

Water Projects for the Platte Overappropriated Area Basin- Wide Plan and Integrated Management Plans

Upper Platte Basin-Wide Meeting
June 19, 2014

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&

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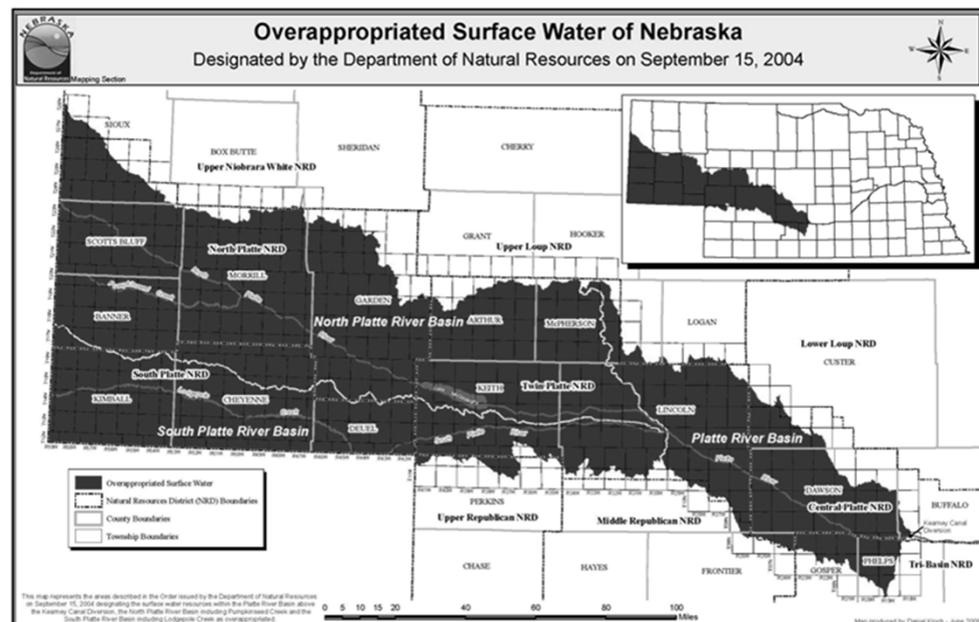
Integrated Water Management Coordinator



