

# Currents

Santa Fe Watershed Association

Vol. 22 No. 1 Fall 2018

## From the Executive Director: We Are Well Informed & Passionate

A City Water Utility employee recently asked us what we wanted from all of our gesticulations, questions, and proposals. It was a simple answer: “We want water flowing again in our Santa Fe River.” He replied that there just isn’t enough water for the people of Santa Fe and the Santa Fe River..., to which we responded that we *can* have both.

There’s a catch here: we have to *want* both. We have to care whether there is water in our water lines *and* water in the River. And it sure helps to be well informed. In a recent conversation, former Mayor David Coss reminded us that it takes only one or two passionate people to bring an idea to fruition.

We volunteer to be those passionate people. We volunteer to challenge any foregone conclusions from studies, and to question the process and the results. We volunteer to show up on a Monday or Tuesday or Wednesday evening at City Hall to hear what the consultants and staff have to say. After all, our city councilors and mayor all show up, bless them. We volunteer to check the rain gardens (see *Currents* 2017 and page 7 of this issue) in the middle of the storm to see if they are really working as we think they should. We volunteer to check where that weird green water is coming from that is going into the River.

So while restoration, education, and stewardship are integral to any group that works for the “health and vibrancy” of the Santa Fe River watershed, advocacy is the important part – it stands on the shoulders of all of our other work, education and enjoyment. Sharing what we have learned from our programs’ successes and shortfalls means that we talk with everyone we can – and advocate for what we believe is the best course of action.

We can no longer sit on the banks of the river and watch; we volunteer to be part of the conversation – and Santa Fe’s future.

Heck, passion is the easy part.



*Andy Otto, SFWA Executive Director*



*Santa Fe residents join SFWA to learn about the rain garden at the intersection of West Alameda and Sicomoro Street (see page 7).*



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# From the President: We are Committed to Preserving and Managing Our Water

As days shorten and monsoon rains subside, thoughts turn to preserving the harvest from drought-stressed fields, and to what little water is available. Here in Santa Fe, we are experiencing extreme drought and record-breaking heat. The Santa Fe River, for example, reached a low of under two cubic feet per second (cfs) – less than half of average flow.

*We continue to advocate for a “wet” river, in part because it is one of the best ways to replenish the aquifer.*

Adaptation to such conditions has roots far back in prehistory. Ancestral Pueblo Indians resorted to unique methods of capturing, preserving and managing water, some of which are still used today. During our first “Talk and Tour” event, September 14 and 15, Santa Fe Watershed Association (SFWA) members and non-members were treated to a fascinating talk on this topic by Dr. Michael Aiuvalasit, Ph.D., followed by a field trip to see these archaeological water-control features.

The resourcefulness of those who preceded us, armed with limited technology, is remarkable. They adapted to climate change with minimal tools and maximum intelligence. Solutions were surprisingly simple, yet effective. The drought of their era persisted, however, and worsened into what we refer to as “extreme drought,” and even their water-management methods were unable to supply sufficient water to crops and people. The strategy for some was to migrate. People of the northern pueblos didn’t move far, gravitating from the Pajarito Plateau to along the Rio Grande, guaranteeing water for survival. Their strategy worked, as they still reside along the Rio Grande today.

Today, we are protected from feeling the harshest impacts of drought by technological advances that were not available to the Ancestral Puebloans. Most people, though clearly aware of the extreme heat, still obtain water in an instant

from the tap without serious thought to where the water is actually coming from and whether enough water is available to last through generations. We are aware of surface water – the Santa Fe River, Rio Grande, Rio Pecos, Rio Chama. Many are also aware that up to 40% of our drinking water comes from river water stored in Nichols and McClure reservoirs of the Santa Fe River.

The remainder of our drinking water comes from the Rio Grande Buckman diversion, essentially surface water, and from deep wells that access subsurface water or aquifers.

Whereas most people appreciate the importance of surface water, aquifers remain enigmatic. Simply speaking, aquifers are subsurface accumulations of water that percolates from the surface down to impermeable layers of rock or clay. Aquifers act as subsurface reservoirs. The amount and sustainability of water in aquifers are subject not only to prolonged drought, but also to increases in population, development, unmanaged water use, and stormwater runoff.

