

# VOLUNTARY INTEGRATED MANAGEMENT PLAN 2014 AND 2015 ANNUAL REPORT



Public Meeting

May 12, 2016

 **Nebraska**  
Department of Natural Resources



# Board and NDNR Approved IMP in August 2014

1



## WATER POLICIES:

Develop and Implement water use policies and practices that contribute to the protection of existing surface and groundwater uses while allowing for future water development.

### OBJECTIVES:

- Utilize existing policies and authorities of P-MRNRD and the Nebraska Department of Natural Resources (DNR) to address water quantity issues.
- Minimize invasive vegetation encroachment in the river channels.
- Identify and evaluate potential conjunctive management projects and activities within the V-IMP area.

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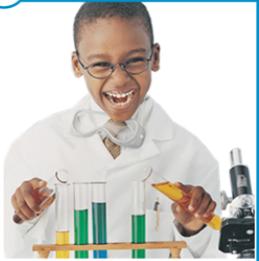
## WATER INVENTORY:

Develop and maintain a water supply and use inventory based on the best available data and analysis.

### OBJECTIVES:

- Develop and implement a data gathering and monitoring plan that provides relevant scientific information to support DNR's annual evaluation.
- Monitor and track precipitation, consumption, inflows, and outflows.
- Coordinate with public water suppliers and other water users to understand and project future water demands.

3



## WATER EDUCATION:

Develop and implement water use educational programs that encourage conservation and effective water use.

### OBJECTIVES:

- Promote water use education that addresses both rural and urban water conservation efforts.
- Work with other entities on education and conservation programs.
- Explore opportunities to reuse water, where feasible.

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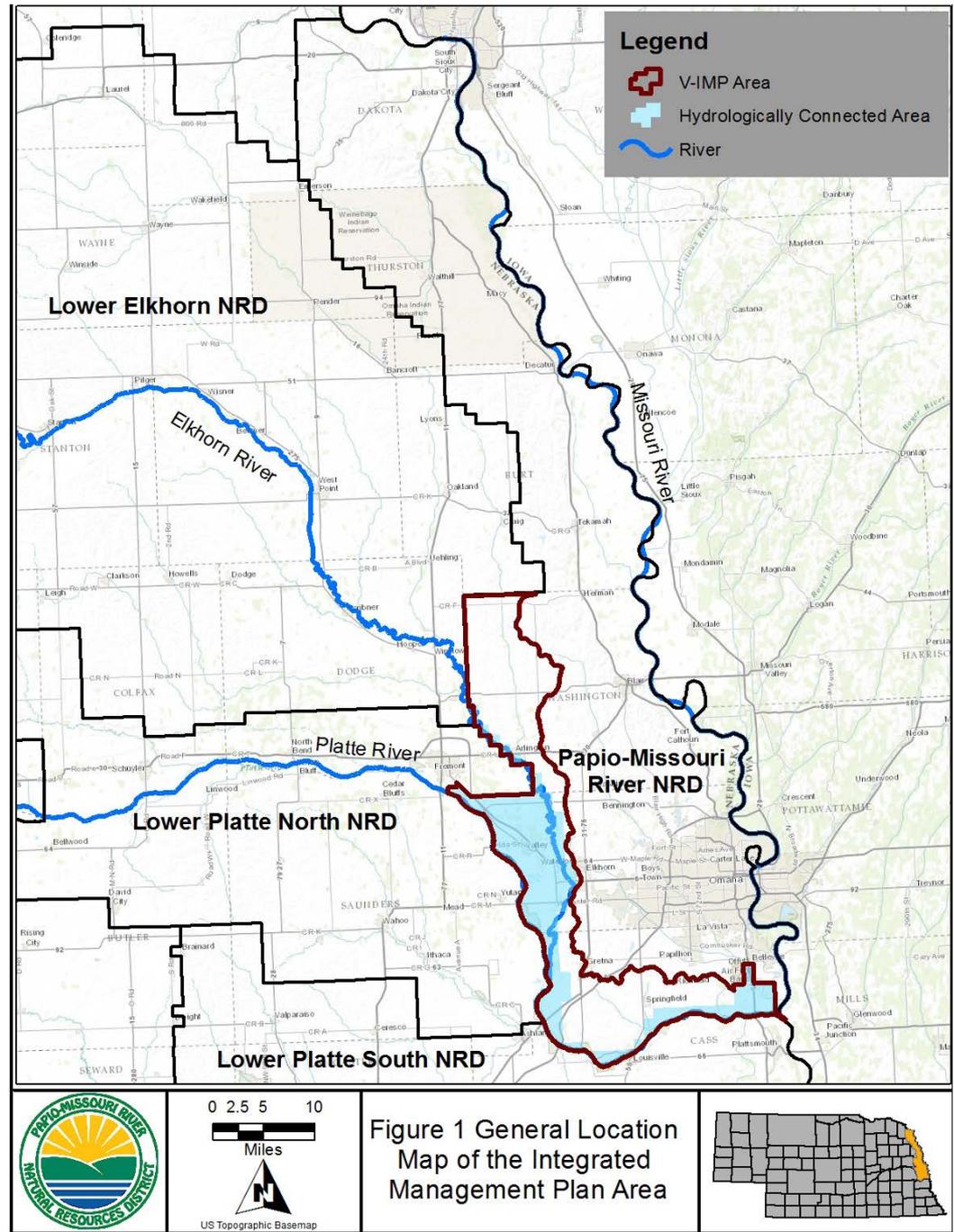
## BASIN-WIDE WATER SUSTAINABILITY:

