



The Flow

December 2025

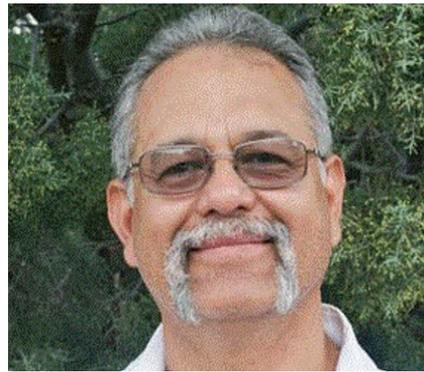
Friends of the Santa Cruz River Newsletter

President's Plea

A Message from FOSCR President, Ben Lomeli

Friends of the Santa Cruz River (FOSCR) was founded in 1991 to monitor the river's condition, educate the community about the river's value, and to advocate for its protection. As a small non-profit, all our work is done by volunteers. We have an amazing board of directors that has been evolving and voluntarily working tirelessly. FOSCR has accomplished much by partnering with other organizations, but we are looking to grow and strengthen our organization.

FOSCR has received two awards from Arizona Department of Environmental Quality (ADEQ) for our River-Watch monitoring, periodically observes and reports cross boundary sewage contaminated flows at Oso Wash and other tributaries, advocating for a healthy environment serves on the United States International Boundary and Water Commission Southeast Arizona Citizens Forum (IBWC SEACF), and on steering committees of the Santa Cruz Urban National Wildlife Refuge Coalition, the University of Arizona's Emerging Leaders Program, Water Leadership Institute, Sonoran Institute's annual Santa Cruz River Researcher's Days, and ASU's Rural



Groundwater Resilience workshop.

FOSCR also provided review comments to the US Forest Service on the Draft Environmental Impact Statement for South32 Hermosa Project, Tubac Nature Center's Wetland and Riparian Restoration Plan, Dr. Charles Cole's 20-year water harvesting report. FOSCR attends workshops of Santa Cruz County's River Coalition, Sonoran Institute's Water Smart program, Anthropocene Alliance, Patagonia Area Resources Alliance, and the Calabasas Alliance. We partner with Santa Cruz County Shining AZ to organize river clean-ups.

The Upper Santa Cruz River international watershed faces many challenges. We need more volunteers to help us fulfill our mission. We would also like to increase outreach to members of the community

who may not know that we have a beautiful, flowing river and riparian corridor full of birds, walking trails and wildlife and may not be aware of the threats and challenges.

We are looking for volunteers that genuinely care about the future of our river, our natural resources and amenities, and conserve a healthy environment that will protect public health and safety and sustain a viable economy.

We are especially interested in recruiting volunteers with the following interests and skills: social media, grant writing, Spanish language translation, business and tax expertise and individuals who will continue to help us engage with our vibrant community in Santa Cruz County and beyond, including upstream communities in Mexico.

Thanks for caring. Get involved! Please volunteer. Here is how: Contact us by email riverfriends@foscr.org, and/or visit our website: foscr.org, or call 1-520-403-2823, or simply send correspondence to:

FOSCR
P.O Box 4275
Tubac, AZ 85646

Friends of the Santa Cruz River Retreat - May 2025

By Blue Evening Star
FOSCR Secretary

On May 24, 2025, the board members of Friends of the Santa Cruz River held our annual retreat at the Santa Rita Experimental Range. We spent the morning evaluating the future of FOSCR, discussing strategies to create that future based on our priorities and capabilities, and honest talk about the challenges we face every day.

Friends of the Santa Cruz River

Board of Directors

- President: Ben Lomeli
- Vice-President: Nohe Garcia
- Secretary: Wendy Islas/Blue Evening Star
- Treasurer: Lah-May Bremer
- Other Board Members:
- Laurinda Oswald
- Rodolfo Martinez Morales
- Scott Vandervoet
- Skye Leone

The Flow is published by Friends of the Santa Cruz River (FOSCR), a nonprofit, volunteer organization dedicated to ensuring the continued flow of the Santa Cruz River, the life-sustaining quality of its waters, and the protection of the riparian biological community that it supports.

