

**ASSISTANCE FOR REPUBLICAN RIVER IRRIGATION DISTRICTS – 2007
INCREASED RESERVOIR CARRYOVER STORAGE**

(7/14/06)

Background

Declining inflows throughout the Republican Basin have significantly reduced storage supplies for Reclamation Irrigation Districts in Southwest Nebraska. This area has suffered effects of the current drought since 2000.

Natural flows in the Frenchman Creek and storage water from Enders Dam and Reservoir provides the water supply for project lands of the Frenchman Valley Irrigation District and the H&RW Irrigation District. There have been no storage water deliveries in the districts since 2001 and no releases are projected for 2006. However, some natural flow was utilized in the Frenchman Valley Irrigation District in 2004.

Natural flows in the Republican River and Red Willow Creek and storage water from Trenton Dam and Swanson Lake, Red Willow Dam and Hugh Butler Lake, and Medicine Creek Dam and Harry Strunk Lake provide the water supply for the Frenchman-Cambridge Irrigation District. Declining inflows led to reduced project deliveries in 2001 and 2002. In 2003 the Frenchman-Cambridge system did not deliver water to project landowners in the Meeker-Driftwood Unit and the Red Willow Unit (includes Red Willow and Bartley Canals) for the first time since the District began delivering water. In 2004 no deliveries were made from three of the District's four canal systems, which was the second consecutive year of no water deliveries to these systems. Water was delivered to the Cambridge Canal with the only storage water used coming from Harry Strunk Lake. In 2005 water was only delivered to the Cambridge Canal and the only storage water utilized was from Harry Strunk Lake. About 15,945 acres received 7.3 inches per acre. In 2006 deliveries are projected to be about 8 inches to acres served by the Cambridge and Bartley Canals with no supply to Red Willow Canal and no release from Swanson Lake.

Natural flows in the Republican River and storage water from Harlan County Dam and Lake provide water supplies for both the Bostwick Irrigation district in Nebraska and the Kansas Bostwick Irrigation District No. 2. Declining inflows to Harlan County Lake resulted in reduced deliveries of approximately 6 inches per acre in 2003. In 2004, the estimated water deliveries were 1.5 inches per acre. 2004 was the first year that there was insufficient supply in Harlan County Lake to deliver water to project lands in the Bostwick Division. This resulted in no deliveries from Naponee Canal, Franklin Canal, or Franklin Pump Canal systems of the Bostwick Irrigation District in Nebraska. Superior Canal was able to make some deliveries by utilizing natural flows. In 2005 deliveries only natural flows to the Superior Canal were utilized, not irrigation storage and 2,800 acres received 6.4 inches per acre. In 2006 deliveries are projected to be about 2 inches above Lovewell.

In 2004 and 2005 these districts faced limited irrigation storage at Enders Reservoir, Swanson Lake, Hugh Butler Lake, and Harlan County Lake; but through the Reclamation States Emergency Drought Relief Act of 1991, Reclamation and the State of Nebraska provided drought assistance to these districts for leaving the limited amount of irrigation storage in the reservoirs in order to provide recreation and fish and wildlife benefits.

Statement of Need

The recent drought has led to historic low inflows to the Republican Reservoirs, which in turn results in low lake levels. As lake levels drop, fish and wildlife habitat suffers. Lower lake levels can cause problems such as increased noxious weed and invasive species. As water levels recede, the bare soil provides optimum growing conditions for Canada thistle. Salt Cedar is a noxious weed that thrives in arid climates and prefers saline rich/nutrient poor soil. Salt Cedar can have severe impacts on ground water levels, surface water flows, and native vegetation. As lake levels drop, new shorelines continue to spread farther from existing park facilities. New shorelines are often extremely muddy and choked with vegetation, which reduces opportunities for bank fishing, swimming, dock mooring, etc.

Lower lake levels also caused increased water temperature and lower levels of dissolved oxygen. Swanson Lake (2001) and Harry Strunk Lake (2002) in Southwest Nebraska have suffered major fish kills due to low lake levels. Some have estimated that ½ of the total fish population in Swanson Lake was lost, including many trophy size sport fish.

Irrigation districts in the Republican basin must decide whether or not to take the small amounts of irrigation storage water in the reservoirs and deliver it to the project lands, or to leave the small storage supplies in the reservoirs for future years use.

Benefits to Nebraska

This assistance will provide the Republican Irrigation Districts with an incentive for leaving irrigation storage water in the reservoirs during the 2007 season for future years use. Saving the irrigation storage water for future years use will result in higher carryover reservoir levels, which would provide fish and wildlife and recreation benefits to the reservoir areas.

By choosing to leave the storage in the reservoirs, the Districts are providing fish and wildlife benefits, as well as increased recreation opportunities. The higher reservoir levels will increase visitation to the parks surrounding these reservoirs. Higher reservoir levels also will keep water temperatures cooler and water temperatures higher, which will be more beneficial to fish populations. Higher levels also will improve shoreline access for recreation.

Budget

Drought assistance for irrigation storage left in reservoirs was computed on a graduated scale. The first 2500 acre-feet left in a reservoir was computed at a payment of \$10 per acre-foot, the next 2500 acre-feet was computed at \$5 per acre-foot, and anything over 5000 acre-feet was computed at \$2.50 per acre-foot. This is the same rate that was used to provide drought assistance in 2004 and 2005.

Preliminary 2007 Estimated Water Supply for Drought Assistance Request

Reservoir	Estimated Reservoir Elevation on 7/1/07	07 Estimated Irrigation Storage (AF)	Drought Assistance	Delivery Inch / Acre
Enders	3088.0	3,940	\$ 32,200	.5
Swanson	2734.0	21,390	\$ 78,475	5.5
Hugh Butler	2566.0	4,440	\$ 34,700	5.5
Harlan County	1929.0	9,980	\$ 49,950	2.0
		=====	=====	
TOTAL		39,750	\$195,325	

Notes:

Frenchman Valley Irrigation District's share of Enders storage is approximately 42 percent or \$ 13,525. H&RW Irrigation District's share of Enders storage is approximately 58 percent or \$ 18,675.

Irrigation Storage, Drought Assistance and Delivery listed for Harlan County Lake is for the Bostwick Irrigation District in Nebraska. Kansas Bostwick Irrigation District's share would be 5,500 acre-feet (total of 15,480 acre-feet) with an estimated delivery of 2.0 inches above Lovewell.

The estimated 2006 delivery for Cambridge and Bartley Canals (with no supply to Red Willow Canal and no release from Swanson Lake) was 8 inches. It appears that acres served on Cambridge Canal will get 8 inches, however, we may not be able to deliver 8 inches to all the acres served by Bartley Canal. Uncertain as to how Frenchman-Cambridge Irrigation District might deliver water next year. It is possible that they may try and deliver Swanson Lake storage to Meeker-Driftwood Canal and Hugh Butler Lake storage to Red Willow Canal with no delivery to Bartley Canal (since received water this year).