Work with upstream NRDs and other relevant organizations to collectively develop a water management plan for the Platte River Basin that maintains a balance between current and future water supplies and demands.

### GOAL 4 OBJECTIVES:

- Actively participate in Lower Platte Basin water management planning activities.
- Identify and evaluate potential conjunctive management projects and activities within the Lower Platte Basin.
- Identify and evaluate additional water resource supplies.
- Coordinate with other entities in the entire Platte River Basin on water management planning and activities.
- Work with the appropriate agencies to identify streamflow necessary to protect and maintain public water supply, fish and wildlife, and public recreation.

# Papio-Missouri River NRD Map



# Groundwater Control Area

- NRD Board established a limit of 2,500 acres on the annual expansion of groundwater irrigation.

# Surface Water Control Area

- NDNR established a limit of 834 acres on the annual expansion of surface water irrigation.

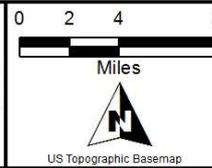
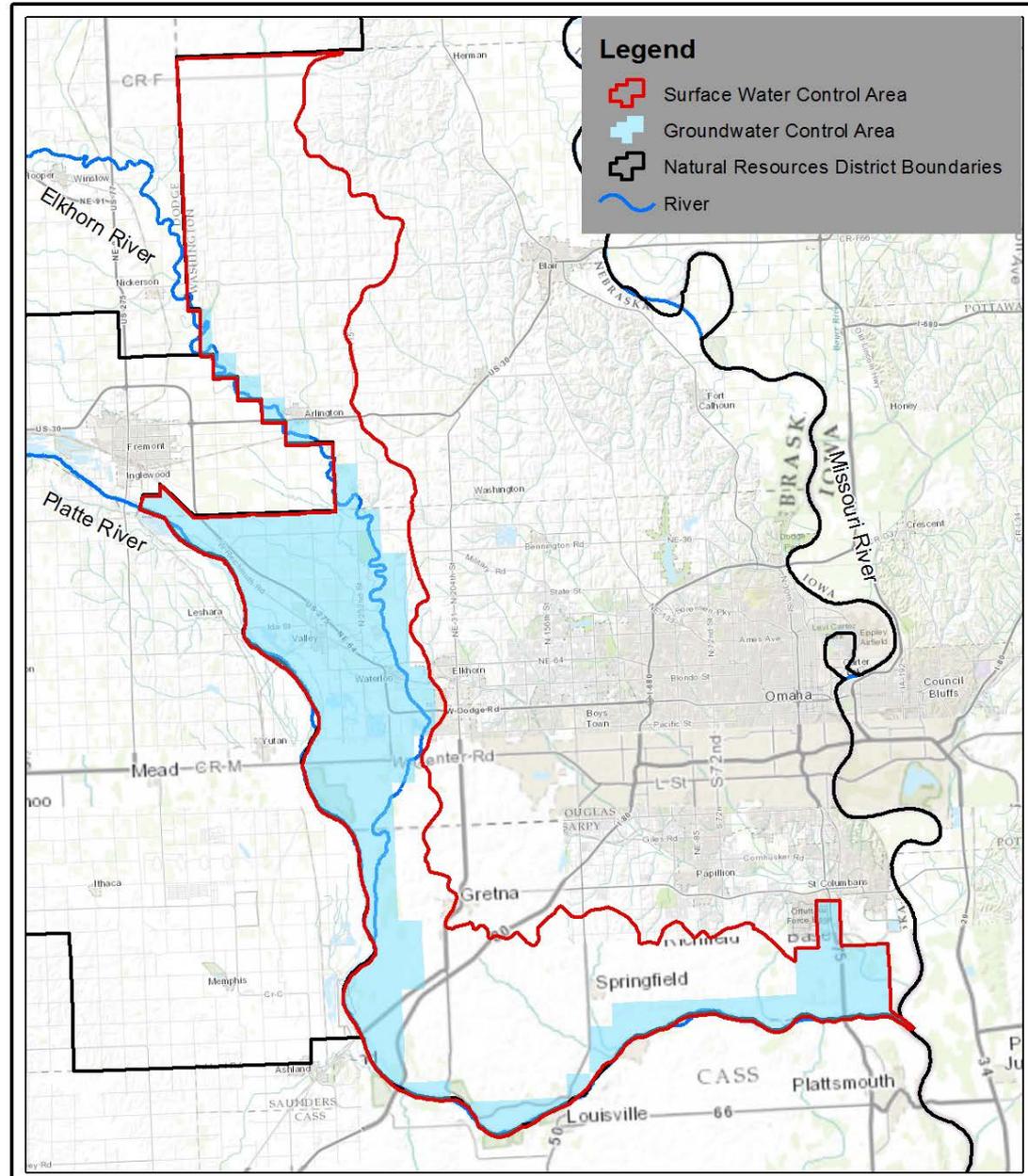
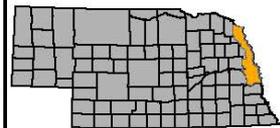


Figure 2 Detailed Location Map of the Groundwater and Surface Water Control Areas



# IMP Requires Data Collection and Monitoring

## NRD Monitoring

- Expansion of Irrigated Acres
- Groundwater Level Measurements
- Municipal Water Use

## NeDNR Monitoring

- NeDNR Stream Gage Measurements
- Surface Water Permitting Activities
- Irrigation Water Use

# NRD/NeDNR Data Collection and Monitoring

- Expansion of Irrigated Acres

Year	No. of Groundwater Variances Approved	Total Acres	No. of Surface Water Permits Approved	Total Acres
2014	9	470	0	0
2015	3	95	0	0
TOTAL	12	565	0	0

- NeDNR Surface Water Permitting Activities-2014-2015

- 0 applications approved
- 0 applications denied
- 0 permits transferred
- 0 permits cancelled

