On August 27th Ben and I collected full-suite samples (metals, pesticides, etc., etc.) from the Ventura River, and its San Antonio tributary. We didn't see anything memorable, except at VR03.5, the location just upstream of the Canada Large confluence and a short distance downstream from the Ojai Sewage Treatment Plant.

Back in July I reported (*A July Look at Algae on the Ventura.pdf*) on the death of cladophora (perhaps I'm over-dramatizing here) and it's replacement by diatoms at locations below the treatment plant. This was nowhere more evident than at VR03.5, the site closest to the plant. I speculated that something in plant effluent could have brought this about, and that Julie and I observed something similar happen back in 2003. In another report (*Revisiting the Lower Ventura in 2003.pdf*) I mentioned that both the 2003 and July 2008 occurrences took place when daily Foster Park outflows were around 12 cfs. In other words, if we estimate average daily treatment plant output at 2.35 cfs, when effluent made up roughly 16 % of flow below the plant.

Be that as it may, on the 27th Ben and I saw lots of dead aquatic vegetation at VR03.5. There were noticeable changes since I last visited this location on July 25th, it looked a hell of a lot like someone got carried away with a sprayer filled with Roundup. Figure 1 gives a close-up view of the changes between the two dates. The aquatic plants are probably watercress. I say "probably" because I can not positively identify them in the photos, but they appear to be watercress (identifiable dead stalks were a mixture of watercress and the veronica that's also quite common). Figure 2 is a more distant view of what I'm calling the "island." The river splits upstream of this location leaving this relatively marshy center area of aquatic vegetation.

Veronica plants were also relatively hard hit (older dead plants are now standing in the center of patches of new growth), but not as bad as watercress; I also noted a few dead willows. But Ludwigia and arundo seemed to have survived quite well, thank you. Whatever happened would seem to have taken place a while back; between dead patches of aquatic plants lots of new watercress are beginning to appear (Figure 3). Also interesting, in the main channel cladophora seems to be making something of a comeback. New growth is beginning to form on patches of new dead stuff (Figure 3). Floating algae, draped around rocks and such, was also, almost invariably, cladophora – this differs from other locations where any new green growth is predominately enteromorpha. On the island, and in quiescent pools along river edges, spirogyra is ever-present, as is duckweed.

Perhaps I suffer from an overactive imagination, but it does appear plausible that a pulse of something in the effluent could have caused the cladophora die-off, and a similar, more concentrated, pulse, or a pulse of some totally different constituent, a later aquatic vegetation kill. That both the aquatic plants and the alga most affected are now reappearing, indicates that it cannot be any relatively consistent constituent. At present, effluent makes up more than 30 % of the flow below the plant.

Elsewhere on the 27th enteromorpha was the dominant alga at VR06.3 (above the San Antonio confluence), and the berm at the lagoon mouth remains breached (or is continually rebreached). Planktonic algae continue to dominate in the lagoon, although where tidal surges (which appear to be relatively strong) have exposed cobbles on the lagoon bottom, enteromorpha is growing. (Tidal surges appear to be preventing any formation of benthic algae on bottom muds.)



Figure 1. VR03.5, the same rock group is shown in both photos: above – July 25, 2008; below – August 27. Note that the aquatic plants (probably watercress) are now dead.



Figure 2. VR03.5, a more distant view of the "island": above –June 17, 2008; below – August 27, 2008. I've circled the rock group shown in Figure 1 in both photos.



Figure 3. VR03.5, other changes noted on August 27th: above – spyrogyra and new watercress (with a duckweed dusting) growing between patches of dead vegetation; below – cladophora is making a comeback in the main channel – new growth on old dead patches; or is it resurrection?