Central Platte NRD

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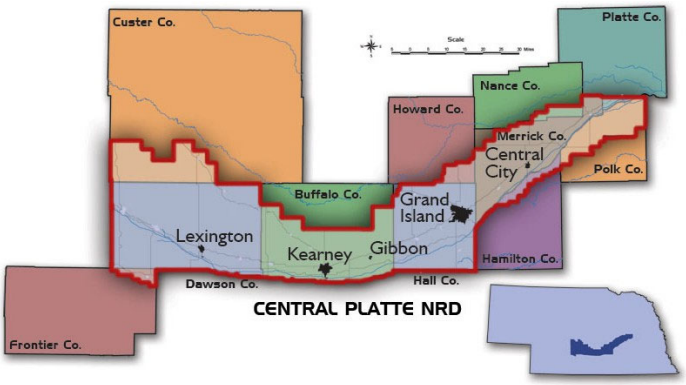

WATER QUALITY & QUANTITY MANAGEMENT

Central Platte NRD has 1,029,218 irrigated acres with 937,502 acres irrigated with groundwater only; 14,359 acres with surface water only and the remaining co-mingled use. Crops irrigated in the District include corn, soybeans, sorghum, potatoes, alfalfa, small grains and sunflowers.

GROUNDWATER QUALITY

Quality Management Program

Implemented in 1987 to provide long-term solutions for widespread high groundwater nitrate-nitrogen (N) problems, CPNRD's quality management plan uses a phased program to implement controls when needed. Average nitrate levels have been reduced from 19.24 in 1987 to 13 ppm. CPNRD works with producers by providing cost-share to implement best management practices; and with the Department of Environment & Energy to issue Chemigation permits to producers who are properly trained and certified. In 2019, CPNRD issued 2,055 renewal permits and 162 new chemigation permits.

Demonstration Projects

The first nitrogen management demonstration project was initiated in 1980. The Nitrogen Irrigation Management Project followed in 1984 and has had over 400 demonstration sites located on producers' cornfields. These plots have provided over 290 field days and information meetings on new technologies such as ET gages, watermark sensors to schedule irrigation, soil moisture capacitance probes, polymer material, slow/controlled release nitrogen products, and cover crops.

Research

Vadose Zone Core Sites In 2016, UNL digitized vadose zone core sites collected in the 1990s to determine where additional cores may best characterize nitrate storage and transport rates to the water table. Core samples were collected in new and previously sampled areas being used for ag production. Initial results indicate nitrate concentrations in the vadose zone were lower due to reduced nitrogen fertilizer applied, reduced irrigation, and land use practice changes.

On-Farm Fertigation Research project was initiated in 2018 to assist producers with timing of nitrogen and insecticide applications. The Project has expanded and taken steps towards fertigation research utilizing the use of sensors and drone imagery to improve nitrogen fertilization timing to improve applications for efficiency.

RCCP Grant for Soil Health In May 2020, The Nature Conservancy received $4.4 million in RCPP funding with NRCS, CPNRD and Upper Big Blue NRD to connect farmers with private sector payments for soil health practice adoption. The five-year grant will provide technical and financial assistance to adopt soil health practices on 100,000 acres or 60-80 producers. Producers have the option to implement cover crops, reduced tillage and/or diversified crop rotation. A new carbon market, the Ecosystem Services Market Consortium, will connect companies looking to offset their carbon footprint with producers who implement soil health practices that capture carbon. Participating companies include Cargill, Target, McDonald's and others. Partners plan to register 20,000 acres in the first year with enrollment from December 2020 to March 2021.

GROUNDWATER QUANTITY

Quantity Management Program

In 1987, the Groundwater Quantity Management Program was developed using USGS's model of the hydrogeologic aquifer system. CPNRD's plan has 24 Ground Water Management Areas and a phased program to implement controls as needed. Olsson Engineering is currently updating the Plan by utilizing the Cooperative Hydrology Study (COHYST) and Groundwater Evaluation Toolkit (GET) to evaluate current plan triggers, update data sets and maps, and run scenarios to predict what may happen with future management options.

Agreements

Integrated Management Plan In 2003, CPNRD issued a suspension on drilling new wells and expansion of irrigated acres to determine what groundwater and surface water problems existed and how future water supplies could be affected. In 2004, the NeDNR designated the Platte Basin above Elm Creek over-appropriated and the area from Columbus to Elm Creek was fully appropriated. In response, CPNRD and NeDNR developed an individual Integrated Management Plan (IMP) in 2005 with the second increment approved in 2019.