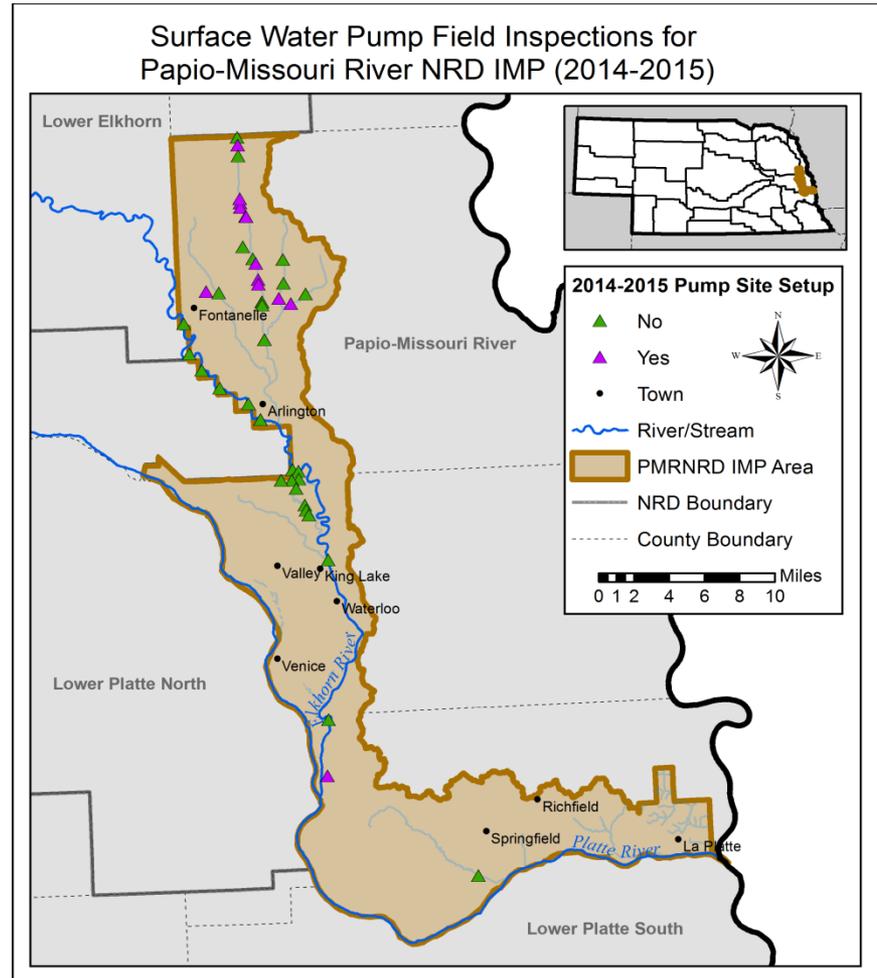
# NRD/NeDNR Data Collection and Monitoring

- Groundwater Level Measurements – [See Maps](#)
- NeDNR Voluntary Water Use Reporting
  - NeDNR sent out 50 invitations via postcards
  - In 2014, 12 responses in 2014; 7 responses in 2015
    - 100% of respondents used some sort of tillage conservation practices (minimum or no till)
    - 58% of the total crops reported were irrigated, accounting for 1,252 irrigated acres
    - The crop types of total reported acres were 62% corn and 38% soybeans
    - The crop types of total irrigated acres were 70% corn and 30% soybeans

# NRD/NeDNR Data Collection and Monitoring

## NeDNR Pump Site Inspections

- Field staff checked 37 sites (of 49) in 2014; 9 pumps set up to irrigate
- Field staff checked 37 sites (of 49) in 2015; 7 pumps set up to irrigate