© 2025 The Flow is published as often as we can get enough articles, time, and energy together to produce an issue. Illustrated by Joel Floyd, a FOSCR founder. Photos by credited photographers.

Opinions expressed in guest articles are those of the author's and not necessarily those of FOSCR.

Please direct correspondence to:

FOSCR
P.O. Box 4275
Tubac, AZ 85646
E-mail: riverfriends@foscr.org
Web site: foscr.org

We especially need help with social networking. Due to the excellent and diligent work of board member Wendy Islas, and FOSCR members Christine Sbragia and Pam Lemke, the FOSCR website, Facebook page, and social network platforms have become dynamic and strong. We need others to join our team in order to keep these platforms going. We also need assistance with accounting, and with engaging new members. We need help to increase our outreach to members of the community who may not know that we have a beautiful, flowing river (and riparian corridor full of walking trails and wildlife) right up the road.

After a delicious lunch delivered (from Manuel's in Green Valley) all the way to the Santa Rita Experimental Range, we spent the afternoon of the retreat joined by many of our partners. Our partners present that day were as follows:

- Supervisor John Fanning, Shannon Hall, and Chris Young from Santa Cruz County
- Connie Williams from FOSCR RiverWatch and Anza Trail Co-

alition

- Bob Proctor from Friends of Sonoita Creek
- Michael Dunn from Tubac Nature Center
- Robin Lucky, Jay Thompson, and Skye Leone from Calabasas Alliance
- Joni Clark Stellar from Patagonia Area Resource Alliance
- Jessy Zamarano from Santa Cruz County Shining AZ
- Anna Darian from Save the Scenic Santa Ritas – now from Patagonia Area Resource Alliance

Here are some of the highlights of our discussion:

- We need synergy to protect the river for future generations
- The youth of this region are the emerging leaders of the future. Many are not aware that the Santa Cruz River flows and sustains life for this bioregion.
- How do we find common ground even if we think differently? How can the County assist with re-



SFER Historical Photo of the Entrance to the Santa Rita Experimental Station.

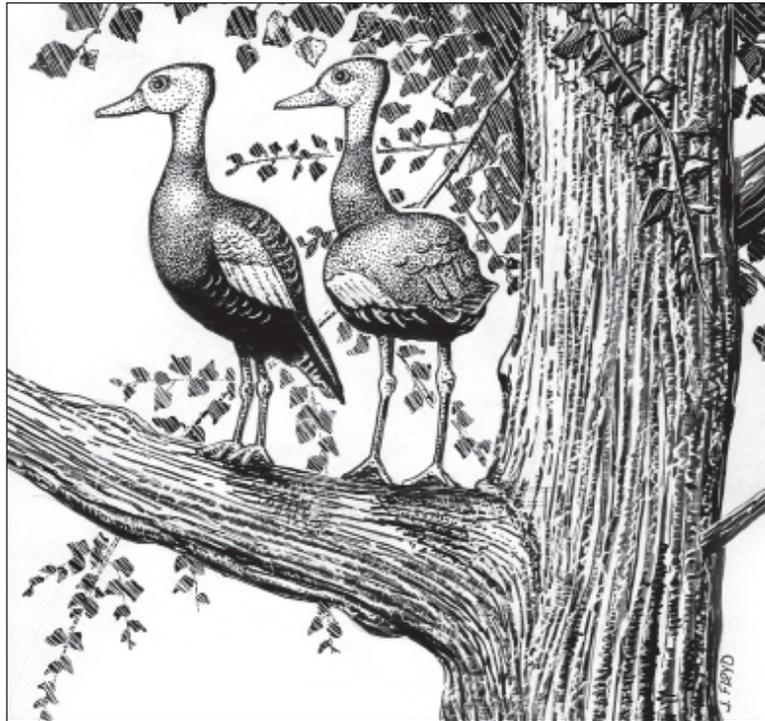


sources and funding? How can County representatives regain the trust of the community? They want to be an integral part of protecting the environment.

