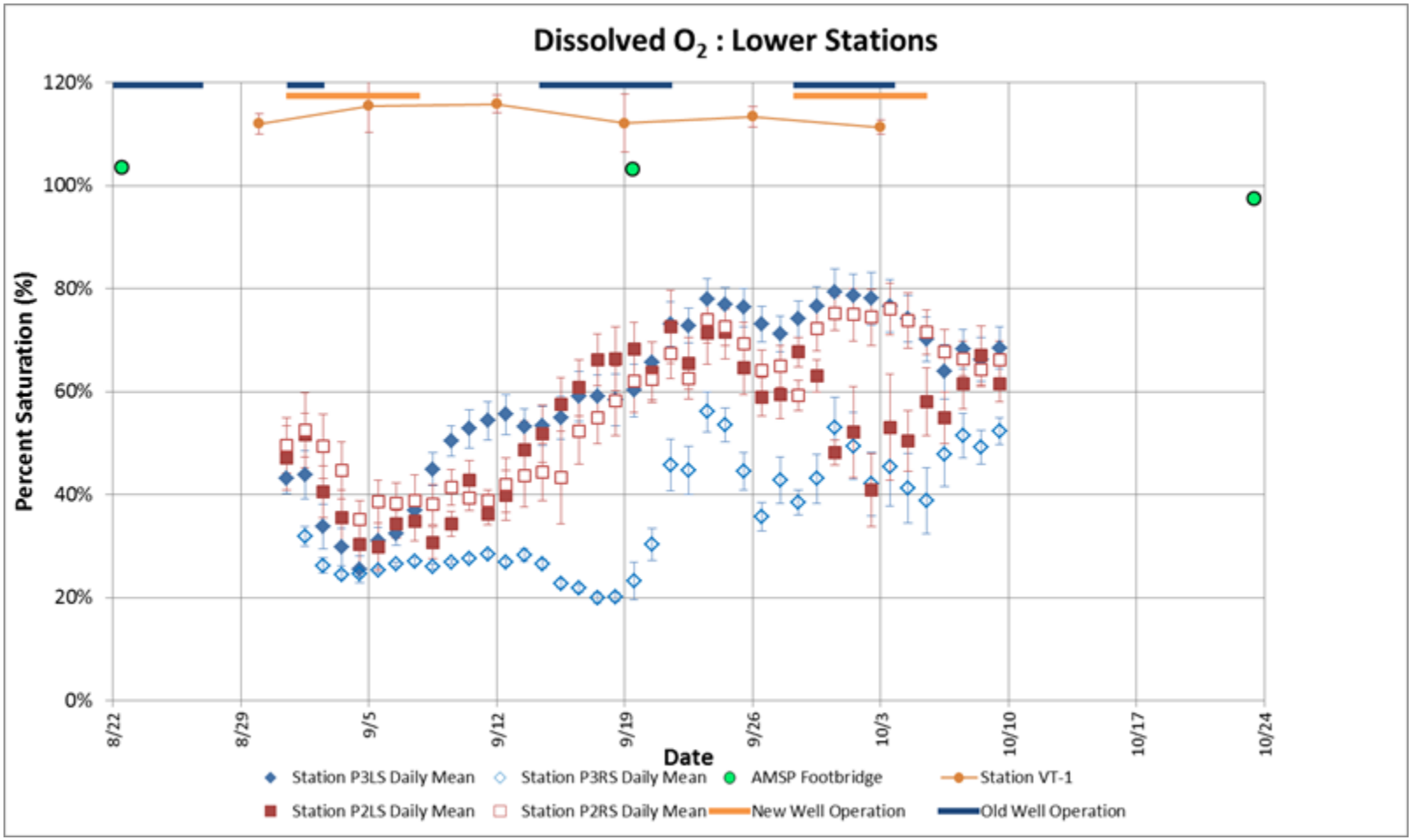


Figure 7: Diurnal fluctuation in dissolved oxygen measured upstream of Study Area during summers 2002, 2004-2007.

