



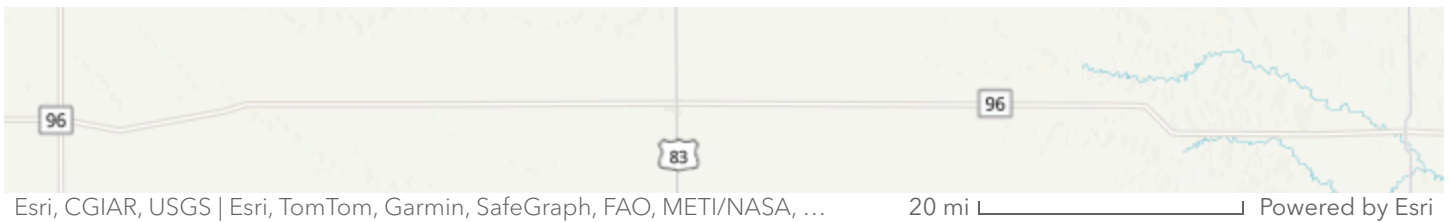
Case Study by CART



Case Study by CART

Community-Driven Water Management: The
Tomorrow's Water Model for Playa Restoration

A Case Study on Community Engagement and Education
May 10, 2023



Introduction

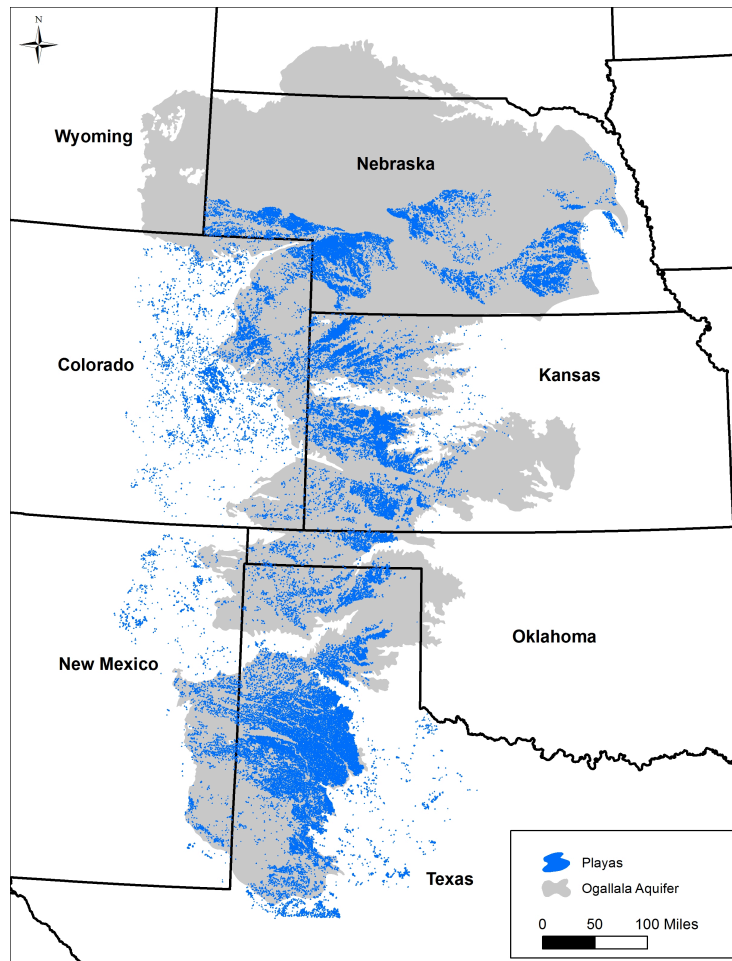
The Ogallala Aquifer spans 174,000 sq mi beneath eight states of the central U.S., providing clean drinking water for over 80% of the 2.3 million people living in the region. The Ogallala also yields about [30% of all groundwater used for irrigation](#) in the United States. However, according to the [Fourth National Climate Assessment](#), groundwater extraction is exceeding groundwater recharge. This unsustainable overuse, exacerbated by regional drought, threatens the future of communities and economies that depend on this water.