During drought, as surface water diminishes, so do aquifers. We advocate for preserving our rivers and springs, but we should also advocate for preserving our aquifers, even though we can’t see them. SFWA has initiated methods to reduce the loss of aquifer water, such as building rain gardens to capture street runoff (stormwater), planting native vegetation, and building one-rock dams across small waterways to slow the flow of water allowing it to sink below the surface. SFWA also helped establish the “Living River” ordinance which guarantees flow in the Santa Fe River provided sufficient water is available. We continue to advocate for a “wet” river, in part because it is one of the best ways to replenish the aquifer.

Saved, slowed, and standing water seeps into the ground, thereby replenishing aquifers. Such simple techniques are reminiscent of techniques used by the Ancestral Puebloans to capture surface water. Complex technologies for accessing water are necessary for survival of the huge population we have today, but prehistoric techniques are equally important – and can easily be put into practice by you and me.



*Janet McVickar, SFWA President*

**THE MISSION** of the Santa Fe Watershed Association is to protect and restore the health and vibrancy of the Santa Fe River and its watershed for the benefit of people and the environment. We achieve this through education, restoration, stewardship and advocacy. From the river’s headwaters to the Rio Grande, we honor the connection of people and the watershed.

*(continued on page 3)*



# We Are Advocating for a Living River in a Healthy Watershed

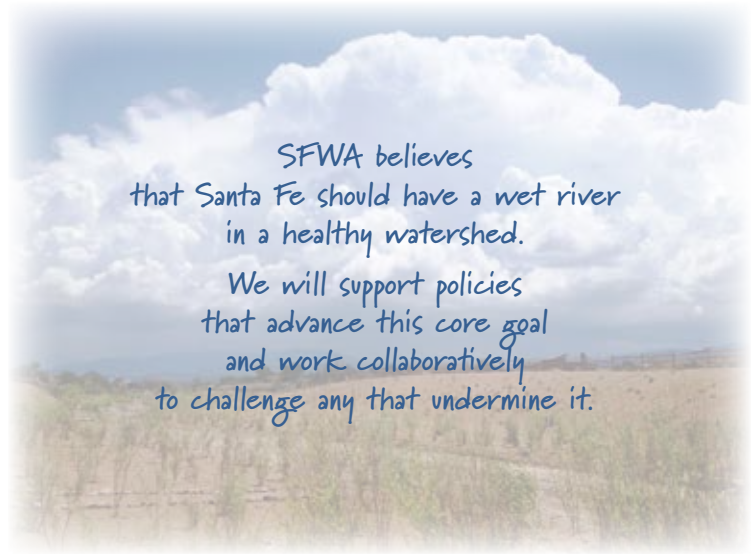
In our mission statement, the Santa Fe Watershed Association (SFWA) lists four strategies that we use to accomplish our goal of protecting and restoring the Santa Fe River and its watershed: education, restoration, stewardship, and advocacy.

The “advocacy” piece involves working for the adoption and implementation of public policies that are in the best interest of our river and watershed, and that will help make our community more environmentally sustainable over the long term.

For example, when SFWA was founded, our primary focus was advocating with the U.S. Forest Service and the City of Santa Fe for better management of the forests in our upper watershed. We helped create the policies and plans that led to selective thinning and restoration activities that are creating a healthier forest and reducing the risk of catastrophic fire around the reservoirs that supply 40% of Santa Fe’s drinking water.

SFWA’s most prominent advocacy accomplishment has been the Living River ordinance, which dedicates up to 1,000 acre-feet of water each year for flows in the Santa Fe River. For many years, SFWA staff and board members facilitated conversations with the mayor, City Council, and members of the public about how Santa Fe could balance its water use to provide for both community needs and river flows. In 2011, SFWA staff and board members served on a small working group that developed a proposal for annual river releases, timed to match the natural flows needed by plants and wildlife, as well as to provide water for recreation and community celebrations like the annual San Isidro river blessing. On February 29, 2012, SFWA supporters flooded the City Council meeting and spoke passionately about the value of the river in their lives. The Living River ordinance passed unanimously, making Santa Fe the first community in New Mexico to dedicate water to its river.