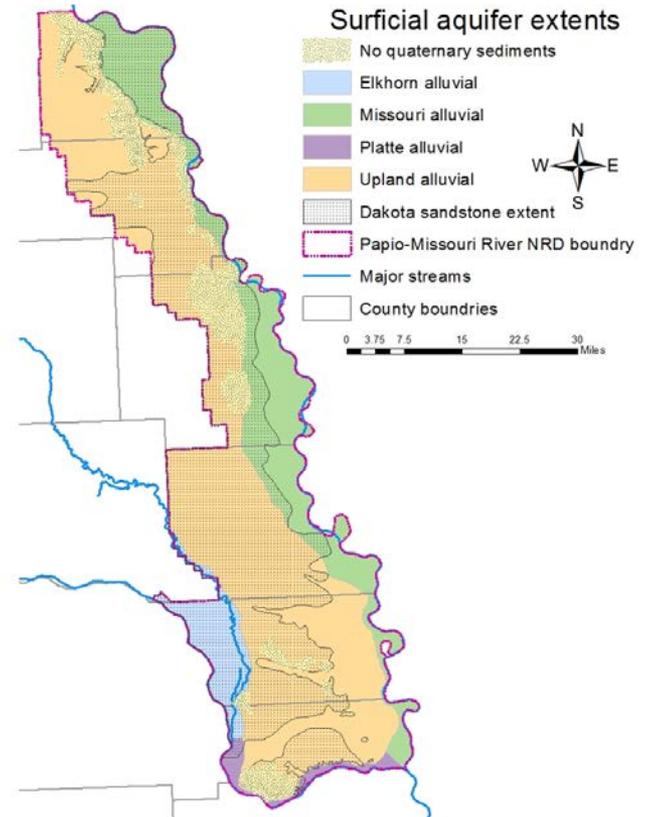
# NRD Data Collection and Monitoring

- Municipal Water Use

Municipal Well Field	2014 Total Pumped (Ac-ft)	2015 Total Pumped (Ac-ft)	Notes
Papillion	3,973.5	3,739.3	
Lincoln	7,541.4	15,932.6	Only horizontal wells in P-MRNRD
MUD South	34,346.9	33,185.1	
MUD West	9,509.0	9,160.2	Includes only wells in P-MRNRD
Fremont	4,755.4	4,519.1	Includes only wells in P-MRNRD
Valley	306.8	331.7	
Springfield	170.5	165.7	
Gretna	961.6	907.8	
Arlington	199.2	198.3	
<b>TOTAL</b>	<b>61,764.2</b>	<b>68,139.7</b>	

# 2014 and 2015 Goal 1 Actions

- GOAL 1 - Develop and implement water use policies and practices to protect existing uses while allowing for future water development.
  - Groundwater Management Plan Update
  - ENWRA and USGS Aquifer Studies
  - Continued Lower Platte Weed Management
  - Conjunctive Management Project Studies