Playas – a major yet relatively unknown natural resource – are playing a vital role in replenishing and improving the quality of the region's water supply. Playas are shallow depressions found at the lowest point of a watershed that contribute up to 95 percent of water flowing to the aquifer, with recharge rates 10 to 1,000 times higher than under other areas. In addition, water reaching the aquifer through playas is of higher quality because they act as water filtration systems reducing contaminants reaching the groundwater. Playa basins also collect and hold water from rainfall and runoff, creating temporary wetlands that support 185 bird species in the western Great Plains ([Haukos & Smith, 1994](#)).

A healthy playa has an intact clay-lined basin – without excavated pits or ditches – that is not buried by sediment from nearby fields. Water from the surrounding watershed freely enters the basin through a native vegetative buffer without being diverted by roads, terraces, or other impediments. However, many playas

are degraded and at risk of further destruction, decreasing the available benefits for wildlife and people.

Across the region, many organizations, including Tomorrow's Water led by Playa Lakes Joint Venture (PLJV), are working to ensure water availability under immediate and future drought conditions. Tomorrow's Water builds on successful projects in [eastern New Mexico](#) and [western Kansas](#) and helps communities incorporate playa restoration into water management plans to provide water for future generations.



Key Issues Addressed

Groundwater availability for communities over the Ogallala is rapidly declining. As aquifer levels decrease, towns and

communities are at risk of a future of limited water supplies. Many local economies depend upon irrigated cropland, a land-use type which requires large amounts of water; however, irrigation greatly exceeds recharge from playas. Communities need to design a water management plan that reduces aquifer overuse by increasing irrigation efficiency, retiring wells, and using other water conservation methods, as well as restoring playas, and managing runoff within playa watersheds.

Playa benefits are not always known, and therefore harnessed, by communities and landowners. As such, many playas have excess sediment that has eroded from surrounding farmland, or have been modified to drain the water. These human impacts decrease playas' abilities to recharge their underlying aquifers. However, because playas are a primary source of groundwater recharge, they can be an important part of a sustainable approach to securing water for communities. Through playa education and outreach efforts, communities can develop a shared understanding and care for playas and the benefits they provide.

Water management is complex and involves many stakeholders. Each community faces unique and specific challenges which require a diverse set of partners to find and implement solutions. Tomorrow's Water has been successful in helping towns and communities build these diverse partnerships; however, no single organization has the capacity to support every community depending on the Ogallala.

Image Caption: *Map depicting playas within the Ogallala Aquifer.*

Project Goals

PLJV aims to help communities identify where increasing irrigation efficiency, decreasing overall irrigation, and retiring excess wells can effectively reduce water use while still supporting agricultural operations. For example, some irrigated

cropland can likely be converted to dryland agriculture or rangeland. These alternatives will keep the land in agricultural use but require less supplemental irrigation, reducing aquifer overuse and allowing water levels to rebound.

Through Tomorrow's Water, PLJV strives to implement playa restoration as part of broader community water quantity and quality efforts, including municipal water management plans. Playa restoration activities include filling pits and ditches, removing excess sediment, planting native vegetation buffers, and managing surface water runoff, which will aid in playa functionality and aquifer recharge. PLJV aims to include outreach and education because increased awareness of the benefits of playas leads to higher prioritization of playa restoration.

Tomorrow's Water is adaptable to local needs and goals, empowering communities to establish unique water management plans. With more and more towns interested in Tomorrow's Water, additional partners are needed to support these local efforts. PLJV aims to share developed tools such as the Tomorrow's Water Community Engagement guide to provide community leaders an outline and tips for developing a collaborative conservation partnership while allowing room for each community to tailor it to fit their specific needs. The guide is based on experiences from PLJV staff and feedback from a collaborative of partners in Kansas, and includes workable advice on incorporating playa restoration into water management.



Project Highlights

CO-PRODUCING TOMORROW'S WATER

Tomorrow's Water has always been grounded in collaboration, considering the priorities and needs of all partners. PLJV continues to engage with stakeholders to improve available tools and resources.