Department of Natural Resources

Outline

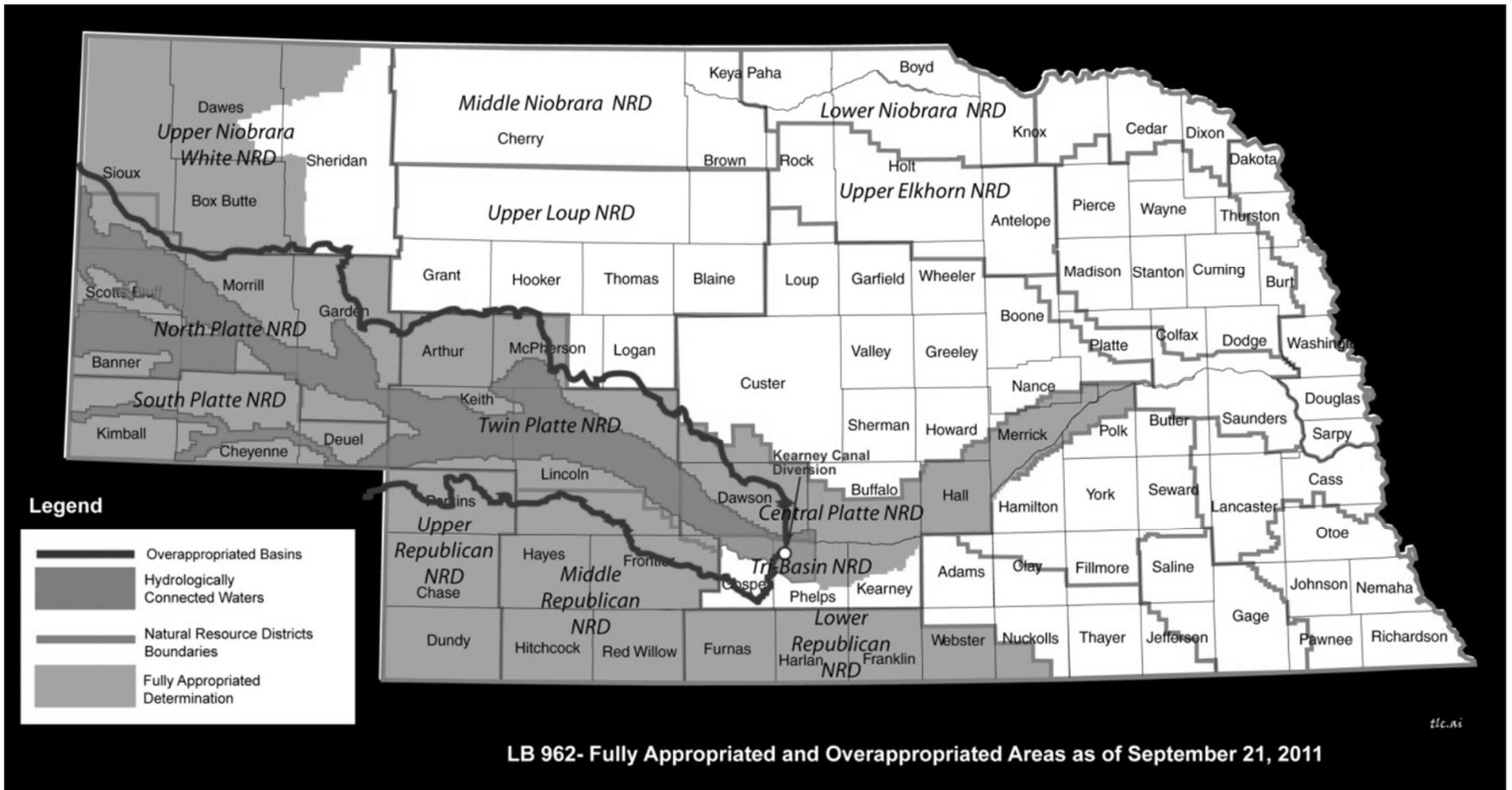
- Report on Water Projects being implemented to meet Goals and Objectives
- Small Water Bodies Update
- INSIGHT
 - ✓ Purpose
 - ✓ Development
 - ✓ Demonstration





PLATTE RIVER BASIN WATER PROJECTS

Fully Appropriated & Overappropriated Areas



Activities in the OA Platte Basin

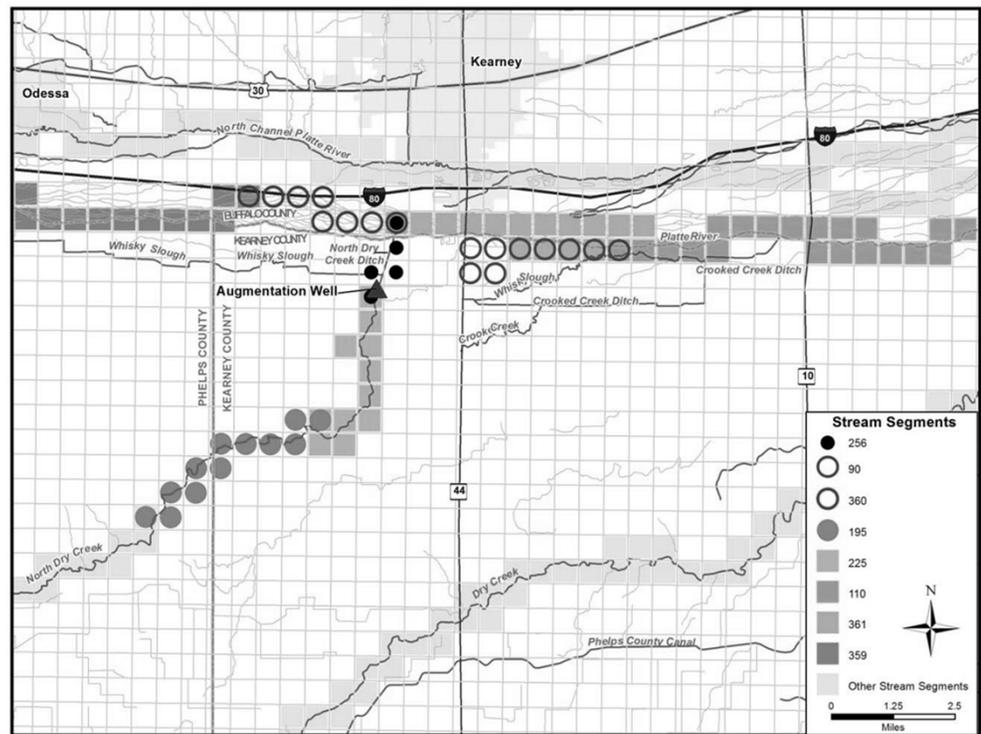
- Activities implemented by the DNR and Platte Basin NRDs for the purpose of returning to a fully appropriated condition