- Many are concerned that Santa Cruz County has the highest concentrations of PFAS in Arizona.
- South32 should give 10% of profits to protect the environment in our watershed.
- South32 needs to cooperate with having objective verification of their claims. Calabasas Alliance is installing AirSmart air sensors around the County to monitor air pollution. Water testing near the South32 Mine already proves water quality and scarcity issues.
- We need to align our stories on defining problems and solutions.
- The de Anza Trail is the gateway to the river.
- There are gaps between what laws allow and what people need to be healthy.
- We need to teach people to love the river with fun activities.
- Education is paramount for the future of the river. Conservation artwork can also bring us together to maintain and sustain our river and our community.
- There are ways to capture runoff and recharge aquifers.
- Collaboration and more trails are needed.
- Science based research, transparency; credibility will lead to culmination of positive impact.
- We should all treat each other as family. We must care for one another to become a thriving community.
- Many of the local environmentalists are also educators. We

have a great opportunity to create an environmental educational program for youth.

- Photos of the river make people love the area. Let us keep up the momentum with the anti-littering programs.



Blackbellied Whistling Ducks

- Tubac Nature Center is working on pulling invasive plants and planting native species along the river.
- Beware of those who make excuses for not protecting the environment. There are many reasons for the trash problem in the borderlands. Until people know they have a problem they don't know how to fix it.
- We need to improve in defining all that FOSCR does for this community online.

We plan to continue to host another FOSCR retreat in the spring of 2026.

The Santa Rita Experimental Station (SRER) was the perfect location for our retreat. It is a jewel in our region that has a rich history of over 100 years of ecosystem research.

The Santa Rita Experimental Range (SRER) was established in 1902 to un-

derstand the ecosystem and apply sustainable management practices. Many of the people who attended the FOSCR retreat in May are also participating in monthly gatherings hosted by Shannon Hall (Communications Manager Santa Cruz County Board of Supervisors) and Chris Young (Deputy County Manager Santa Cruz County). They have graciously hosted a series of gatherings—bringing together a variety of local environmental activists in order to collaborate and brainstorm ways that we can work together more cohesively. The group is in the very early stages of defining projects and a unified purpose. The group is currently called the Santa Cruz County River Refuge Group.

From the start, the Santa Cruz County River Refuge Group has been inspired by and connected with the Santa Cruz River National Wildlife Refuge Coalition in Pima County. [https://](https://santacruzriver.org/)

santacruzriver.org/

Here is their newsletter— Santa Cruz River Notes: <https://sway.cloud.microsoft/BratDFX2pHRBuGT2?ref=email>

Santa Cruz County has a heritage of intercultural harmony. We have an opportunity here to demonstrate how a unified community creates a thriving ecology.

“The only way forward, if we are going to improve the quality of the environment, is to get everybody involved.”

– Richard Rogers / American Composer & Lyricist

“I think that’s what unity is—knowing one another, coming together, and working with no conflict.”

-- Chief Alan Wilson, HAIDA

Elevated PFAS Levels A Stark Contrast to Arizona

By Robin Lucky
President of Calabasas Alliance

In the sunbaked landscapes of southern Arizona, where the Santa Cruz River once flowed freely, a hidden threat lurks in the groundwater: per- and polyfluoroalkyl substances, or PFAS. Dubbed “forever chemicals” for their stubborn refusal to break down in the environment, these man-made compounds have infiltrated water systems across the state.

But recent testing reveals a troubling hotspot in Santa Cruz County, where nearly half of public water systems exceed federal safety limits—far outpacing the statewide average. As the Arizona Department of Environmental

Quality (ADEQ) ramps up communication efforts, residents are urged to stay informed about potential health risks and available resources.

What Are PFAS and Why Do They Matter?

PFAS are a vast family of synthetic chemicals engineered for durability, found in everyday items like nonstick cookware, stain-resistant fabrics, and firefighting foams. Their carbon-fluorine bonds make them incredibly stable, allowing them to persist in soil, water, and the human body for years or even decades. While they’ve provided practical benefits, their accumulation poses serious environmental and health challenges.