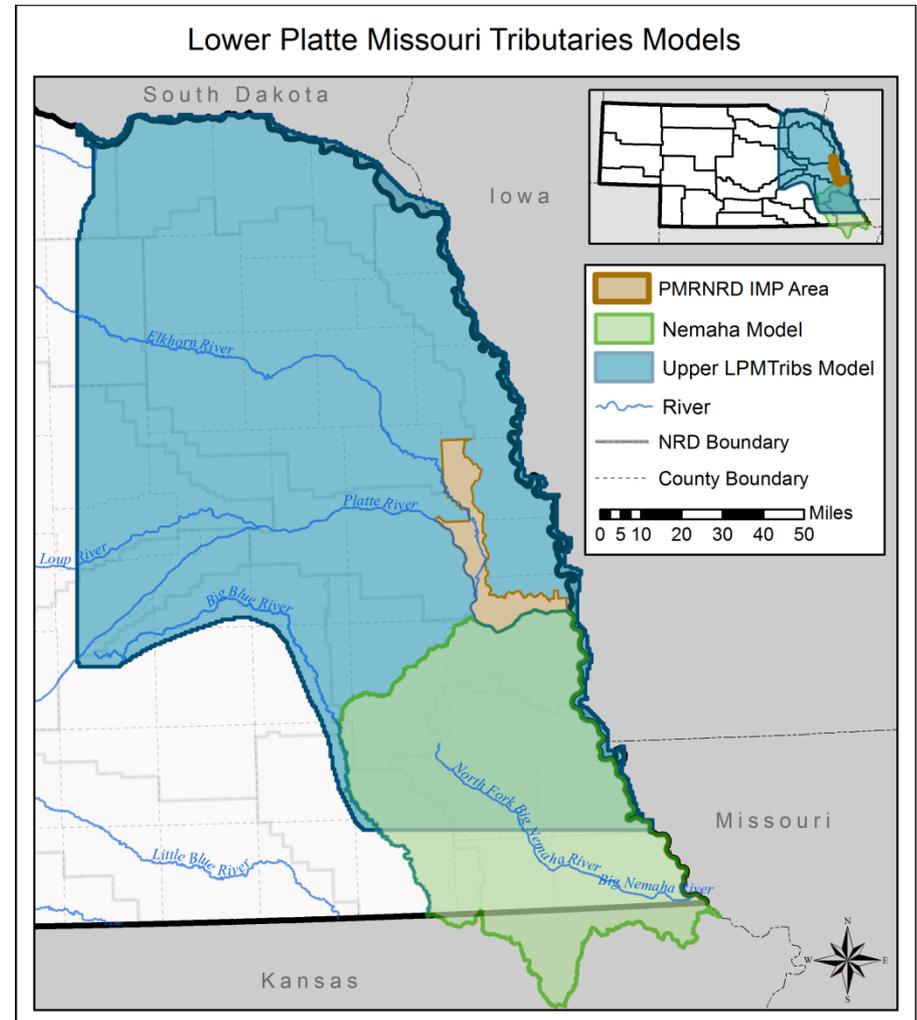
# 2014 and 2015 Goal 2 Actions

- GOAL 2 - Develop and maintain a water supply and use inventory based on the best available data and analysis.
  - Draft irrigated acres layer for certification
  - GW level maps
  - ENWRA Report
  - Water Balance Data
    - Evaluated methods for calculating water use data, but need updated land use information
  - Collected Municipal Water Use data



# 2014 and 2015 Goal 2 Actions-NeDNR Highlights

- NeDNR ENWRA Participation
  - Contributed \$500,000 toward AEM data acquisition
- NeDNR Lower Platte Missouri Tributaries Groundwater Model Development



# 2014 and 2015 Goal 3 Actions

GOAL 3 - Develop and implement water use educational programs that encourage conservation and effective water use.

- **NRD public outreach**

- Updates in Spectrum newsletter and website
- World O' Water public event
- Water Works Festival School or other public venue
- Urban Stormwater education

- **NeDNR public outreach**

- NET 30-minute documentary: Water Today: Water Tomorrow
- State events-Husker Harvest Days, State Fair, Women in Agriculture Conference
- INSIGHT Website for Water Supply/Use information/Analyses (NeDNR)



# NeDNR Education/Outreach: INSIGHT Website

## INSIGHT

An Integrated Network of Scientific Information & Geo-hydrologic Tools

HOME ABOUT MODELING DATA

Nebraska  
Department of Natural Resources

Welcome to INSIGHT! The "Getting Started with INSIGHT" box explains how you can interact with the site. See the [methodology](#) document for more detailed information on the analysis behind the charts you see below. Data that will be used for the 2016 update of the site is now available through the FTP site which you can access on the [Modeling Data](#) page. Be watching for updates to the interface and more data to be added in the future!

SELECT REGION