- ✓ These activities deliver offsets (accretions to provide mitigation) for depletions resulting from post-1997 development within the basin

Studies

- Upper Platte Basin Conservation Measures Study
 - Discussed by TBNRD
- Post-1997 Depletions
- Difference between Current and Fully Appropriated Levels of Development



Projects



- J-2 Regulating Reservoir
- Diversions of Excess Flows
 - 2013 & 2014
- Cozad, Thirty Mile, and Orchard-Alfalfa Canal Projects
 - Presented on by CPNRD
- N-CORPE
 - Presented on by TPNRD
- North Dry Creek Augmentation Well Project
- NPNRD & Central Irrigation District Conjunctive Management Project
- Retirement of Irrigated Acres

J-2 Regulating Reservoir

- J-2 will store water during times of excess streamflow and release stored water when shortages to target flows are expected to occur
 - PRRIP, DNR, TBNRD, CPNRD, TPNRD, CNPPID
 - Increases flexibility of hydrocycling
 - Permitting, Land Purchase, Water Rights, Engineering Tasks



2013 Excess Flow Project

- Cooperative effort to mitigate impact of Colorado flood flows along South Platte River while also recharging groundwater

South Platte River Bridge, Buffalo Bill Road,
North Platte, NE
Friday, September 20, 2013 at 8:30 a.m.



South Platte River Bridge, Buffalo Bill Road,
North Platte, NE
Saturday, September 21, 2013 at 7:00 p.m.



2013 Excess Flow Project

- South Platte flows peaked at stateline gage on September 18th, 2013 (21,000 cfs)

South Platte River Bridge, Highway 83,
North Platte, NE

Friday, September 20, 2013 at 8:45 a.m.



South Platte River Bridge, Highway 83,
North Platte, NE

Saturday, September 21, 2013 at 11:30 a.m.



2013 Excess Flow Project

- Diversion projects were quickly coordinated by DNR, NRDs, and irrigation districts

