

## Treatment Plant Upgrade Cleans Up River

For *the FLOW* (Winter 2010):

Our river has visibly, and aromatically, enjoyed dramatic improvement since last spring. Where for the past several years it has flowed murky, fusty-smelling and fishless, now native longfin dace can be seen darting over the stream bottom through the clear water, which doesn't have much of a smell even near the effluent discharge point in Rio Rico. This miracle came about because of a multi-year, multi-group effort, \$59 million in federal money, and the sophisticated sewage treatment technology all that work and money purchased.

A little background: although the Santa Cruz historically flowed year-round during most years in many places (note where the missions and military installations were established; that's where reliable water was), groundwater pumping drained the river dry by the 1960s. But by the 1970s, enough treated wastewater (effluent) was returned to the riverbed that the depleted aquifer under the river refilled, until once again we had a reliable surface flow.

However, that "effluent-dependent" flow was decidedly a mixed blessing. Excess nitrogen, especially in the form of ammonia, poured out of the treatment plant with the water and made life difficult for most of the river critters, including the Gila topminnow, a federally-endangered fish. It even seemed to make the trees grow too fast, possibly exposing them to disease. And of course, most of us draw our drinking water from the same aquifer that we share with the river. Although the treatment plant was not designed to remove excess nitrogen from effluent, its product was threatening both an endangered species and possibly our public health. Something had to be done.

And something was: many many meetings and a lawsuit later, the City of Nogales (which co-owns the plant and uses a small portion of the plant's capacity) anted up \$2 million and the federal Environmental Protection Agency dropped \$59 million on a major upgrade to the Nogales International Wastewater Treatment Plant. The newly upgraded facility uses an activated sludge process that removes nitrogen, and will even stop using chlorine (which can itself cause quality problems), instead disinfecting with ultraviolet lamps.

To give an indication of how well the new system works: FOSCR's RiverWatch water quality monitoring program had been detecting nitrogen levels up to 5 parts per million, until the upgrade. Now levels are ten times less!

The river still has many quality problems, including unacceptable levels of *E. coli*, a bacteria that lives in mammal guts (indicator of fecal pollution), and still-unknown amounts of "emerging contaminants," such as estrogens and other

pharmaceuticals, flame retardants, and many other man-made compounds that seem to persist even through sewage treatment. FOSCR is working with partners to explore both of these pollutant types. We need to know what's there, what its impacts might be, and where it comes from, so we can help correct the problems. It's a long haul, but as the story of the treatment plant upgrade illustrates, FOSCR is here for the long haul, and with the support of our members, we will continue to help improve the quality of our river.