Long-term exposure, particularly through contaminated drinking water, is linked to a range of adverse effects. According to the U.S. Environmental Protection Agency (EPA), PFAS can disrupt hormone regulation, weaken the immune system, and elevate cholesterol levels. More alarmingly, studies associate them with increased risks of kidney and testicular cancers, reduced fertility in women, low

birth weight in newborns, and developmental delays in children. The Centers for Disease Control and Prevention’s Agency for Toxic Substances and Disease Registry (ATSDR) also note links to liver damage, thyroid disease, and diminished vaccine response.

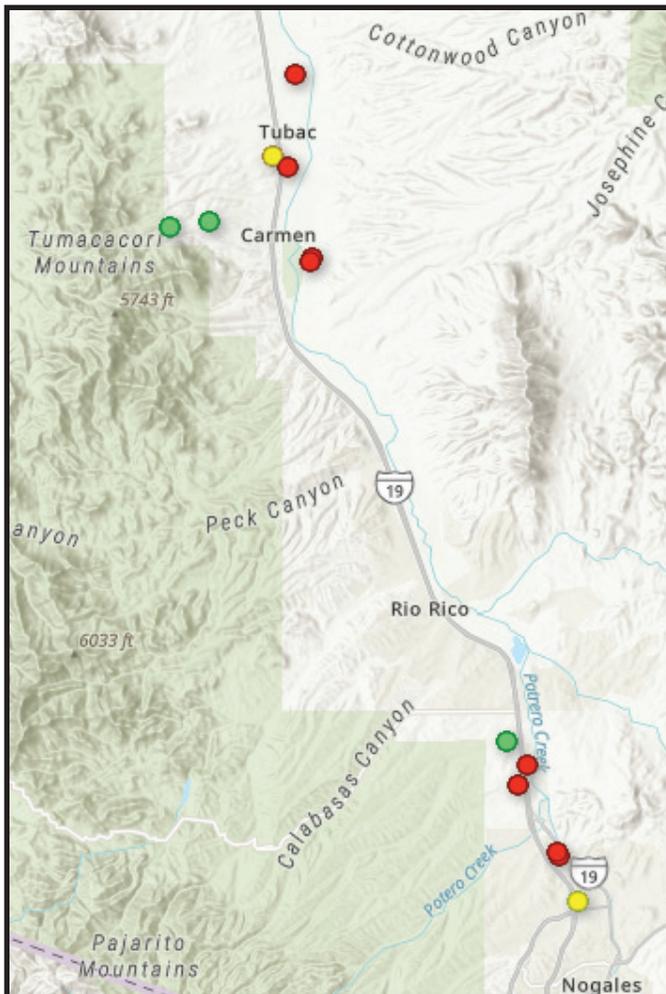
In April 2024, the EPA finalized strict Maximum Contaminant Levels (MCLs) for drinking water: 4 parts per trillion (ppt) for PFOA and PFOS, 10 ppt for PFNA, PFHxS, and HFPO-DA (GenX), with a hazard index of 1 for mixtures involving these and PFBS. These thresholds aim to protect public health, but compliance is an ongoing battle.

A County Crisis? Santa Cruz County vs. the State

Arizona’s proactive statewide sampling, completed in late 2024, paints a relatively reassuring picture: Out of 734 public water systems tested, 79% showed no PFAS detections, 10% had levels below MCLs, and just 11% exceeded them. ADEQ went beyond federal requirements under the EPA’s Unregulated Contaminant Monitoring Rule (UCMR 5), sampling over 700 smaller systems serving fewer than 3,300 people to help them prepare for compliance.

Yet, zoom in on Santa Cruz County, and the data tells a different story. Here, 44% of tested systems surpassed MCLs – the highest rate in Arizona. This dwarfs the statewide 11%, with Gila County (29%) and Pima County (17%) trailing far behind. ADEQ’s interactive PFAS map reveals clusters of red flags – sites with detections above EPA limits – scattered across the county, particularly near Nogales and Patagonia. Yellow markers indicate lower detections, while green shows clean results, but the reds dominate in key areas, including UCMR sampling locations.