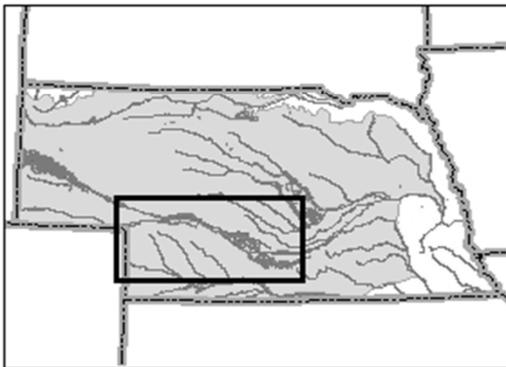
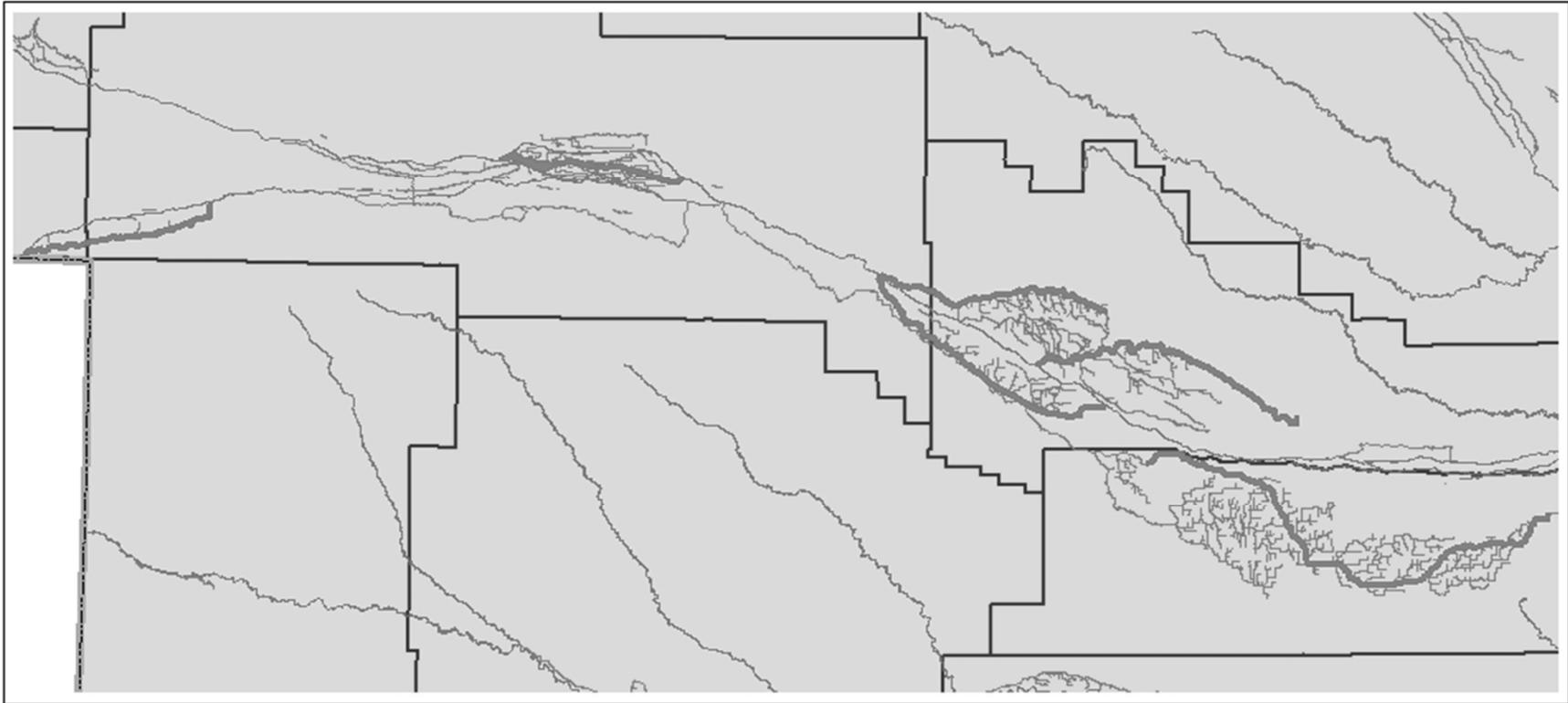
South Platte River Bridge, Buffalo Bill Road,
North Platte, NE
Friday, September 20, 2013 at 8:30 a.m.



South Platte River Bridge, Buffalo Bill Road,
North Platte, NE
Saturday, September 21, 2013 at 9:00 a.m.



