Integrated Management Plan Stakeholders Meeting
Twin Platte Natural Resources District
July 16, 2007

Stakeholders present: Don Colvin, Lisa Dominisse, Mike Drain, Jim Goeke, Tina Kurtz, Frank Kwapnioski, Jim Meismer, Roric Paulman, Robert Petersen, Page Peterson, Dennis Schilz, Jerry Steinke, Mike Svoboda, Doug Teaford, Joe Wahlgren, Jerry Weaver.
Stakeholders absent (excused): Phil Armstrong, Burdette Cooley, Steve Krajewski, Marion Kroeker, Dudley Oltmans, Steve Van Boening, T.J. Walker, Mike Wheeler.
Stakeholders absent (unexcused): Jim Hawks, Kenneth Schilz, Robert Wiseman.

Resource People: Ann Dimmitt, Kent Miller.

The Stakeholders Meeting was called to order at 7:05 p.m. CDT.

Announcements and Presentations

Revised meeting notes were distributed, reflecting Mike Drain's corrections.

Kent Miller reviewed the information the Stakeholder Subcommittee has been working on ways to get information in three areas: 1) water budget data; 2) surface water component incorporated into COHYST; and 3) more information from COHYST specific to this district. Progress is being made on all three fronts:

1) Data for a water budget will be generated from Gary Hergert's project (sponsored by TPNRD, North Platte NRD, and South Platte NRD) which will use satellite imagery to determine ET or consumptive use for each NRD and total water used in each district in 1997, 2000, and 2005.
2) This past week the TPNRD Board approved the proposal to join CPNRD, DNR, and NPPD in a project to add a surface water component to the COHYST model from Columbus through the TPNRD district.
3) Specific information on impacts to stream flow from reductions in irrigation were presented to COHYST sponsors on July 12. Duane Woodward agreed to share this information with TPNRD Stakeholders at this meeting.

Kent also noted that the TPNRD Board will request a one year extension on completion of their IMP to allow time for these information gathering projects to be completed. He also introduced Kevin Spelts, the new groundwater modeler.

Facilitator Lorre McKeone asked the group if there was any objection to hearing Duane Woodward's presentation. There was no objection so the agenda was revised to include Duane's presentation.

Presentations and Discussion

Bob Wilson, Professor of Agronomy at the Panhandle Research and Extension Center has been a weed scientist for 32 years. He shared information from research completed on invasive species in the North Platte River basin from Kingsley Dam to the Wyoming line. The major weeds infesting this corridor are the Canada Thistle, Musk Thistle, Russian Olive, and Saltcedar.

Saltcedar (tamarisk) has been classified a noxious weed in just the last 10 to 20 years. Its' seed is easily dispersed by water or wind and congregates along banks of rivers. When water levels drop, a line of plants spring up where the old water line had been. Saltcedar grows very rapidly, establishing deep, extensive root systems up to 30 feet. Roots extract salt and excrete salt from leaves which then leaches out the ground below the plant, killing off most other vegetation. Saltcedar has a high evapotranspiration rate. University studies estimate that one acre of Saltcedar infested river bank can utilize between 160,500 to 390,000 cubic feet of water.

Russian Olive near rivers spreads rapidly, taking over many acres. It is thorny and not conducive to wildlife. It uses about the same amount of water as Saltcedar or Cottonwoods, but Cottonwoods are not as densely populated.

Photos of the river at Scottsbluff and the first diversion on the North Platte River in 1889 showed a wide river with NO trees on river banks. A current photo of the diversion showed lots of trees, a narrow channel, and extensive invasive species.

A flyover of the 160 mile study area was conducted on June 21, 2005. Hyperspectral reflectance images were used to identify invasive species in a 0.9 to 1 mile wide band along the river. Survey results found 2% of the area infested with Saltcedar, 1.1% with Russian Olive, and 2% with Canada and Musk Thistle. It estimates that in 8,500 infested acres of Saltcedar and Russian Olive, a total of 35,000 acre feet of water are lost to these plants. If the species were controlled and replaced by grass, 25,000 acre feet of water could be regained in the river.

Aerial mapping can be integrated into a model to predict spread of invasive weeds and facilitate control measures. Dr. Wilson shared a report about New Mexico's Long-Term Management of Exotic Trees in Riparian Areas. Estimated cost over 10 years for control and restoration was $64,000,000 or $130 per acre. He discussed the pros and cons of various control techniques including aerial spraying and mowing off or cutting down trees and treating the stumps.