The disparity isn’t coincidental. Santa Cruz’s geology – porous aquifers



Legend

Drinking Water Data

Detection Category

- Not Detected
- Detected Below EPA Limit
- Detected Above EPA Limit



in Santa Cruz County: a's Statewide Water Quality

fed by the Santa Cruz River – may concentrate contaminants from historical industrial use, agriculture, and nearby landfills. Private well owners, who aren't regulated by ADEQ, face an even greater blind spot: They may unknowingly draw from the same tainted groundwater without routine testing or notifications like those in public systems' Consumer Confidence Reports.

ADEQ's Push for Awareness and Action

Recognizing the gap, ADEQ presented findings to the Santa Cruz County Board of Supervisors on August 20, 2025, emphasizing outreach without sparking panic. "Communication is intended to allow the public to make informed decisions," the agency stated, highlighting partnerships with state health officials and local leaders.

For private well users, ADEQ offers free or low-cost testing guidance and stresses the importance of sampling if nearby public systems show exceedances. Systems above MCLs must notify customers and install treatment like granular activated carbon filters by 2027, but proactive steps can start now.

Resources to Protect Your Health

Residents aren't left in the dark. Key tools include:

- **ADEQ PFAS Interactive Map:** Track local results at azdeq.gov/mycommunity.
- **Sampling Guidance and Fact Sheets:** Download from azdeq.gov/pfas-resources.
- **Health Information:** Arizona Department of Health Services (ADHS) details effects and mitigation at azdhs.gov/PFAS.
- **Well Owner's Guide:** Step-by-step advice for testing and treatment.

Contacts for support:

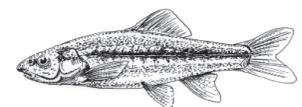
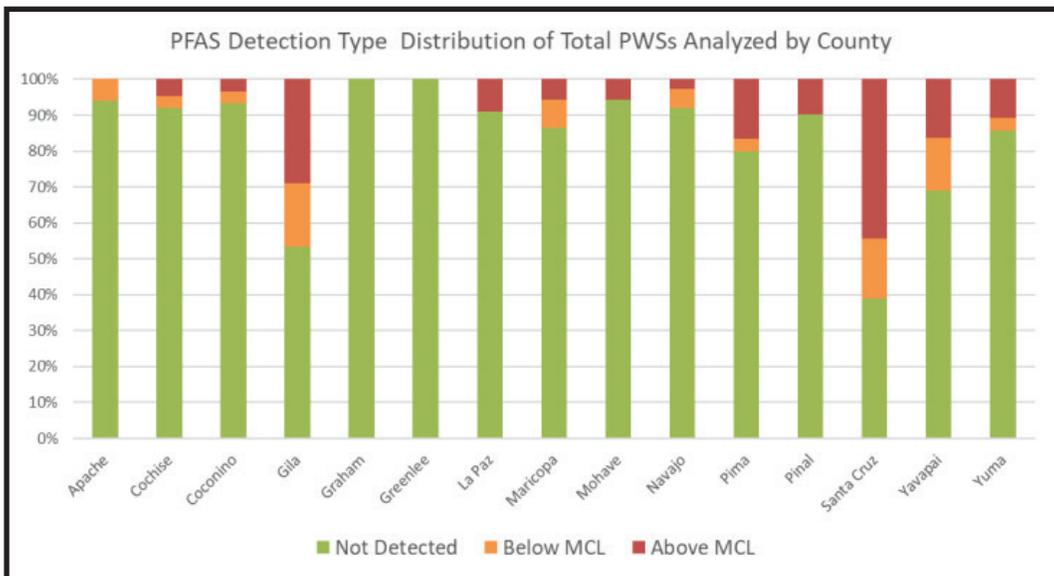
- Hsini Lin, ScD, MSPH (ADHS Environmental Epidemiology): hsini.lin@azdhs.gov | 602-803-3740
- Matt Narter, PhD (ADEQ Senior Hydrogeologist): narter.matthew@azdeq.gov | 520-861-1151
- Joaquin Marruffo (ADEQ Border Programs Manager): joaquin@azdeq.gov | 520-900-2564

Looking Ahead: From Detection to Protection

Santa Cruz County's elevated PFAS levels serve as a wake-up call, underscoring the uneven burden of environmental contaminants in rural Arizona. While statewide figures offer optimism, this southern county's 44% exceedance rate demands urgent, targeted action. By leveraging ADEQ's resources and heeding health warnings from the EPA, residents can safeguard their water and well-being. Testing a well or switching filters might be the simple step that prevents "forever" consequences. As ADEQ continues Phase II follow-up testing—now 94% complete—the message is clear: Knowledge is the first line of defense.