- **Acres of Playa Restored:** Around Clovis, New Mexico, PLJV facilitated the restoration of 708 acres of playas. This restoration prevents 11,302,283 pounds of sediment from reaching the playa each year. Near the towns of Leoti and Tribune, Kansas, PLJV guided the restoration of 1,142 acres of playas. PLJV led the planting of native plant buffers around 31 playas to enhance natural sediment filtering. In addition, the Wichita County Road Maintenance Department installed infrastructure to funnel water away from roads and into five

previously dry playas across 42 acres. This prevents flooding and increases playa recharge.

- **Diverse Financial Support for Restoration:** Tomorrow's Water projects have leveraged funding from the [National Fish and Wildlife Foundation \(NFWF\)](#) and [Wildlife Conservation Society \(WCS\)](#), as well as Farm Bill programs through the [U.S. Department of Agriculture's Natural Resources Conservation Service \(USDA NRCS\)](#) and [Farm Service Agency \(USDA FSA\)](#). In Kansas, under the Conservation Reserve Program, the Migratory Birds, Butterflies and Pollinators State Acres for Wildlife Enhancement (SAFE) programs, have facilitated restoration of 5,250 acres of playas and protective buffers. The PLJV partnership worked with USDA FSA to expand the [Migratory Birds SAFE](#) to Oklahoma in 2023, with 1,082 acres enrolled and it may soon be available in Texas, which will be important as Tomorrow's Water continues to grow.
- **Growing Interest, Shifting Understanding:** For many years, PLJV had to initiate conversations about playas and their restoration. In recent years, more communities are reaching out to PLJV and its partners to request support for implementing these strategies in their communities. This increase in awareness and interest is exciting, as Tomorrow's Water can help these communities find and implement solutions to continue providing abundant, clean water for future generations.

Image Caption: *Wet playa in Finney County, Kansas.*



Lessons Learned

Groundwater management requires many diverse partners working together to succeed, and productive partnerships may come from unexpected places. For example, PLJV worked with the Kansas Department of Health and Environment, a group that has not historically been involved in playa conservation, to include playa restoration in their best practices to address drinking water quality. Having a broad partnership brings diverse expertise to various elements of groundwater management, such as stabilizing the water supply, improving water and soil quality, and providing habitat.

While including multiple perspectives are critical for success, such wide-reaching conservation efforts need a defined, specific goal and one person or partner with the passion and capacity to push the project goals forward. The Tomorrow's Water

Community Engagement Guide offers tips for establishing a goal, building a partnership, accessing funding opportunities, and implementing the project.

Community outreach is important, and is most effective when conducted by trusted local partners. Using locally-led and familiar sources can help community members be more comfortable with initial engagement and wanting to take next steps to learn more. In New Mexico, direct mailings to producers from local Soil and Water Conservation Districts (SWCD) successfully garnered engagement, with a call-back rate of around 3%, and a SWCD-sponsored field day had 18 people in attendance, resulting in three site visits and two playa restoration contracts.

Success in projects can be measured in both tangible and intangible ways. Ultimately, PLJV measures success by the number of playa acres restored, and, in some cases, the number of wells retired. However, PLJV also measures success through community interest and increased engagement. The number of towns, communities, and people requesting information about Tomorrow's Water and including playas in water management plans is an important indicator of the potential to meet PLJV's long-term playa restoration goals.

Image Caption: *Community stakeholders visit a city-owned playa in Clovis, New Mexico. Visitation increases awareness and understanding of playa function and restoration.*



Next Steps

The PLJV partnership continues to work with towns throughout Kansas, New Mexico, and Texas who are interested in implementing Tomorrow's Water and is actively looking to expand it into Oklahoma, Colorado, and Nebraska. To facilitate this spread, PLJV has developed a set of resources and tools to support communities who are interested in playa conservation and Tomorrow's Water. These include the Community Engagement Guide, an interactive Playa Recharge Estimator, a Playa Land Use Calculator, and a number of videos featuring landowners and towns that are already conserving playas. These resources and tools can be found at tomorrowswater.org.

In addition, an ongoing study by the [Kansas Geological Survey](https://www.kgs.ku.edu/) is investigating how farming in playas affects recharge rates. The

results from this experiment will inform best practices for playa management.