Now, in addition to our ongoing work to make sure that the Living River policy is maintained and strengthened, SFWA’s board is exploring what other policies we should be championing on behalf of our river and watershed.



For example, when Santa Feans reduce their personal water use, could they dedicate some portion of the water they save to river flows or other environmental purposes? Could we improve vegetation management along the river corridor to enhance wildlife habitat and watershed health? Could we improve aquifer-recharge policies and store more of the water that falls as rain? Are there policies that our local governments could adopt to reduce pollution in our rivers and arroyos?

The board began its policy-development process by committing to a core principle that will guide all of our advocacy work: “SFWA believes that Santa Fe should have a wet river in a healthy watershed. We will support policies that advance this core goal and work collaboratively to challenge any that undermine it.”

We invite you to join this ongoing conversation. If there are issues you would like to see SFWA advocating for, or if you would like to be part of the board’s advocacy working group, please let us know. The more voices we have at the table, the better job we’ll be able to do of making sure that our local governments embrace policies that care for our land, water and natural environment.

— Kristina G. Fisher  
*SFWA Board Member*

## From the President *(cont. from page 2)*

Looking to the future, the City of Santa Fe is beginning to address the complex issues of unmanaged water use. SFWA is interested in collaborating with the City to address these issues through education and advocacy. One way to address unmanaged water use is to introduce better ways to track city and county water use. SFWA envisions partnering with Santa Fe City and County, as well as other interested parties, to

work toward greater water-use management, enabling our community to persist through extreme droughts and to tie development to more efficient water-management strategies.

— Janet McVickar  
*SFWA President*

# Waterborne Illnesses Pose Serious Risks for Recreationists

The risk of foodborne illness has attracted plenty of media attention, along with how to guard against becoming sick. That's because there are some 50 million instances per year in the United States. But would it surprise you to learn that twice as many people get sick from activities like swimming, paddling, boating and fishing?<sup>1</sup> Infections affect the gut, respiratory system, ears, eyes and skin. This topic receives surprisingly little attention given its greater prevalence.

The New Mexico Environment Department Surface Water Quality Bureau (SWQB) periodically monitors one cause of "recreational waterborne illness" (RWI) – *Escherichia coli* (*E. coli*), a bacterium that is meant to live in the colon but which can cause severe intestinal illness, and even death, when ingested. The SWQB's 2009 survey of the Rio Grande watershed from the Colorado border to Cochiti Reservoir found that *E. coli* counts exceeded water-quality criteria in the Upper Rio Grande and several tributaries.

Even closer to home, SWQB monitoring of the Santa Fe River – from Cerro Gordo Road to Cienegia Creek – between 2012 and 2016 found that 30% of 51 river-water samples exceeded water-quality criteria for *E. coli*.<sup>2</sup>



*An underpass for the Santa Fe River within City limits is littered with human feces and toilet paper.*

Water from Santa Fe's municipal drinking-water supply comes from the river above the City and need not be considered in the same light as water that flows through town. Clean, safe, potable water comes from reservoirs above Cerro Gordo Road that feed two water-treatment plants or from pristine underground aquifers. In the 2012-16 survey, no samples from above Nichols Reservoir exceeded the water-quality threshold.

Water in the river below the reservoirs and in the arroyos that flow into the river could be contaminated by:

- faulty handling of sewage,
- waste from domestic animals and wildlife,

- human waste from those living rough,
- stormwater runoff,
- runoff from agriculture, and
- sediment picked up during high-flow events.

## What Are 'They' Doing About It?

The solution to the Santa Fe River's *E. coli* problem focuses on clean-up. Our municipal authorities are following procedures established by the federal Environmental Protection Agency (EPA) to deal with impaired waterways. Part of the process is to determine how much waste a few designated polluters are allowed discharge into the river, under the National Pollutant Discharge Elimination System. The Santa Fe River has four permittees:

- the Paseo Real Wastewater Treatment Plant downstream of the City, and
- three Municipal Separate Storm Sewer Systems:
  - the City,
  - the County, and
  - the NM Department of Transportation District 5.

The City is also required to identify sources of contamination aside from these four permittees. In the case of *E. coli*, genetic analysis can help track the source(s) of the microbes.