Diversion of Fall 2013 Floodwaters



- | | | |
|----------------------------------|---------------------|-------|
| Fall 2013 Flood Diversion Canals | Major Streams | NRDs |
| Major Canals | High Plains Aquifer | State |

2013 Flood Flow Project

Partners

NRDs:

- South Platte
- Central Platte
- Twin Platte
- Tri-Basin

Irrigation Districts:

- Paxton-Hershey Water Company
- Thirty Mile Canal Company
- Western Irrigation District
- CNPPID
- Platte Valley Irrigation District
- NPPD – Dawson and Gothenburg

Results

Total Diverted	~35,800 af
Estimated Total Recharged	~28,200 af
Total Cost	~\$700,000

2014 Spring Excess Flows

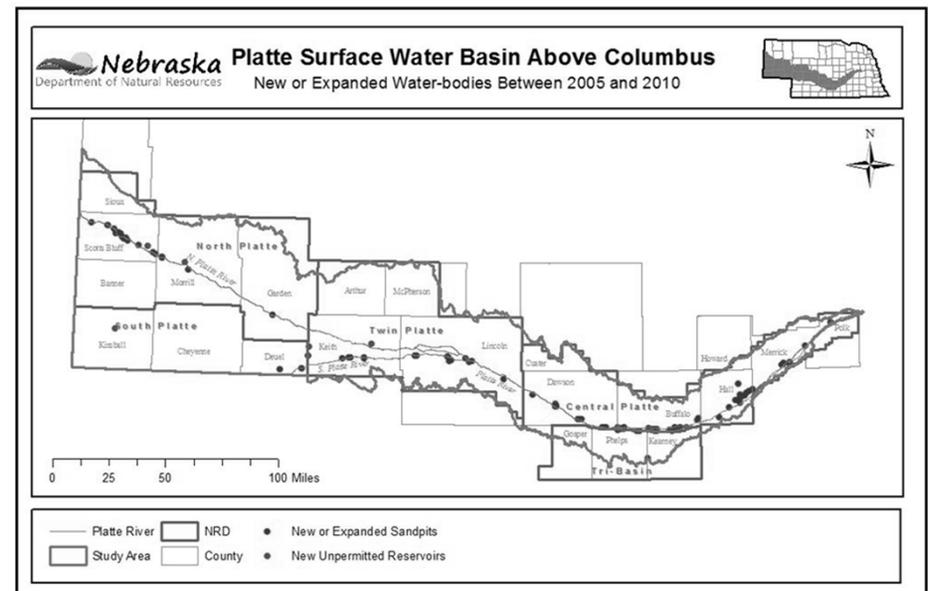
- Above average snow pack in Rocky Mountains and wetter conditions in western NE
- Monitoring for excess flows in the Upper Platte Basin began in early spring 2014
 - Snow pack & water equivalent
 - Current gaged river flows
 - Flow forecasts
- Diversions into Western Canal recharge pits and CNPPID's Elwood Reservoir began in early June



SMALL WATER BODIES UPDATE

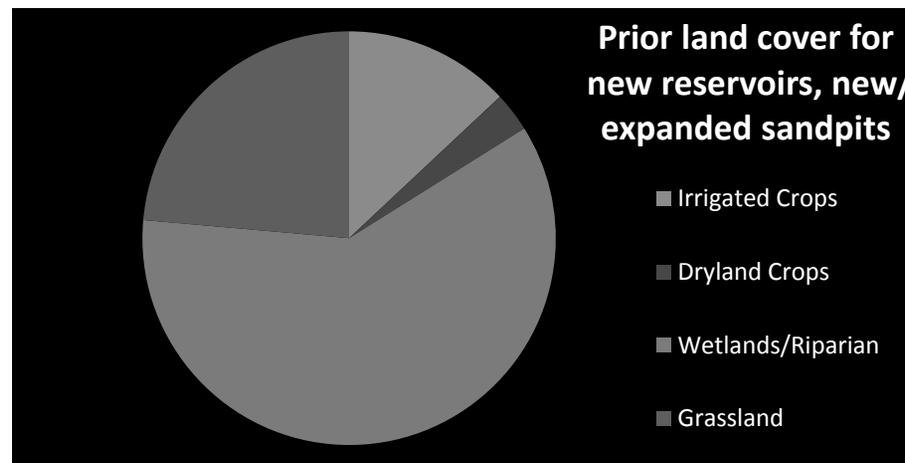
Small Water Bodies Update

- Geospatial technologies were used to identify new reservoirs and new or expanded sandpits that occurred between 2005 and 2010
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- In the PRRIP area, there were:
 - 9 new reservoirs (19 acres)
 - 94 new/expanded sandpits (728 acres)
 - Resulting in 747 acres that had been converted to open water