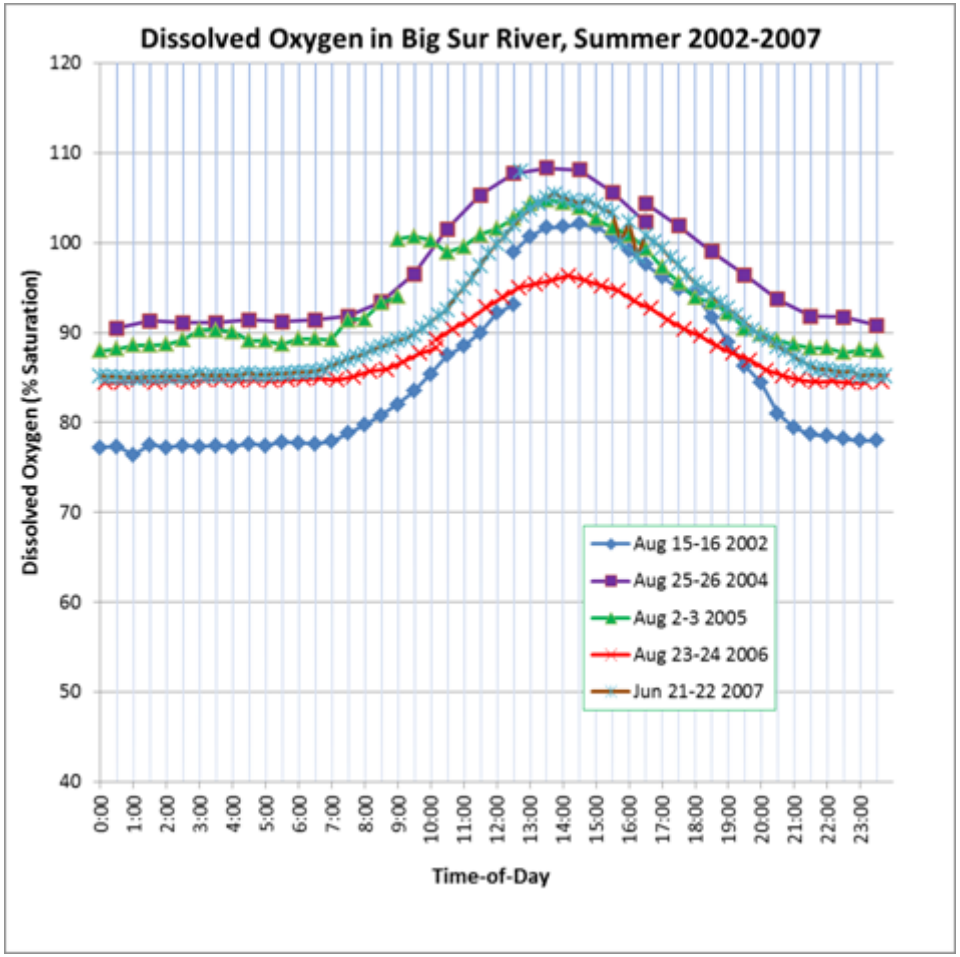


Figure 8: Diurnal dissolved oxygen fluctuation in the Big Sur River at selected ESR monitoring stations during ESR well pump tests, September 5-7(blue), September 19-21(green), and October 1-3, 2007(red). Spot measurements of DO at reference site VT-1 are plotted as green (9/19), blue (9/5) or red (10/3) squares.

