CCRN Cochise Conservation & Recharge Network

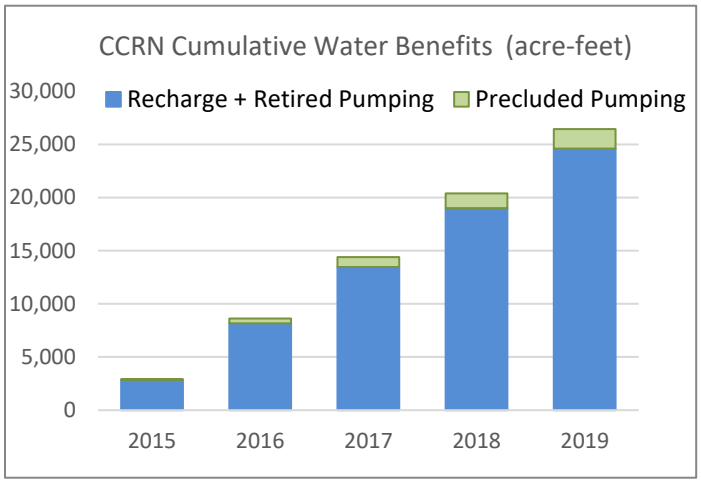
FACT SHEET

Highlights from the 2019 Hydrologic Monitoring Program

The objective of the CCRN hydrologic monitoring program is to quantify and continuously improve the design and effectiveness of CCRN aquifer recharge projects, and to address legal and regulatory compliance.

Hydrologic monitoring was conducted during 2019 at all CCRN project sites: Babocomari River, Bella Vista, Riverstone, Three Canyons, Palominas, Horseshoe Draw, and the City of Sierra Vista Environmental Operations Park. The characteristics of these sites vary widely, as do the types of data collected. Hydrologic monitoring data from five of the seven CCRN projects sites for 2019 can be found on the CCRN's website. Some of the key findings and lessons learned during 2019 are summarized below.

Through managed aquifer recharge, retiring historic pumping, and precluding future pumping, CCRN projects provided over 6,000 acre-feet (AF) in 2019 of water benefits to the San Pedro River, and a total of 26,500 AF since 2015.



MONITORING YEAR 2019 HIGHLIGHTS

In 2019, precipitation was 17 to 20% below average at Riverstone, Bella Vista, and Horseshoe Draw, and 21% above average at Palominas. Surprisingly, stormwater runoff was higher at Bella Vista, Riverstone, and Horseshoe Draw than previous years, but lower at Palominas. Ongoing monitoring will capture future wet years and high intensity precipitation events to better understand climatic variability and the relationship between runoff and precipitation.

Hydrologic monitoring at CCRN project sites where regional groundwater declines are of most concern revealed some welcome news.

Horseshoe Draw Sediment and Flood Control/ Recharge Project

The **Horseshoe Draw Sediment and Flood Control/ Recharge Project** is designed to slow accelerated stormwater runoff that carries excessive sediment into the San Pedro River. Monitoring results from 2019 show that the project detention basin doubled the amount of time that stormwater flows to the channel downstream of the basin, allowing additional time for infiltration and doubling the amount of recharge. Specifically, in 2019 the project recharged 68 AF in the basin and an additional 99 AF in the downstream channel of the constructed basin. The amount of sediment trapped in the basin will be estimated as more survey data is collected.

Using a similar approach, a future stormwater recharge project along **Coyote Wash at Bella Vista** is being designed to renovate an abandoned gravel pit for use as a detention basin. This project will detain stormwater runoff from urbanized areas of Sierra Vista generated by roads, parking lots, rooftops, and other hard surfaces, and slowly release it back to the wash to increase the total amount of infiltration and groundwater recharge.

Since 2002, the **City of Sierra Vista Environmental Operations Park (EOP)** located at Sierra Vista's wastewater treatment facility has recharged the City of Sierra Vista's Class A effluent. The EOP is protecting San Pedro River flows by recharging the aquifer and raising groundwater levels for miles around the facility. In 2019, the EOP recharged a combined 2,822 AF of high-quality effluent in wetlands and the recharge basins. Over 11 billion gallons of effluent have been recharged at the facility since 2002.

The benefits of natural recharge within floodplains was evident in 2019 at the **Babocomari River at Huachuca City** project site. Flood flows during the monsoon season raised groundwater levels over 7 feet in one month, and the water table remained 2 feet higher several months later. Regional groundwater levels are declining by about 0.6 feet a year. Ongoing monitoring here shows how natural floodplain recharge increases water availability for the Babocomari River, supporting lush streamside forests and marshlands.

Babocomari River

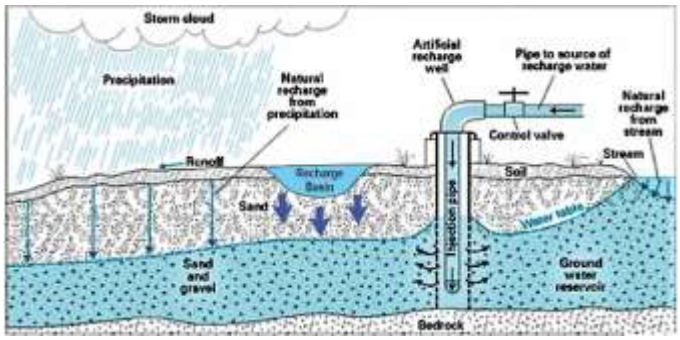
About the CCRN

The mission of Cochise Conservation and Recharge Network (CCRN) is to implement a regional network of land and water management projects that result in a healthy watershed, flowing San Pedro River, conservation of water resources, and a vibrant local economy. The CCRN members are Cochise County, City of Sierra Vista, The Nature Conservancy, Hereford Natural Resources Conservation District, and City of Bisbee.

Why Recharge?

The water that is used for homes, businesses, and agriculture in the San Pedro River Basin is the same source of water that keeps the San Pedro River flowing and its habitat healthy. All of the water that local communities use is pumped out of the underground aquifer. This same "groundwater" also seeps into the river, and keeps it flowing during periods when there is no rain.

The CCRN recharge projects are located along 25 miles of the San Pedro River. The network of projects will help ensure that the river will flow long into the future by protecting and replenishing groundwater in the locations where it most benefits the flows of the river.



Modified from the USGS