

## Chapter 7: *Conclusions and Concerns*

### Conclusions

Because of the severe decline in streamflows in the Frenchman River Basin due to intensive groundwater pumping and soil and water conservation measures, the Unit no longer operates as authorized.

Nebraska's current IMP's project the Republican River Compact will result in only a small increase in streamflows in the basin. The surface water supply of the Unit will not return to levels necessary to sustain all project irrigation requirements.

### Future Surface Water Supply

The future surface water supply will not provide enough water to support both the 9,292 project acres of the FVID and the 11,915 acres of the H&RWID.

Reclamation's Appraisal report, Unit (1977) stated:

*. . . the severe depletion to stream flow expected to result from irrigation well development upstream from the Culbertson Diversion Dam would reduce the acreage that can be provided an adequate project water supply to 10,250 acres. This supply was estimated to average 1.34 feet/acre during the 8-year period (p. IV-14).*

Using the RRCA groundwater model to predict streamflows for the next 40 years, along with historic streamflows and delivery records, the future available surface water above Culbertson Diversion Dam could provide an adequate water supply for an estimated 3,300 acres (based on a 12 inches/acre supply). This estimate is based on an assumed four-month irrigation season and a delivery system efficiency estimate of 40 percent.

Without drastic reductions in groundwater pumping in the Frenchman Basin, there will not be enough streamflows to provide any sizeable deliveries to the H&RWID. The H&RWID's current contract with Reclamation allows them to continue to "wait and see" in case drastic measures cause future streamflows to increase. Also, the H&RWID can retain their water right for a period of 30 years due to the shortages (possibly extended by petition-see Appendix A).

## **Recreation Opportunities**

### ***Benefits***

RRCA groundwater modeling shows that future streamflows in the Frenchman River Basin will increase slightly from present levels and will stabilize at these levels for a short period before the lag effect from upland groundwater wells causes streamflows to decline again. The modeling indicates that these slight improvements to streamflows above Enders Reservoir will provide enough water to maintain the higher minimum pool of elevation 3089.4 feet of the Recreation Alternative. This would result in increased recreational facility availability, visitation, and economic value compared to the Future-Without Project Condition. Reservoir operations show that the supply to project irrigators of sustaining the higher minimum pool would approximate 2 inches/acre every fifth year.

Recreational economic value for 2002-2006 was estimated using the average number of current visits by recreational activity. Using the full year visitation and percentage by activity estimates, recreation value averaged nearly \$1.9 million yearly. Focusing on estimates of visits during the high recreational season (May-September) applied by recreational activity to an estimate of average visits by recreational activity provided an estimate of average yearly recreational economic value averaging \$1.5 million yearly. The top three activities in terms of economic value proved to be camping, fishing, and boating.

Flat-water recreation and fishing would benefit from establishment of a minimum pool at the reservoir. A new minimum pool at elevation 3089.4 feet would maintain a surface area of 825 acres and 14,426 AF of water in the reservoir. Data show that the fishery in Enders would benefit from the higher minimum pool, especially panfish and open water species.

### ***Concern***

The NGPC has concerns about investing in future recreational facilities at the reservoir or maintaining existing facilities because of budgetary constraints.

## **Groundwater Recharge Opportunities**

### ***Benefits***

Groundwater recharge benefits from operating the Unit's delivery system are well recognized by project irrigators. An estimated 90 percent of project lands irrigated by surface water are also irrigated with groundwater (see Appendix B). Without operating the delivery system, groundwater levels in the project area will continue to decline at a faster rate than if the system were operating.

The FVID has an 1890 senior water right and will continue to divert available natural flows. In order to provide groundwater recharge benefits with FVID natural flows to H&RWID project lands, an agreement would have to be made between the two districts.

## **Concerns**

There are concerns connected to groundwater recharge, too. These are:

- The DNR would need to acknowledge groundwater recharge as a beneficial use
- If it would not change the priority date, the DNR might need to amend and/or change the FVID's natural flow right from an irrigation benefit to a groundwater recharge benefit
- If groundwater benefits were realized in the H&RWID project area, the DNR might need to amend and/or change the districts' natural flow rights and storage use rights
- If using available storage in Enders Reservoir for groundwater recharge, the DNR might need to amend and/or change the United States' storage use water right from supplemental irrigation to groundwater recharge
- Project boundaries might need to be adjusted to include non-project lands benefiting from project recharge
- It is the DNR's preliminary opinion that project operations could continue with the FVID using natural flows to prime the delivery system to prepare for delivering natural flows and storage water in Enders, with the acknowledgement that the benefits of groundwater recharge were an authorized project benefit
- Congressional legislation would be needed to change and/or add groundwater recharge as a project benefit
- If adding areas within the project, project boundaries would need to be adjusted
- If the project boundaries were expended, a study would be required to determine which lands would benefit from project recharge.