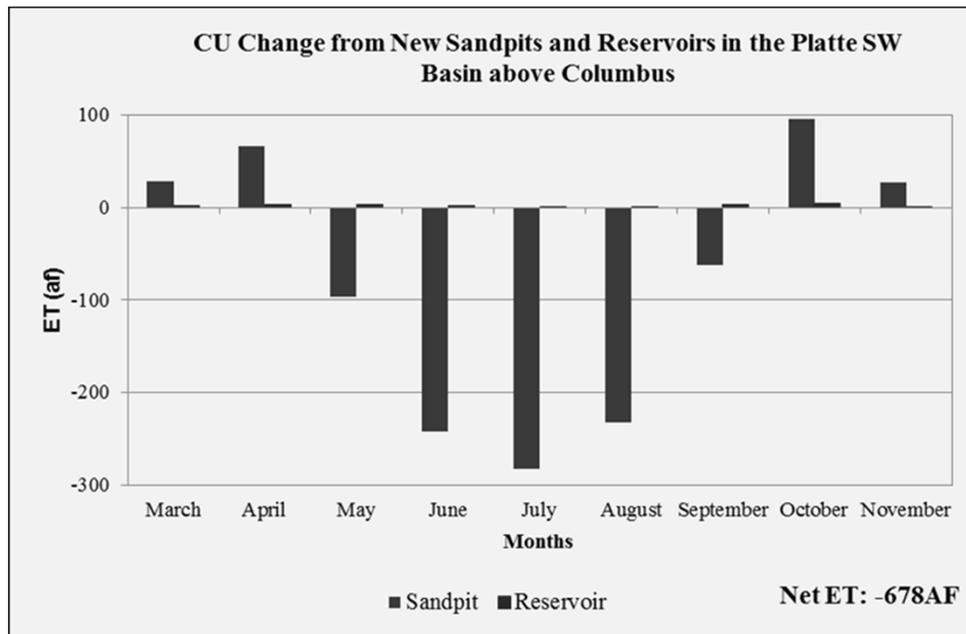


Small Water Bodies Update

- The NRCS calculator was used to estimate consumptive use (CU) change due to converting the previous land cover to open shallow (reservoirs) or deep (sandpits) water



Small Water Bodies Update



Results:

- The new reservoirs resulted in a slight increase in CU for all months
- The new/expanded sandpits resulted in a more pronounced decrease in CU during the growing season, with an increase in CU for the non-growing season

Small Water Bodies Update

- Conclusions:
 - The calculator estimated a total 678 af decrease in CU due to conversion of lands to open water.
 - Approximately 2,500 staff hours to complete the entire analyses

