

SANTA CRUZ RIVER RESEARCH PRIORITIES

A COMMUNITY-DRIVEN RESEARCH AGENDA

Spring 2019

©Bill Hatcher/Sonoran Institute, 2018

What research questions should future efforts explore to best meet the needs of Santa Cruz River communities?

As a part of the 10th annual Santa Cruz River Research Days, Sonoran Institute asked decision-makers, community leaders, and members of research institutions to identify priority research needs and questions.

The results provide a fresh perspective and informed starting place for the next decade of conservation and management efforts along the Santa Cruz River.



SONORAN
INSTITUTE

Understanding our Living River

The Santa Cruz River is an endangered waterway, but it is far from lost; it is a Living River that must be monitored, studied, understood, and valued.

The Santa Cruz River has provided life-sustaining water to humans for more than 12,000 years, a fact that can be hard to believe when you look at much of the river today. Flowing intermittently through rural communities, the Tohono O'odham Nation, and urban Tucson neighborhoods, the Santa Cruz River unites us. As a community, we need to better understand this natural resource, and we must work together to maintain the benefits it provides.

Santa Cruz River Research Days was founded ten years ago to promote the sharing of research and discoveries across institutions and disciplines. This annual event has drawn over one hundred attendees each year and inspired national award-winning collaborative projects. Working together has helped better refine and develop the research that will further conservation efforts along the river.

Sonoran Institute's collaborative assessment results reflect diverse concerns and suggest the need for interdisciplinary research focused on the intersections of ecology and economics; water quality and infrastructure; and land management and policy-making.

"I've noticed a new paradigm in natural resources. Fewer people are talking about single-issue research, and there's more interest in linkages across research areas and professions. I've also seen an increased interest in using art and immersive experiences to talk about research findings."

Brian Powell

Assistant Division Manager, Pima County Natural Resources, Parks, and Recreation



Olga Hart



Ian Dowdy

COMMUNITY RESEARCH NEEDS

The research needs identified on page 3 are the results of a community survey circulated in the summer of 2018 and group discussions during the 2018 Santa Cruz River Research Days. A total of 144 researchers, agency representatives, local government officials, and advocates participated.

The list of ideas generated by participants was categorized into the research themes in the chart below and were prioritized using the frequency of survey responses and votes from Research Days attendees.

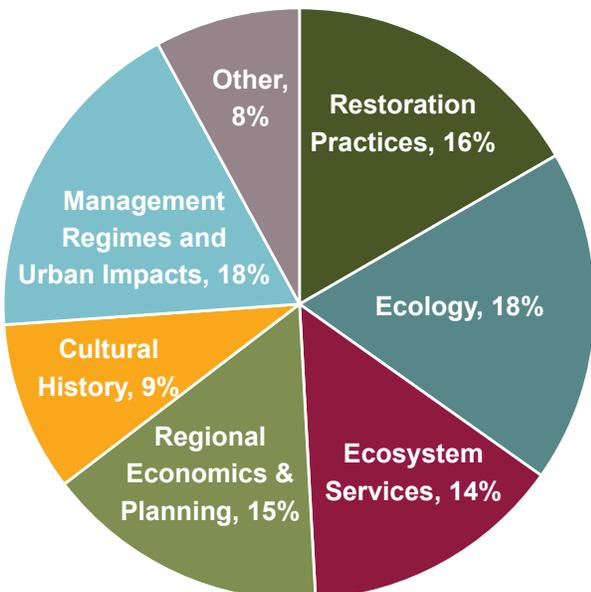
Interdisciplinary Priorities—Participants identified the importance of social and economic themes as frequently as natural resources and restoration. This suggests that the role of the Santa Cruz River is diverse in the lives of the participants.

Ecosystem services is an example of an interdisciplinary research theme and are defined as the benefits that healthy environments provide the community. For example, groundwater recharge occurs naturally in riverbeds and the value of the natural river recharge is equal to the overall costs of building, staffing, and maintaining comparable man-made basins. The value of ecosystem services is quantified using the cost of constructed systems built to compensate for the natural process.

Specific Project Ideas—The survey also identified the factors that influenced participants' project selection. The results showed that perceived community need was the most influential factor in project selection. To inspire locally meaningful projects, the second morning of Research Days brought together community leaders to share project ideas that would benefit their work along the river with the researchers in the audience.

Panelists were selected to represent communities throughout the river corridor, from Nogales to Marana. Our intention was to have thorough geographic representation rather than disciplinary representation to best understand the needs of local leaders. As a result, not all the research themes appear in this list of ideas. Future discussions will provide an even more comprehensive list of community needs.

Priority Research Themes



“Local studies that put dollar-values on the Santa Cruz River would strengthen our case with elected officials for restoration budgets and other things that support conservation.”