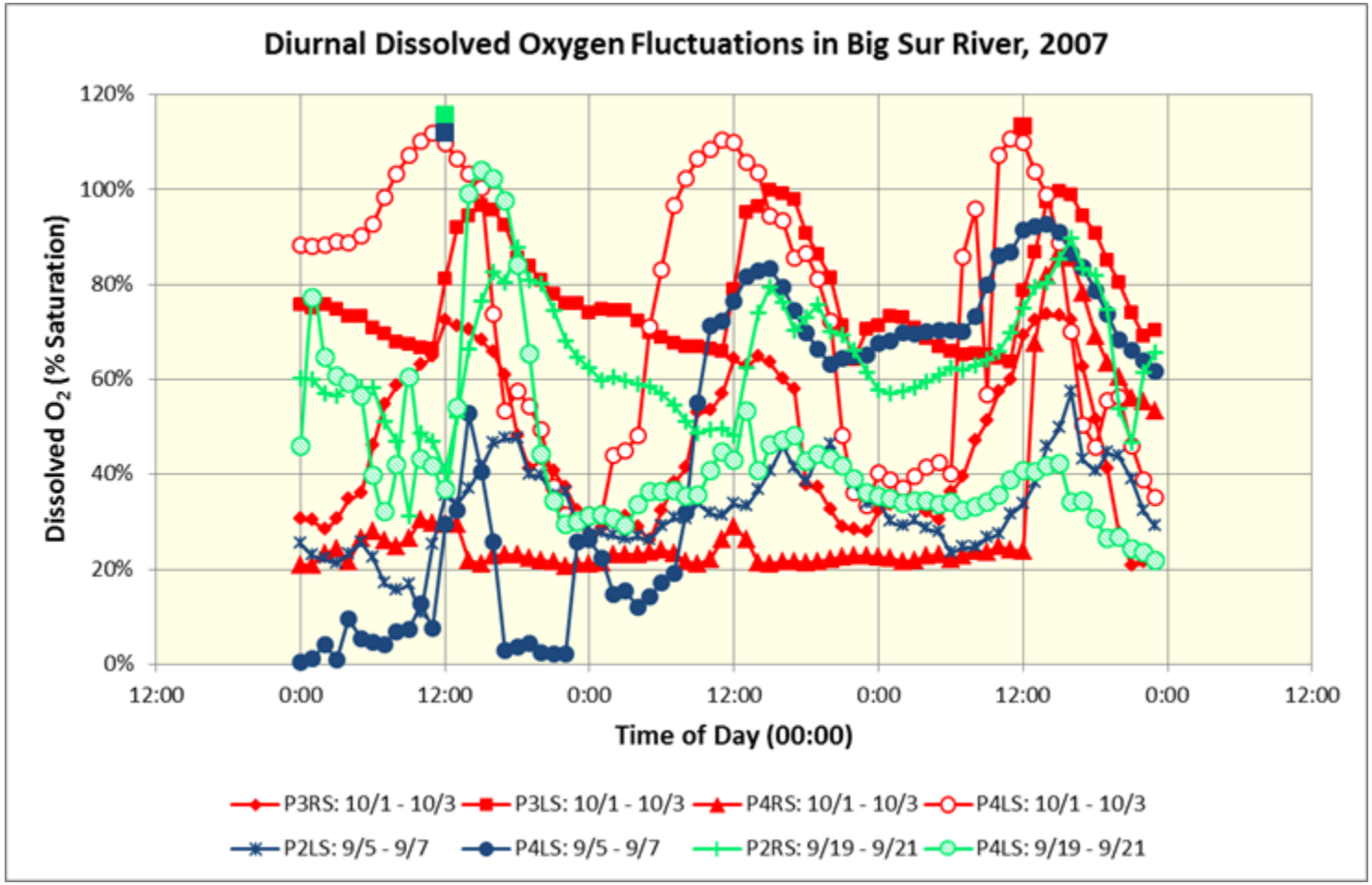


Figure 9: Dissolved oxygen levels measured in El Sur Ranch well water during late May through October 2006.

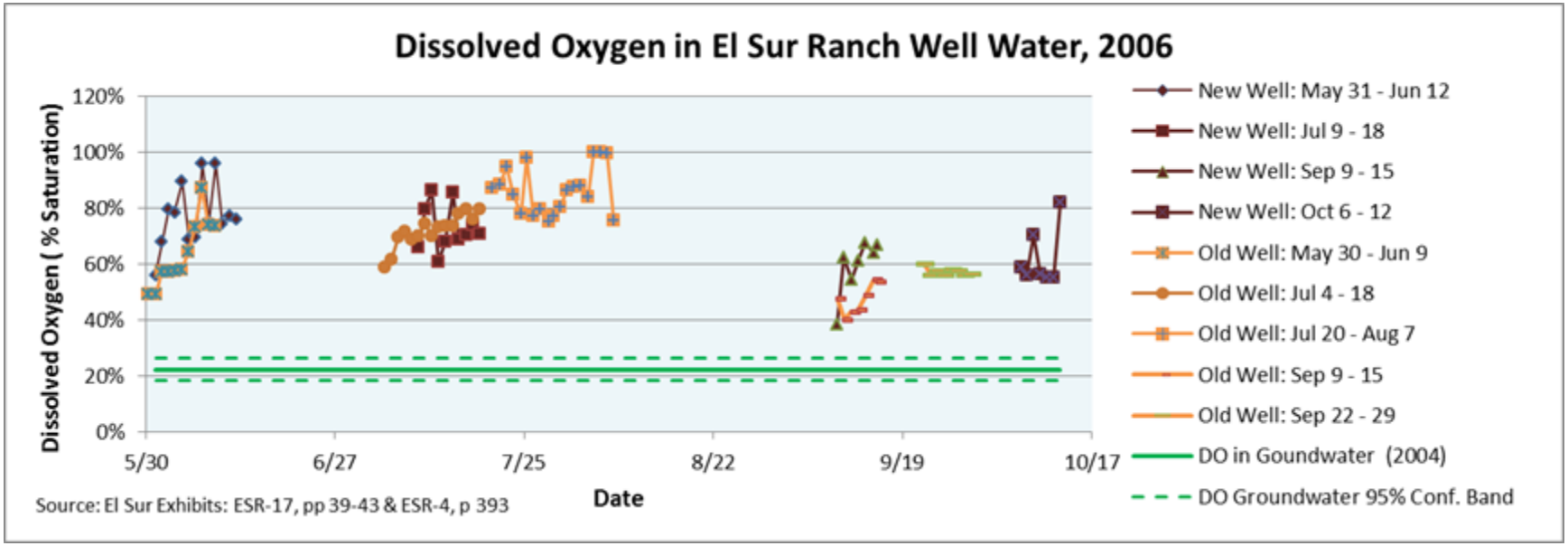


Figure 10: Dissolved oxygen levels measured in El Sur Ranch well water during late May through October 2007.