The City must attempt to clean up the sources of contamination and monitor to assess the success of this effort.

## And What Can I Do?

What can citizens do to help the situation and to guard against RWI? Pet owners can dispose of their animals' waste properly. All of us who enjoy playing in water can wash our hands and use hand sanitizer. The National Park Service suggests some additional common-sense precautions:

- Never drink untreated river water.
- Boil river water for 10 minutes before using it to rinse dishes, etc.
- Disinfect cuts and open sores after exposure to river water.
- Prevent children from immersing their heads in the water or otherwise getting water into their mouth, eyes, ears or nose.
- During and soon after high flows and/or rainstorms:
  - Avoid prolonged exposure to the river water.
  - Avoid immersing your head in the water.
  - Keep very young children out of the water.

— Tony Ricketts, *SFWA Board Member*

<sup>1</sup> "Estimate of Incidence and Cost of Recreational Waterborne Illness on United States Surface Waters," Stephanie DeFlorio-Barker, C. Wing, R.M. Jones and S. Dorevitch (University

*(continued on page 5)*

# Monitoring of the Living River Shows How Far Water Flows

In February 2012, the City of Santa Fe became the first municipality in New Mexico to pass a Living River Ordinance<sup>1</sup>, dedicating a steady stream of water to flow in the River, rather than diverting 100% of the River to meet the City's domestic and commercial needs. Since it was established in 1997, the Santa Fe Watershed Association played an integral role, advocating for the regulation. The ordinance formalized the City's commitment to restore the Santa Fe River, dedicating up to 1,000 acre-feet per year of the City's water supply. Actual flows are proportional to April snow-pack in the Santa Fe River watershed.

The Living River ordinance called for the monitoring of streamflow and wetted distances. The Albuquerque-based consulting firm of John Shomaker and Associates (JSAI) did this monitoring in May-July 2016 and May-October 2017. JSAI published its report in June 2018.

The report is thorough and highly technical. It provides useful information about complexities – including surface-water availability, evapotranspiration and infiltration – which affect how much water makes it to the lower reaches of the Santa Fe River.

Two major conclusions of the report are:

- about 3 cubic feet per second (cfs)<sup>2</sup> of sustained streamflow must be released to the river below Nichols Reservoir for water to reach San Isidro Crossing; and
- flows of 5.9 cfs and higher are required to reach the Paseo Real Wastewater Treatment Plant (WWTP) about 8.5 miles downstream from the reservoir, near the Santa Fe Airport.

## Waterborne Illness *(cont. from page 4)*

of Illinois). 2018. *Environmental Health* (17:3). (<https://doi.org/10.1186/s12940-017-0347-9>)

<sup>2</sup> “Santa Fe River *E. coli* Total Maximum Daily Loads.” May 2017. NM Environment Department Surface Water Quality Bureau.

### Sources

Water Quality Survey Summary for the Upper Rio Grande Watershed (Cochiti Reservoir to the Colorado border). 2009. ([www.env.nm.gov/swqb/documents/swqbdocs/MAS/Surveys/UpperRioGrandeSurveyReport-2009.pdf](http://www.env.nm.gov/swqb/documents/swqbdocs/MAS/Surveys/UpperRioGrandeSurveyReport-2009.pdf))

Santa Fe River *E. Coli* Total Maximum Daily Loads [Cienega Creek to Nichols Reservoir]. 2017. ([www.env.nm.gov/swqb/TMDL/Santa%20Fe%20River/FINALDRAFTS-FRTMDL\\_WQCCapproved\\_041117.pdf](http://www.env.nm.gov/swqb/TMDL/Santa%20Fe%20River/FINALDRAFTS-FRTMDL_WQCCapproved_041117.pdf))

Water Quality & River Users – National Park Service ([www.nps.gov/rigr/planyourvisit/riverwaterquality.htm](http://www.nps.gov/rigr/planyourvisit/riverwaterquality.htm))



*Children play in a waterfall along the Santa Fe River.*

The loss of water along the river course is part of what recharges the aquifer – our underground reservoir. The aquifer is far from homogeneous along the course of the river. Geologic factors locally enhance infiltration of river water into the aquifer. These high-infiltration places offer encouragement for future aquifer storage and recovery along lower reaches of the river.