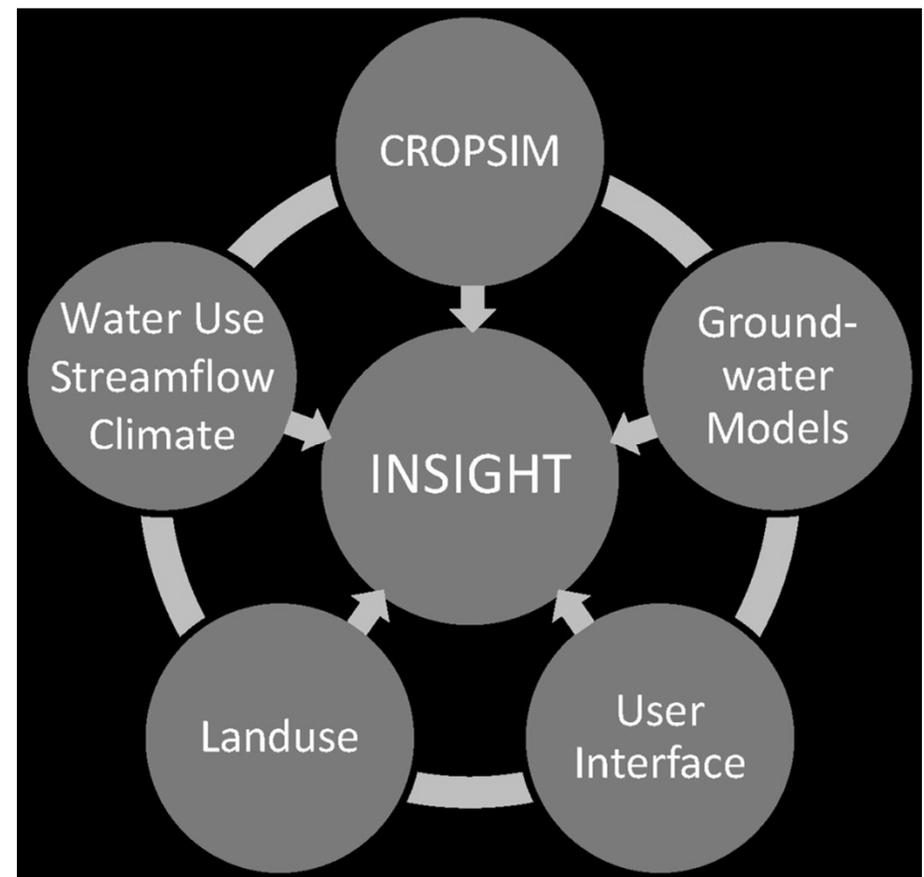




INSIGHT

INSIGHT – *Integrated Network of Scientific Information & GeoHydrologic Tools*

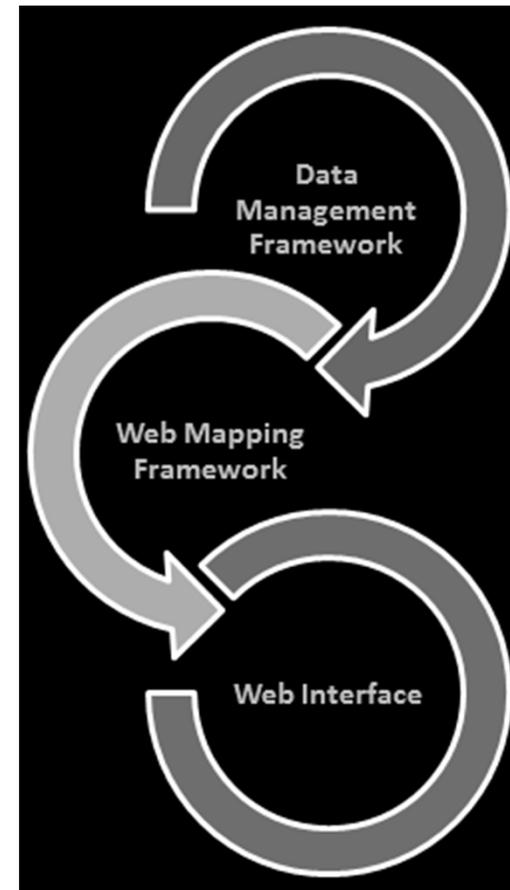
- An annual snapshot of water conditions across the state
- An educational tool for water managers and the public
- A tool to help evaluate water management options



INSIGHT was developed through...