Jim Conroy,
Director, Town of Marana Parks and Recreation



Amanda Smith



Claire Zugmeyer



Alex Stoicof

Theme	Project Ideas from Santa Cruz River Community Leaders
Economics, Planning	River restoration can increase property value, thereby encouraging development, sometimes spurring the need for additional restoration and protection. What do the long-term data and lessons-learned tell us about how to align the interests of river restoration and development ?
	How much have property values increased from access to improved green spaces or the reduction in wastewater odor since the wastewater facilities were upgraded?
	How do we effectively measure the economic impact of a healthy riparian area , in terms of tourist attraction, business attraction, public health benefits, and other quality of life metrics?
Management Regimes and Urban Impacts	Water quality issues and floods are worsened by rapid development in Sonora. What are the opportunities for infrastructure maintenance and expansion that would accommodate the increased stormwater near the border?
	The International Outfall Interceptor carries untreated sewage and is highly vulnerable to rupturing. We need a comprehensive multi-criteria geospatial analysis to determine all possible options for relocating the aging infrastructure to minimize the risk of a catastrophic breach and drinking water contamination.
	River-borne trash is unsightly, can harm wildlife, and accumulates into dense mats and bottlenecks that obstruct river flow. Can we identify the sources to further target our education? What are the local communities' attitudes around littering and illegal dumping? Can we arrange additional garbage disposal to meet local needs?
	The Arizona Department of Environmental Quality considers parts of the Santa Cruz "impaired" only after stormwater elevates levels of <i>E. coli</i> in the river, revealing a pathway for fecal contamination. Who can provide microbial genetic testing to identify the source animal in order to in order to address this distributed pollutant?
Policy ¹	How will the recent changes to Army Corps of Engineers jurisdiction and the deregulation under the proposed Clean Water Rule affect the physical, chemical, and biological integrity of the Santa Cruz River and its tributaries?
	In most parts of rural Arizona, land managers concerned with cattle impacts are required to maintain the fences that keep cattle out. Are there best practices for addressing trespass cattle? What are the local ramifications to obtaining a " no fence " designation for areas around Tubac, Tumacácori, and Rio Rico?
Ecology	Wastewater treatment technology upgrades have vastly improved, but the treated water in the river is not yet completely pure. What are the ecological impacts of chemicals such as pharmaceuticals and personal care products that remain in the water?
	Until water is secured for the river, vegetation and wildlife are at risk. What is the status of and the habitat needs of our protected species ? How might these change with different flow regimes?
Restoration	Are there ways to properly manage cattle that may be beneficial for floodplain and ecological health ?
	Santa Cruz River tributaries were historically straightened to protect agricultural fields. How many historically straightened tributaries have adjacent land uses that can accommodate added meanders? In doing so, what would be the potential increase in flood mitigation and recharge?

1: Policy concerns were captured in the "Other" category from the chart on page 2.



Friends of the Santa Cruz River



Olga Hart

Join the Conversation

Santa Cruz River Research Days fills an important niche by bridging civic and research institutions across disciplines and geographies to benefit our Living River. As our communities evolve, it is increasingly important to stay engaged with modern research that integrates multiple perspectives. Here are things you can do to join the conversation.

Share this document—Our research shows that busy professionals rely on word-of-mouth and the expertise of their co-workers to stay up-to-date with new information. Help spread the word by sharing this document with co-workers, students, and friends.

Present at Research Days—Magnify the impact of your work by connecting with new audiences through a poster or oral presentation. This event features diverse presentations, special sessions, and field trips that have attracted over 350 unique attendees. Participants have cited Research Days as the foundation for contacts that lead to new careers and partnerships.

Become a sponsor—This event is made possible through community support and our sponsors. Our sponsorship package outlines how you and your organization can be involved at any level.

“I appreciate the Santa Cruz River Research Days. It is a great opportunity to learn and share information across disciplines.”

Eve Halper, Water Resources Planner



Support the Sonoran Institute

Your support preserves the environment for future generations and makes a lasting impact in communities across Western North America. Learn more about how you can help at SonoranInstitute.org/donate.

The Mission of the Sonoran Institute

The Sonoran Institute’s mission is to connect people and communities with the natural resources that nourish and sustain them. We work at the nexus of commerce, community, and conservation to help people in the North American West build the communities they want to live in while preserving the values which brought them here. We envision a West where civil dialogue and collaboration are hallmarks of decision making, where people and wildlife live in harmony, and where clean water, air, and energy are assured.

Connect With Us

Go to SonoranInstitute.org to learn about our programs, history, and recent news.

Or find us on Social Media:

-  facebook.com/sonoraninstitute
-  [@sonianinstitute](https://twitter.com/sonianinstitute)
-  [SonoranInstituteFlix](https://www.youtube.com/SonoranInstituteFlix)
-  [@sonianinstitute](https://www.instagram.com/sonianinstitute)



SONORAN
INSTITUTE