Recommendations for Consumers from the Environmental Defense Fund

- **Filter water:** If you have a home well, use an activated carbon or reverse osmosis filter certified to remove PFAS.
- **Avoid obvious sources:** Don't use PFAS-treated microwave popcorn bags or food wrapped in grease-resistant packaging.
 - **Choose alternatives:** Replace nonstick cookware with stainless steel, cast-iron, glass, or ceramic alternatives.
 - **Look for safe packaging:** Use compostable packaging that is certified to be PFAS-free.
 - **Stay informed:** Stay updated on the sources of PFAS and limit exposure where possible (www.edf.org)



Emerging Leaders: Hope for the Future

By Rodolfo Martinez Morales, PhD
University of Arizona

The Emerging Leaders of Santa Cruz had a unique opportunity to meet Ben Lomeli, President of the “Friends of the Santa Cruz River” and learn from him right at the edge of the river, how FOSCR is helping through a multi-organizational approach to care and conserve the Santa Cruz River, one of the most precious and valuable natural resources for the people of Santa Cruz County and Southern Arizona.

Emerging Leaders of Santa Cruz is a youth leadership certificate program developed by Dr. Rodolfo Martinez Morales who is the University of Arizona Extension Director in Santa Cruz County. The University of Arizona confers certificates to students after two semesters (Fall and Spring) of intensive training and completion of 100 hours of class time in the classroom and at the field, in addition to development of high-impact community projects.

The curriculum of the program is taught in collaboration with multiple University leadership centers, Santa Cruz County and City governments, State Legislature representatives, private enterprises and leaders of several social

organizations including FOSCR.

The program director collaborates with middle schools and high schools across Santa Cruz County to select the most outstanding students from grades 8 through 12, who demonstrate the interest in learning leadership skills and desire to work toward the best possible environment for families, government, businesses, nonprofit organizations, and other systems that nurture strength within communities. By doing so, the program fosters an environment that empowers and motivates the youth to successfully accomplish their professional objectives while increasing awareness of cultural values, diversity, social organizations, conservation of natural resources, economic development and influential networks, which will allow an early start for them to contribute to the betterment of society.

In its first edition (2024-2025), the program graduated 14 outstanding students. Five of these students are now collaborating to teach the 40 students that are attending the second edition which runs from August 2025 to May 2026. Our certified young leaders are giving presentations on various leadership topics and inspirational speeches to the new students to not give up in

the mist of highly challenging tasks and projects to complete during the 2 semesters as the fruits of their effort will be highly praised and recognized across our County. Kudos to our new young leaders and to the various social organizations like Friends of the Santa Cruz River, the Calabazas Alliance, Friends of the Sonoita Creek, and Friends of Madera Canyon for their valuable and generous support to our outstanding and promising young leaders. And deep appreciation to Skye Leone, FOSCR Board member for his personal contribution to pay field trip transportation. Congratulations to the parents for their effort to fully support their children on obtaining leadership credentials and a lifetime milestone at an early age. To further learn about the program please see the following media videos and articles published:

1. CBS news channel 13 broadcasted on October, 2025: <https://www.kold.com/2025/10/21/rigorous-program-offers-project-based-learning/>
2. Nogales International article published on October, 2025: https://www.nogalesinternational.com/news/education/students-learn-about-local-opportunities-through-collaborative-program/article_636653b1-c4f2-4401-bd11-011cfcca187b.html
3. Nogales International article published on June, 2025: https://www.nogalesinternational.com/community/local-youth-graduate-from-ua-leadership-program/article_d857eada-4550-4592-816b-a9c15749ac97.html?utm_source=trellis&utm_medium=email&utm_campaign=Clips%20for%20June%2018,%202025
4. Nogales Public Media interview published in May 2025: <https://www.youtube.com/watch?v=PCMepASkU94>



FOSCR President and hydrologist Ben Lomeli shares experiential insights on preserving and protecting the Santa Cruz River.