Consolidation of Hydrologic Data

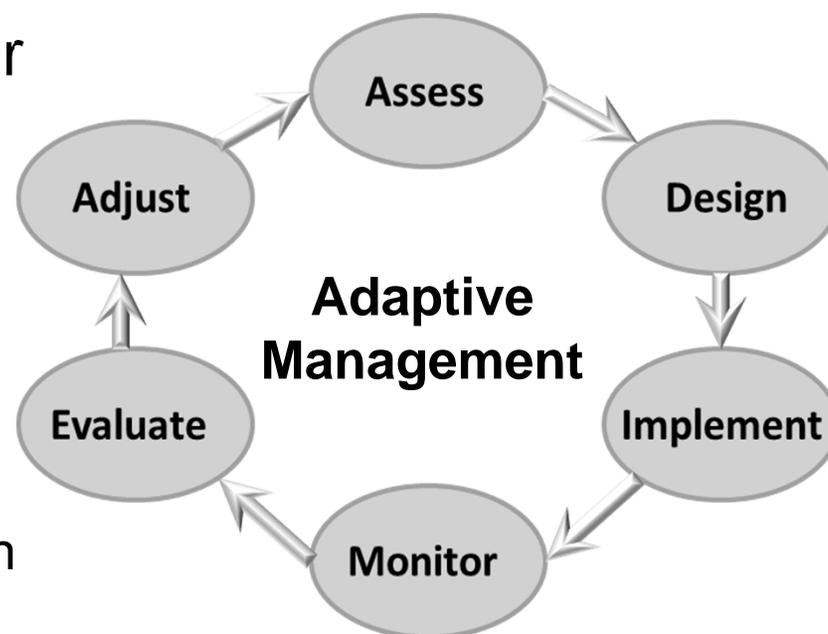
- Water Supplies
 - ✓ Basin water supplies
 - ✓ Groundwater depletions
 - ✓ Surface water depletions
 - ✓ Streamflow
- Water Uses/Demands
 - ✓ Meter data
 - ✓ Diversion records
 - ✓ Climate data
 - ✓ CROPSIM outputs
 - ✓ Water administration data
 - ✓ Land use data
 - ✓ And more...



INSIGHT was developed through...

Collaboration with NRDs

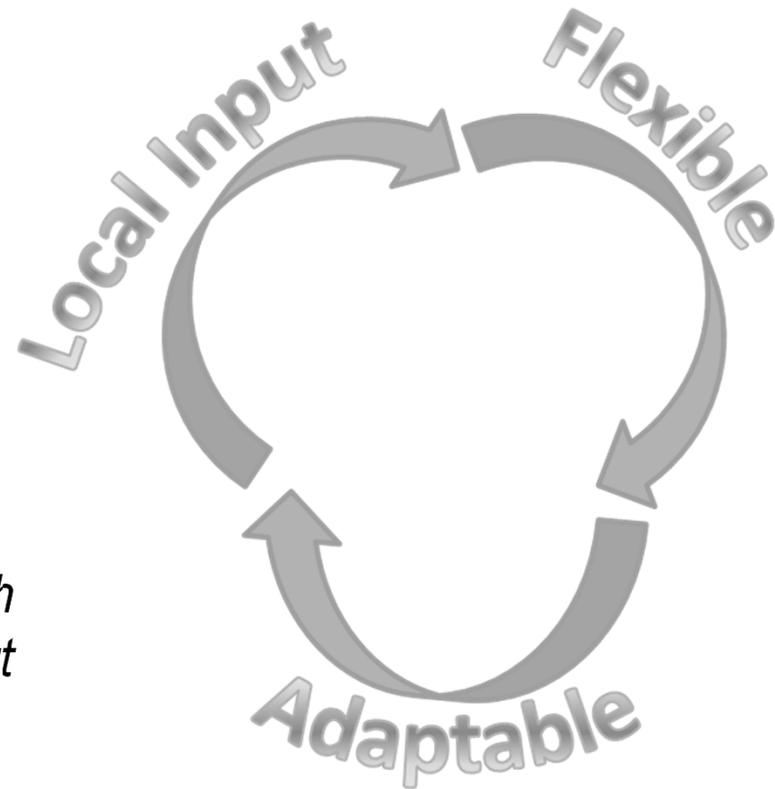
- Part of the Department's goal of adaptively managing hydrologically connected water resources
 - Pro-active vs. Reactive
- DNR & NRDs
 - Collaborated on:
 - Investigation of process to determine difference between Fully and Overappropriated
 - Selection of INSIGHT consultants through RFPs
 - Data sharing



INSIGHT was developed through ... Collaboration with the Public

- The DNR and stakeholders collaborated through:
 - ✓ Public Q&A sessions
 - ✓ Public hearings
 - ✓ Public comment period
 - ✓ Stakeholder interviews

Stakeholders were provided with various means of providing input (e.g., written/public comments)





This presentation will be made available at:
<http://dnr.nebraska.gov/iwm/upper-platte>



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