Duane Woodward, Engineering Hydrologist with Central Platte NRD is a member of the COHYST modeling group. He shared a report approved by COHYST sponsors on July 12 dealing with Simulated Stream Baseflow in the Nebraska Platte Basin due to Reduced Irrigated Land. The purpose of the study was to estimate effects of reduced groundwater irrigated land after 1998 on stream baseflows in the Platte Basin. It looked at effects for 50 years, for four reaches and at 20%, 40%, 60%, 80%, and 100% reductions in groundwater irrigated land. It is assumed that results would be used by others to determine how to return to Fully Appropriated status. The four areas studied were: 1) Wyoming line to Kingsley Dam; 2) Kingsley Dam to Tri-County Supply Canal; 3) Tri-County Supply Canal to Lexington; and 4) Lexington to U.S. Highway 183 (the eastern limit of the Over Appropriated Area). Tributaries were counted where they enter the main stem. The study assumed the following definitions:

- **HCA/OA** – Hydrologically connected area of the over appropriated basin. This was defined by DNR. It is an administrative determination with legal consequences.
- **Pumping Effect (PE)** – Changes in simulated stream baseflow after 1997 without any changes in 1997 land use. Formerly "lag effect".
- **No Pumping Effect (NPE)** – Changes in simulated stream baseflow after 1997 with elimination of pumpage for groundwater irrigation after 1997. Formerly "residual effect". In other words, this would assume no pumping by wells in the entire area.
- **Reduced Pumping Effect** – Changes in simulated stream baseflow after 1997 due to conversion of some groundwater irrigated land to dryland.
- **Irrigated land** – For purposes of this study, this refers to groundwater irrigated land.

During model calibration, land use recharge had four components: pre-settlement recharge; added recharge on surface-water irrigated land and beneath canals and reservoirs; added recharge on dryland; and added recharge on irrigated land (NOT deep percolation). The last two components, called "land use recharge" are important in this analysis. When irrigated land was simulated as converted to dryland, land use recharge was decreased.

CropSim Simulations	Dryland Recharge (inches/year)	Irrigated Recharge (inches/year)	Difference in Recharge (inches/yr)
Western model unit 1950-73	0.2 - 1.0	3.1 - 4.6	2.8 - 3.6
Western model unit 1973-98	0.2 - 1.0	3.1 - 4.6	2.8 - 3.6
Central model unit 1950-73	0.0 - 0.1	4.5 - 4.7	4.5 - 4.5
Central model unit 1973-98	0.0 - 0.4	4.6 - 6.8	4.6 - 6.4
Eastern model unit 1950-73	0.8 - 1.0	3.7 - 4.4	3.1 - 3.4
Eastern model unit 1973-98	0.8 - 1.0	5.8 - 6.9	5.0 - 5.9

A comparison was made between 100% reduction in ground irrigation in the HCA/OA and 100% reduction in the entire COHYST region. It was estimated that reducing all irrigation beyond the 28-40 line would add 18 cubic feet by May 2008, 30 cubic feet by May 2014, and 87 cubic feet by May 2048.

Of this, 35 cubic feet is in the TPNRD. NOTE: this is only the *additional* gain realized by shutting down wells outside the 28-40 line. It does NOT include water saved within the 28-40 line.

Projected water budget charts shared with the group incorporated the following:

- **Net pumpage:** from CropSim
- **Decreased recharge:** due to conversion of irrigated land to dryland
- **Increased groundwater storage:** due to less pumpage
- **Increased evapotranspiration:** due to less pumpage
- **Increased streamflow:** due to less pumpage

The analysis does not consider supplemental groundwater pumpage in surface-water irrigated areas. The difference between irrigated land recharge and dryland recharge is important to analysis. More information and additional charts are available at http://cohyst.dnr.ne.gov/

In the question and answer period that followed Duane's presentation, there was confusion about what time period and what areas were included in the calculations. This study looked only at additional savings that would result from adding in a 100% reduction in irrigated acres *outside* of the 28-40 line. (It does not report savings inside the 28-40 line.) It assumes developed acres as they existed in 1997. There were other questions about what this amount of water would mean to the Cooperative Agreement, where 130,000 to 150,000 acre feet of improvement are needed. Some Stakeholders also wanted to compare the amount saved by shutting down 100% of irrigation with savings possible from eliminating invasive species. It was agreed that more discussion on this topic is warranted, so Duane was asked to return in August to continue the conversation. He will bring additional charts to more specifically address the group's questions, including information about the impact of reductions in groundwater irrigation within the over appropriated area defined by the 28-40 line.

Meeting Schedule

All meeting times are from 7:00 to 9:30 p.m. CDT and ***will be held at the Holiday Inn Express***.
Future meetings:

7:00 p.m.	August 20
7:00 p.m.	September 17
7:00 p.m.	October 15
7:00 p.m.	November 19
7:00 p.m.	December 17

The meeting was adjourned at 9:30 p.m.