FOSCR Volunteer Highlight - Pam Lemke

By Wendy Islas
FOSCR Secretary

Pam Lemke hails from and loved her home in Santa Cruz, California, where she had many trails and outdoor recreational areas to explore. With a degree in nursing and psychology, her love of helping others is evident. Pam practiced full-scope midwifery in a busy, hospital-based practice. With a fulfilling yet demanding career, and as a cancer survivor, Pam looked forward to retirement. She started researching equally beautiful places to relocate to. Pam's Grandmother, who lived in Tucson for 25 years, instilled a love of travel and the outdoors in Pam. Pam spent a year previously working on the Navajo Nation. She knew Arizona had much to offer and she explored the possibilities including Flagstaff and Green Valley. She always liked the desert and spent vacations in the mountains. She ultimately landed in Tubac.

When Pam arrived in Santa Cruz County in 2019, she started hiking along the de Anza Trail and exploring the sky islands region. Pam got involved in voicing her concerns for the community. She subscribed to and wrote local conservation organizations in the area and eventually made the FOSCR connection. Her life-long friend, also from Santa Cruz, California, relocated here and was involved with the RiverWatch program, which peaked Pam's interest.

Pam was drawn to FOSCR for its hands-on work and its advocacy. "We are not large, but we deal with local issues and this makes FOSCR special and it's something I like about it." Pam joined FOSCR's RiverWatch team in January 2024, which is a group of citizen scientists working under Connie Williams' leadership. The RiverWatch program has allowed Pam to get outdoors, put her feet on the ground and in the water, and do something where the chatter goes away—collecting

data, being outdoors, and observing the environment. She shared one early morning on the river with longtime RiverWatch team member Birdie Stabel, they heard the music of a song sparrow and they stopped to just listen and take in the moment. "I like finding the sacred in the ordinary and the big issues in the little issues." FOSCR is special in this way and she credits FOSCR's president, Ben Lomeli as an integral part of the organization and noted his unwavering commitment. FOSCR's advocacy and citizen scientists are working toward restoring the river. "The need to conserve water is so important especially given the new concerns of data centers that have been appearing on our horizon." "RiverWatch is a perfect place to be involved in observing the local environment", having most recently observed the pollywogs and a turtle in the river. It connects us and reminds us why we engage in these activities, noting some years they have witnessed the butterflies and other years the beetles. "I love the history of the river and its long history of nourishing people." Pam also volunteers as the 'behind the scenes' face of FOSCR's social media and has helped it grow tremendously. It has been a great way to network and share the positive work FOSCR and our partner organizations are doing. Pam has also helped table events for FOSCR and she volunteers with other partner organizations as well in various capacities.

Pam is also a writer and poet. Her



Photo by Meghan Smart, ADEQ Community Science and Education Coordinator.

beautiful poem "Clutching a Small Canvas" was published in the summer of 2024 climate change issue of the SnapDragon Journal. "The Perils of Indolent Lesions" is a lyrical essay about having survived multiple cancers, was published in Terrain, May 2024.

You'll likely find Pam writing, attending art and writing events, spending time outdoors, observing, and advocating for our local bio-rich environment. Pam resides in Tubac with her partner and their two dogs.

Pam and Ben Lomeli, FOSCR's president, were both nominated for the Patagonia Area Resource Alliance's 2025 Golden Ocelot Awards honoring local conservationists.



**MONITORING
ADVOCACY
EDUCATION
PARTNERSHIPS**



FRIENDS OF THE SANTA CRUZ RIVER

Membership/Donation Form

Date _____ New ___ Renewal ___ Donation _____

Name _____

Address _____

City _____ State _____ Zip _____

Telephone # _____ E-mail _____

Memberships: ___\$5 Student ___\$15 Single ___\$25 Family
___\$50 Supporting ___\$100 Sustaining ___\$500 Life Member ___\$ Other: _____ (Amount)

Mail form and check to: FOSCR • P.O. Box 4275 • Tubac, AZ 85646

Or join and donate through PayPal by going to: friendsofsantacruzriver.org/donate/