The 2018 JSAI report also outlined inputs and losses (not including stormwater flows) that affect flows between Nichols Reservoir and the Paseo Real Waste Water Treatment Plant:

- total Living River (bypass) flows for the year,
- Living River streamflow that goes past the Paseo Real WWTP and commingles with discharged effluent,
- losses and gains from the Two Mile Pond system (just below Nichols Reservoir),
- acequia diversions,
- natural seepage losses,
- stream-surface evaporation, and
- transpiration by riparian vegetation.

The JSAI report, *Results of 2016 and 2017 Santa Fe River Monitoring Report, June 2018, City of Santa Fe, NM*, is posted on the SFWA website under “Reports”.

The City's 2016 report, *City's Water and the Living River*, is also available on the SFWA website under “Reports”.

— Stephen Wiman, SFWA Vice-President

<sup>1</sup> City of Santa Fe Code, Section 25-13.

<sup>2</sup> One cfs equals 7 gallons/second or just under 500 acre-feet/year. This is 10% of the average annual flow from the Santa Fe watershed. The City's needs exceeded the watershed's capacity in 1973. The City now delivers approximately 10,000 acre-feet/year to residents, public facilities (e.g., pools) and businesses. In an average year, it gets approximately half of its water from the Buckman Diversion and City wells along the river corridor (i.e., the Santa Fe River aquifer).



# SFWA Programs Reach Hundreds of Students of All Ages, Engage Hundreds of Volunteers Year-Round

## Adopt-the-River

In this past year, we have wrestled with the challenge of maintaining any water flow at all in the River. Still, our Stewards have gone out to keep the riverbed clear of debris, trusting that the water will return – never knowing how much and when. More than 700 volunteers in 28 Steward Teams have collected more than 790 bags of trash in the past year. Both the City and County have underwritten this program, along with 31 Sponsors. We have never had more caring Stewards nor more energetic citizens keeping our Rio Santa Fe a source of pride for all of us.



*A homeless man joined us in the Love Your River Day cleanup.*

## Adopt-an-Arroyo

Our new “sibling program” to the Adopt-the-River program, Adopt-an-Arroyo aims to assess, plan and implement restoration measures along the approximately 80 miles of arroyos – intermittent waterways that have been the forgotten elements of our watershed. The goals are simple:

- reduce soil erosion,
- reduce infrastructure damage, and
- increase aquifer recharge.

We are proud to announce that 12 Steward Teams and 16 Sponsors have committed to tending our arroyos. We also have a crucial Sponsor Match program to help future Sponsors with funding.

## My Water, My Watershed

This program takes our fifth-grade students up into the Municipal Watershed. It has been a cornerstone of the educational outreach for the City’s 2010 Municipal Watershed Plan. Since its inception in 2010, more than 7,200 students have participated in this program. When the City funding faltered, private foundations – Los Alamos National Lab Foundation, Lineberry Foundation, Clothes Helping Kids Foundation, and the Rotary Club of Santa Fe Foundation – shouldered the financial responsibilities. Thankfully, the City has reinstated this program as part of its Water Conservation Department, so in the 2018-2019 school year, we may be able to present this program, for free, for up to 45 fifth-grade classes....Wow!

*(continued on page 7)*

## Charitable Contributions and the Tax Cuts and Jobs Act

The Santa Fe Watershed Association depends on charitable contributions to carry out its very important mission of protecting and restoring the health of the Santa Fe River and Watershed. At the end of 2017, Congress passed the Tax Cuts and Jobs Act (The New Tax Law). Discussed below are changes regarding charitable contributions, the standard deduction, the personal exemption and tax rates.

The New Tax Law does not eliminate the charitable-contributions deduction. If a taxpayer(s) is eligible to itemize deductions where cash and non-cash charitable contributions are reported, charitable contributions remain deductible up to 60% of adjusted gross income.

The New Tax Law suspends personal exemptions but significantly increases the standard deduction (where ‘non-itemized’ charitable contributions are deducted), as compared

to 2017. This offset may result in a net increase in deductions and give taxpayers an ample cushion to make charitable contributions.

