

Channelkeeper nutrient results from the June sampling have not yet been posted, but I do have nitrate and phosphate concentrations from samples collected by Kristi during the algal cover and density survey. Results for the lower river, for samples collected from May 17 through May 23 (June 4<sup>th</sup> for VR06) are shown on the graph. I've continued the Channelkeeper numbering system for samples from the new locations: VR03.5 is on the Ventura, just above the Canada Larga confluence (0.5 km below the treatment plant outfall); VR03.9 is just above the plant, about 1.3 km below VR06; VR06.2 is just below the San Antonio Confluence; and VR06.3 just above it. The San Antonio confluence is 3.4 km above VR06.

The data show nitrate continuing to decrease at all locations below the plant (01, 02 & 03), and at Foster Park (VR06, where the decrease still remains approximately linear). Foster Park continues to have higher concentrations of nitrate than at VR03. Most interestingly, nitrate just above the San Antonio confluence (VR06.3) is roughly the same as just below the treatment plant (74.2 vs. 74.7  $\mu$ M). This reinforces my earlier conclusion as to the cause of dense algal growth at this location. Both VR03.9 and VR06.2 had higher nitrate concentrations than any of the normally monitored sites below them, yet algal growth at these sites is much less vibrant (it's mainly in stages of advanced decay) than at VR03 through 01. I regard this as supporting evidence for my contention that nutrient fluxes are more important than nutrient concentrations – both these reaches are characterized by low velocity flows.

If we regard the decrease in nitrate concentrations between successive sites as a measure of algal uptake we can estimate that algal production noticeably decreased between VR03 and VR02 during the first two weeks in May (the concentration decrease minimizes the actual flux decrease – a truer measure of uptake – since flows continued to fall during this interval).

Note that the change in concentration between VR03.5 and VR03 is actually greater than the change between VR03 and VR01 (36.6 vs. 29.7  $\mu$ M), i.e., uptake in the 2.4 km reach below the treatment plant was greater than in the 4.2 km below VR03. This indicates far greater mid-May algal productivity above VR03, and accounts for the relatively low nitrate concentration found at VR03. Using similar reasoning, the loss of 30.8  $\mu$ M of nitrate in the 5 km between VR06.3 and VR03.9 (from just above the S. Antonio confluence to just above the treatment plant) indicates only slightly less uptake in this reach than on the lower river (VR03-01).



On the Matilija branches and at VR12.9 (just above the concrete low-water crossing on Camino Cielo, 0.5 km below the Matilija/N.F. Matilija junction) nitrate concentrations are so low that I've shown them on a log scale. The up tick in VR14 nitrogen that I talked about in my last report has continued, but a similar response at VR15 remains missing. Kristi's samples were collected on either the 3<sup>rd</sup> or 4<sup>th</sup> of June. Perhaps the only other thing of interest is if we examine the nitrate/phosphate ratio there is now a relative abundance of phosphorus: the ratios range from 1 to 3 to 6 for VR15, VR12.9 and VR14, respectively. Almost all the other Ventura River locations still have an abundance of nitrate, except perhaps at VR01 where the nitrate/phosphate ratio has decreased to 11. TDN and TDP results for these samples are not yet available.

Finally, for the sake of completeness, the remaining two sites, VR04 and VR07, are shown on the next page. I've given them these numbers even though the sampled reaches are slightly below the Channelkeeper locations – both of these reaches are just upstream from their respective confluences with the Ventura River.



Concentrations at VR07 continued to decline and nitrate is now down to 7.5  $\mu$ M. It was practically zero at Canada Larga (0.7  $\mu$ M was reported, just above the 0.5  $\mu$ M detection limit). These samples date from May 16<sup>th</sup>. Canada Large had extremely low flow on that day and it has since completely dried. The lower San Antonio at VR07 continues to flow and was sampled for max/min DO concentrations on June 17<sup>th</sup>. VR07 is another location where there is a relative abundance of phosphate over nitrate (a ratio of 17). As the algal season continues, and as flows continue to decrease, I fully expect nitrate to totally disappear at this location; it will probably also disappear at VR01.