### Getting Started with INSIGHT

Begin by exploring hydrologic data for supplies, demands, and nature and extent of use for the state of Nebraska in the charts and graphs found below. If you would rather learn more about one of the state's basins and corresponding subbasins, start by double-clicking the map to zoom in to the basin level. The red dot in the center of the map will hover over the basin whose data will be displayed. Use your mouse to pan to the basin of interest by clicking and dragging until the red dot is in that basin or simply click on the basin you wish to view. You may double-click again to zoom in to the subbasin level and use your mouse to pan to or click on the subbasin of interest. The plus and minus buttons in the upper left of the map also allow you to zoom in and out. Alternatively, you can select a basin or subbasin from the SELECT REGION drop-down

Basin Overview Big Picture Supply Demand Nature & Extent of Use Balance

Chart: Balance - Season: Annual Time Frame: Near-Term

Year	Balance (Acre-Foot)
1988	-300,000
1989	-300,000
1990	-100,000
1991	-300,000
1992	300,000
1993	2,100,000
1994	1,100,000
1995	1,000,000
1996	1,000,000
1997	500,000
1998	1,400,000
1999	1,100,000
2000	-100,000
2001	300,000
2002	-400,000
2003	-200,000
2004	-100,000
2005	-100,000
2006	-300,000
2007	1,000,000
2008	1,800,000
2009	1,500,000
2010	1,700,000
2011	1,100,000
2012	-200,000

LOWER PLATTE

### Balance

INSIGHT provides data to evaluate the near-term, long-term and projected water supplies of a basin or subbasin. Once the water supply and total use are determined for each basin, a comparison can be made to determine the balance. To recognize the impact that timing may have on the ability of water supply to meet water use, a comparison is done for two time periods in a given year, in addition to the annual comparison: non-peak - i.e., non-irrigation season (September 1 through May 31) and peak - i.e., irrigation season (June 1 through August 31).