The New Tax Law also decreases individual tax rates for 2018. One might consider, by perhaps paying less tax as a result of the rate decreases, that contributing to the Santa Fe Watershed Association is feasible.

*Tax advice includes, and is not limited to, consulting with a tax professional. The information contained in this article is not considered tax advice, comprehensive or otherwise, by the Santa Fe Watershed Association’s board members, director and employees.*

— Loretta E. Valencia, CPA and Tax Preparer  
SFWA Treasurer

# Rain Gardens: We Are Soaking Up the Rain

Afternoon storms are a typical event during the summer in Santa Fe. After weeks or months of a cloudless spring, the river flows – often with runoff from our man-made hardscapes: our roads, roofs, and parking lots.

The Santa Fe Watershed Association (SFWA) has helped the City of Santa Fe become a leader in building rain gardens to capture stormflows, treating that water as a resource rather than a problem (see *Currents* 2016 and 2017). We are part of a growing national trend by municipalities and homeowners to incorporate natural processes such as rain gardens to help relieve flooding and non-point sources of water pollution.

*The Santa Fe Watershed Association has helped the City of Santa Fe become a leader in building rain gardens to capture stormflows, treating that water as a resource rather than a problem.*

A rain garden is a depression that captures stormwater so that it can infiltrate back into the soil. Rain gardens filter out pollutants. They also nurture native vegetation, increasing diversity and attracting beneficial birds, butterflies and insects. Rain gardens reduce the need for irrigation, and they help recharge groundwater. Best of all, rain gardens are low-tech, inexpensive, sustainable, and beautiful.

The vegetation used in rain gardens must be able to withstand brief periods of inundation and periods without substantial moisture. This environment favors drought-resistant native plants with deep root systems.

In 2012, SFWA partnered with Southwest Urban Hydrology, the RainCatcher, the City of Santa Fe, and other community members to design and install rain gardens around schools, parks, and commercial districts (see *Currents* 2016 and 2017, and our website under the Restoration tab). SFWA has been involved in the construction of nine rain gardens. More than 200 volunteers assisted with the installations including surveys, excavation, plant selection, planting, stonework and more. These rain gardens are expected to infiltrate more than 420,000 gallons of stormwater each year.

The City has also installed eight larger rain gardens to capture more than 1,700,000 gallons of stormwater per year. Together, the SFWA and City rain gardens are designed to treat more than 6.5 acre-feet of stormwater per year.

SFWA and the City are currently installing five rain gardens in the parking lot at General Miles City Park. We will also continue to work with the County on the River Greenway Project, which may include rain gardens.

The next time we have a thunderstorm in Santa Fe, think rain gardens, and know that we are soaking up the rain!

— Steven Hamp, *SFWA Board Member*



*The rain garden at West Alameda and Sicomoro is one of many that are now retaining, infiltrating and filtering stormwater that would otherwise run straight from our streets into the River.*

## SFWA Program Updates *(cont. from page 6)*

### Climate Masters

Our New Mexico Climate Masters program graduated another class in 2018.

For all ages, this ten-week course brings in notable speakers and provides reading materials to prepare us all for the years ahead. Field trips have become a major part of this program as well as the community-service project after the course work is complete.

### Rain Gardens

Our Rain Garden program, headed by Aaron Kauffman, is putting the finishing touches on five new rain gardens at General Miles City Park. These were funded by the Delle Foundation as a pilot program to ascertain the value of converting parking spaces into rain gardens. These simple features may hold the key to future water-infiltration techniques.

— Andy Otto, *SFWA Executive Director*





1413 Second Street, #3  
Santa Fe, NM 87505

505/820-1696

Fax: 505/986-9132

info@santafewatershed.org

www.santafewatershed.org

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### Newsletter

*Editor, Design & Production:*

Marty Peale

*Photos & Illustrations:* Staff

(Keely Jackson Kennemore) •

p. 1: Andy Otto, *Santa Fe*

*New Mexican*



*Please Join Us!*

## SFWA's Annual Winter Watershed Benefit

**Sunday, December 2, 5:00pm**

Hotel Santa Fe

Silent Auction ↻ Speaker: John Fleck

Mix, mingle, and munch on appetizers. Beer and wine available, too!



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**WATERSHED**  
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