Image Caption: *Playa restoration in progress.*



Resources

May 2023 Case Study Handout

Collaborators

- [Playa Lakes Joint Venture](#)
- An existing partner network is essential for success, and each state involved has an expansive project team. The partner network includes, but is not limited to: Bird Conservancy of the Rockies, Cannon Air Force Base, Central Curry Soil and Water Conservation District, City of Clovis and Curry County,

Colorado Parks and Wildlife, Ducks Unlimited, EPCOR Water, Kansas Association of Conservation Districts, Kansas Alliance for Wetlands and Streams, Kansas Department of Agriculture (Department of Conservation), Kansas Department of Wildlife and Parks, Kansas Water Office, Nebraska Game and Parks Commission, New Mexico Association of Conservation Districts, New Mexico Department of Game and Fish, New Mexico Environment Department, New Mexico State Land Office, Ogallala Commons, Ogallala Land and Water Conservancy, Oklahoma Department of Wildlife Conservation, Pheasants Forever, Southwest Quay Soil and Water Conservation District, Texas Parks and Wildlife Department, Texas Playa Conservation Initiative, USDA Farm Service Agency, USDA Forest Service, and USDA Natural Resources Conservation Service.

- The Tomorrow's Water Collaborative in Kansas was instrumental in drafting the Tomorrow's Water Community Engagement Guide. The Collaborative members represent:
 - [Division of Conservation at the Kansas Department of Agriculture](#)
 - [Ducks Unlimited](#)
 - [Greeley County Republican](#)
 - [Kansas Association of Conservation Districts](#)
 - [Kansas Department of Health and Environment](#)
 - [Kansas Natural Resources Conservation Service](#)
 - [Kansas Water Authority](#)
 - [Kansas Water Office](#)

Funding Partners

- 2018 grant from [National Fish and Wildlife Foundation Resilient Communities](#)
- 2019 grant from the [Wildlife Conservation Society Climate Adaptation Fund](#)
- [U.S. Department of Agriculture Natural Resource Conservation Service](#) - [Regional Conservation Partnership Program](#) and

Collaborative Conservation Grant Agreement

- U.S. Department of Agriculture Farm Service Agency - Conservation Reserve Program [Migratory Birds](#), Butterflies and Pollinators [State Acres for Wildlife Enhancement \(SAFE\)](#)

Resources

- [Tomorrow's Water: Connecting People, Playas & the Ogallala Aquifer](#)
- [Enhancing Your Community's Water Video](#)
- [How Playas Work Video](#)
- [Tomorrow's Water Community Engagement Guide](#)
- [PLJV's Playa Maps and Tools](#)
- [PlayasWorkForKansas.com](#)
- [PlayasWorkForNewMexico.com](#)
- [PlayasWorkForTexans.com](#)
- [Ogallala Aquifer Initiative 2011 Report](#) (2011). Natural Resources Conservation Service. United States Department of Agriculture.
- [Fourth National Climate Assessment](#): Volume II: Impacts, Risks, and Adaptation in the United States.
- Haukos, D. A. & L. M. Smith. (1994). [The importance of playa wetlands to biodiversity of the southern High Plains](#). *Landscape and Urban Ecology* 28:83-98.
- Russell, M.T., Cartwright, J.M., Collins, G.H., Long, R.A. & Eitel, J.H. (2020). [Legacy effects of hydrologic alteration in playa wetland responses to droughts](#). *Applied Wetland Science*, 40, 2011-2024.
- [United States Department of Agriculture's Natural Resources Conservation Service](#)
- [Wildlife Conservation Society Climate Adaptation Fund](#)

Photo Gallery

- [Photo Album and Credits](#)

Contact

- Miruh Hamend, Marketing Communications Director, Playa Lakes Joint Venture: m.hamend@pljv.org

CART Lead Author

- Erin Connolly, Case Study Intern, Drought Learning Network

Suggested Citation

Connolly, E. E. (2023). "Community-Driven Water Management: The Tomorrow's Water Model for Playa Restoration." CART. Retrieved from <https://arcg.is/0m8Cbz0>.

Image Caption: *Walking through smartweed (Polygonum) in a healthy playa.*

More Information on CART