Basin-Wide Plan The initial Platte River Basin-Wide Plan was effective in 2012 to set objectives to incrementally reduce the difference between current and fully appropriated levels of development within the basin. The second increment was approved by the North Platte, South Platte, Central Platte, Twin Platte, Tri-Basin NRDs, and NeDNR in 2019.

Platte River Recovery Implementation Program (PRRIP) CPNRD has a big stake in the PRRIP's goal to improve and conserve habitat for threatened and endangered species including the whooping crane and piping plover on the central Platte, and the endangered pallid sturgeon on the lower Platte. PRRIP was signed by the federal government and the basin states of Nebraska, Colorado, and Wyoming in 2006. The plan requires no new depletions to target flows and efforts to bring the Platte River back to 1997 levels. Funding for the PRRIP extension was approved through 2032.

Projects

Water Banking Program CPNRD initiated the first Water Bank in Nebraska in 2007 to acquire water rights from willing landowners to reach post-1997 water mitigation goals. In 2012, the NRD initiated partnerships to rehabilitate the surface water canals in Dawson County including Cozad Ditch, Thirty Mile Irrigation District, and Southside Irrigation District. All three canals deliver water for surface water irrigation and divert water for retimed recharge during excess flow events. Excess Platte River flows diverted by the three canals has totaled 89,590 AF and the computed recharge was 40,512 AF.

30-Year Reserve Program In January 2021, a public hearing will be held to consider adding a 30-Year Acreage Reserve Program to the NRD's Groundwater Management Plan Rules & Regulations. The program was developed to provide a long-term solution in protecting surface water rights and to ensure that supplies in the Platte Basin are optimized and managed efficiently with maximum benefits and to meet water management obligations. Irrigation districts will sign up for the program and surface water users will have the option to opt-in or opt-out of the program annually.

Surface Water Storage In 2018, CPNRD partnered with CNPPID, NPPD, and NeDNR to store a portion of the unused surface water irrigation water in Lake McConaughy. The water is transferred to the Environmental Account on October 1st of each year, allowing the mitigation water to be released to meet various water management targets and goals. In August 2019, the recharge agreement changed the way CPNRD is paid for groundwater recharge via seepage through the canals in the non-irrigation season. The total amount diverted is measured by the NRD using automated measuring and recording gates and adjusted; by subtracting any releases made and recorded by the irrigation district. The non-irrigation season begins when the canals stop releasing water for irrigation and end when the canals begin releasing water for irrigation as determined by CPNRD.

Long-Term Plan A program is currently being developed to fine-tune the water management framework for surface water and groundwater users. The program would bring together state Integrated Management Plan goals providing long-term certainty for the Platte Basin. Partners include Central Platte, North Platte, South Platte, Twin Platte, and Tri-Basin NRDs, NeDNR, CNPPID, NPPD, and the Platte River Recovery Implementation Program. Financial contributions from the partners would allow for a long-term funding source for groundwater recharge provided by the surface water irrigation districts and other entities.

Research

Crop Irrigation and Demand Program CPNRD provides cost-share for producers to install telemetry equipment that provides real-time data and allows the NRD to view water usage and soil moisture from the fields. The amount of water pumped and precipitation are measured to develop irrigation efficiencies by equipment type, soil water holding capacities and crop type. Participants may check gallons per minute used, inches applied per day and throughout the season, and soil moisture readings. The program was started in 2013.

Central Nebraska Irrigation Project was initiated in 2018 with 50 producers currently enrolled. Producers use the Arable Mark field-level weather and crop monitoring device, which collects over 40 different data streams on precipitation, ET, solar radiation, plant health, weather, harvest timing, wind, and soil moisture. The Project also includes use of pivot telemetry and flow meters. The Nature Conservancy, Nestle'-Purina, and Cargill are partnering on the project.

Flood Planning Grants

In 2020, CPNRD was selected to receive three Watershed & Flood Prevention Operations Program (WFPO) grants from NRCS to identify what is needed to address flooding and to design specific watershed plans. The two-year grants pay 100% of costs to complete an Environmental Assessment (EA) for each of the following: Spring and Buffalo Creeks Watershed in Dawson County; the Lower Wood River Watershed that includes portions of Buffalo, Hall and Merrick counties; and Elm and Turkey Creek Watershed that includes Dawson and Buffalo counties.

FUTURE WATER SUSTAINABILITY

In looking forward, the District will continue to strive towards water resources sustainability and studies which create tools to better manage groundwater and surface water in the Central Platte Valley by collecting and evaluating data to develop a hydrologic budget. Additional conjunctive management projects such as recharge projects will be considered.