# 2014 and 2015 Goal 4 Actions

- GOAL 4 – Work with upstream NRDs and others to collectively develop a water management plan for the Platte River Basin.
  - Lower Platte River Basin Coalition Meetings
  - Participate in Lower Platte River Consortium (new)
  - Funding opportunities evaluation and successful grants

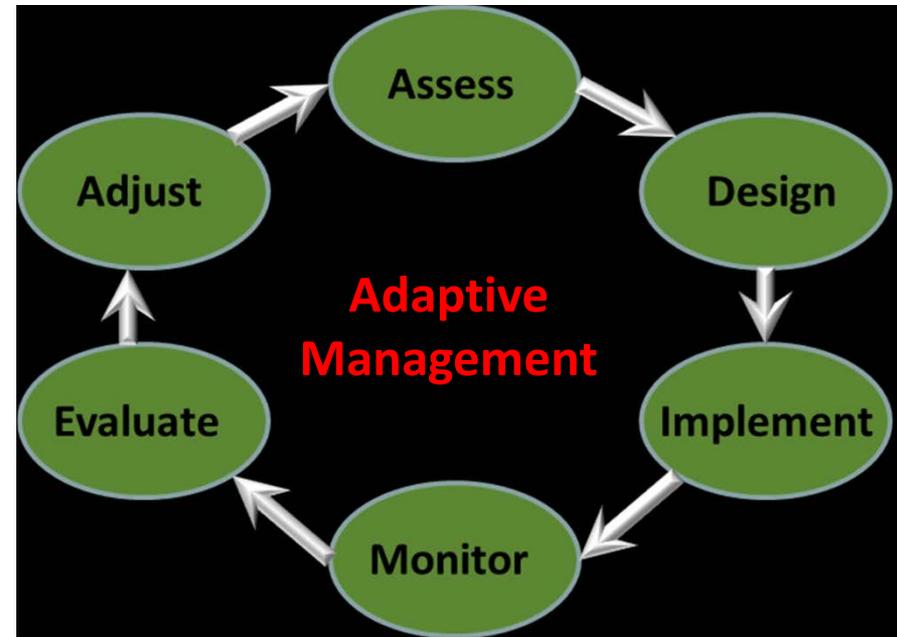


PMRNRD  
applied for and  
received over  
\$375,000 in  
grants for  
additional  
studies!

# INTEGRATED MANAGEMENT PLANNING

## Why Annual Reviews?

- Address new opportunities & issues
- Adapt to new surface and groundwater data
- Jointly implemented by NRD(local) and NeDNR (state)
- Convey progress/gather input from stakeholders and the public
- Basin-wide, systematic approach
- Prioritize goals, objectives and actions each year.



*Source: Nebraska Department of Natural Resources*

# Priority Actions for Next Two Years

## NRD

- GWMP Update
- Lower Platte River Consortium Study
- Collect best available land use data
- Platte and Elkhorn River Valley Integrated Water Monitoring Study
- Southwest Sarpy County Dakota Aquifer AEM
- Develop educational materials for this WOW event
- Further develop Lower Platter River Basin Plan

## NeDNR

- Continue to develop INSIGHT as a tool for water management
- Continue to participate in ENWRA
- Continue development of the LPMTribs groundwater models
- Continued monitoring of surface water permit sites
- Expand Upper Platte stream depletions/accretions calculator
- Participate with P-MRNRD in at least one education/outreach event

# QUESTIONS?



Voluntary Integrated Management Plan

 **Nebraska**  
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