

## **EXECUTIVE SUMMARY**

Santa Barbara Channelkeeper, along with the Ventura Chapter of the Surfrider Foundation, launched the Ventura Stream Team water quality monitoring program in January 2001. The program has three goals: to collect baseline data on the health of the Ventura River watershed; to educate and train a force of volunteer watershed stewards; and to identify sources of pollution in the watershed. Over the past five years, more than 350 local citizens have participated as volunteers in the program, contributing in total more than 3,600 hours of their time. Each month, these volunteers collected valuable water quality data at 15 sites on the Ventura River and its major tributaries: San Antonio, Stewart, Thacher, Canada Larga, and Matilija creeks. At each site, volunteers took in-stream measurements on temperature, dissolved oxygen, pH, turbidity, conductivity, and flow, and collected samples that were later analyzed in the laboratory for bacteria and nutrients. Visual observations, such as algae coverage and weather conditions, were also recorded at every site.

The data collected by Ventura Stream Team serve as an excellent source of information about normal, or baseline, conditions throughout the Ventura River watershed. In the future, these data can be used as a yardstick to compare how water quality conditions change over time. In addition, the data have enabled Channelkeeper to identify problem areas throughout the watershed, which can also be used to guide future clean-up and restoration efforts by environmental groups, regulatory agencies and other stakeholders.

The most egregious problem that Channelkeeper identified through its Ventura Stream Team monitoring efforts was that of nutrient pollution. Throughout the five years of sampling, mean nitrate and phosphate levels exceeded the limits recommended by the US Environmental Protection Agency (EPA) at most sampling sites. With nitrate, the most serious problems were seen in two distinct zones of the watershed: the lower river and the San Antonio Creek tributary. High nitrate levels on the lower river are probably the result of treated sewage effluent that enters the river upstream of the Ventura River at the Shell Road sampling site. On San Antonio Creek, which drains much of the Ojai area, high nitrate levels likely come from multiple sources, including animal waste from horse and cattle facilities, faulty septic systems, general urban nuisance flows, and fertilization and irrigation of golf courses, parks and landscaping. Phosphate presents a more complicated picture, as elevated phosphate levels are due somewhat to natural geologic conditions in the watershed and cannot necessarily be attributed to contamination. However, as with nitrate, the highest levels were seen on the lower river and along San Antonio Creek; treated sewage effluent (in the lower river) and animal waste from horse and cattle facilities are the most likely causes.

Ventura Stream Team sampling revealed a serious problem with bacteria levels in only one distinct watershed zone: the Canada Larga Creek tributary. While the three “indicator bacteria” that Channelkeeper tests for (total coliform, E.coli and enterococcus) are not usually harmful in and of themselves, they do indicate the possible presence of pathogenic bacteria, viruses, and protozoans. Results for all three tests from both the upper and lower Canada Larga sampling sites regularly exceeded public health limits set forth by local and federal regulatory agencies. While these standards are meant to protect public health from contact through recreational use of waterbodies, and these sampling sites are not commonly used for human recreation, it cannot be disputed that they do exhibit problems with bacterial contamination. On Canada Larga Creek, the most obvious cause of this contamination is animal waste, as the major land use in the area is cattle grazing. Although not as serious as the problem on Canada Larga Creek, the two sampling sites on San Antonio Creek also exhibit high enterococcus levels; possible causes include animal waste and faulty septic systems.

Other parameters measured by Ventura Stream Team provide additional information about these, and other water quality problems. One of the largest problems associated with high nutrient levels is over-growth of algae, which lowers dissolved oxygen levels and can subsequently harm or kill oxygen-dependent aquatic life. Evidence of this process (called eutrophication) has been found in Stream Team data. For example, high pH levels and extreme dissolved oxygen levels at many sites are indicative of excessive algal growth. High conductivity levels on Canada Larga Creek may signify other kinds of problems. Eroded soils from pastures, industrial nuisance flows, and a concrete channel above the Lower Canada Larga Creek sampling site may contribute to elevated conductivity there.

In light of the findings from the first five years of Ventura Stream Team's water quality monitoring efforts, Channelkeeper believes there is cause for concern and grounds for action to address the problems described above. Stretches of the Ventura River are already listed by the State of California as impaired, and the watershed is set to undergo major changes with the upcoming removal of the Matilija Dam. To mitigate existing and future water quality impairments in the watershed, Channelkeeper recommends that the following actions be taken:

- Regular monitoring efforts by Channelkeeper and other entities should be continued and expanded to assist regulatory agencies in their land use planning and water quality protection efforts.
- Specific pollution sources should be pinpointed by conducting creek walks, sampling at specific discharge points, and identifying the land uses associated with any contaminated discharges.
- Once specific sources are identified, Channelkeeper and other entities should reach out to the appropriate landowners to educate them about the problems of, and solutions to, the water quality issues associated with runoff and/or discharges from their properties.
- Regulatory agencies should strictly enforce water quality regulations and ordinances, including issuing fines or cease and desist orders when necessary.
- Regulatory agencies should scrutinize the results of monitoring conducted by the Ojai Valley Sanitary District to ensure compliance with its discharge permit.
- Regulatory agencies should continue to implement additional treatment methods, including active treatment systems such as ultraviolet and ozone systems, and best management practices (BMPs) such as vegetated swales, constructed wetlands, and permeable pavement, to remove pollutants before they contaminate waterbodies.
- Regulatory agencies should provide incentives to encourage developers to implement low-impact development BMPs in new residential and commercial developments or re-developments.

While this list of recommendations is by no means exhaustive, the implementation of these and related measures will help to reduce the pollution identified by Santa Barbara Channelkeeper's Ventura Stream Team water quality monitoring efforts.