

# Integrated Water Management Division:

## *The Data Collected and Technical Tools Developed*

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*April 10, 2013*

*Presented to the*  
**Water Round Table**

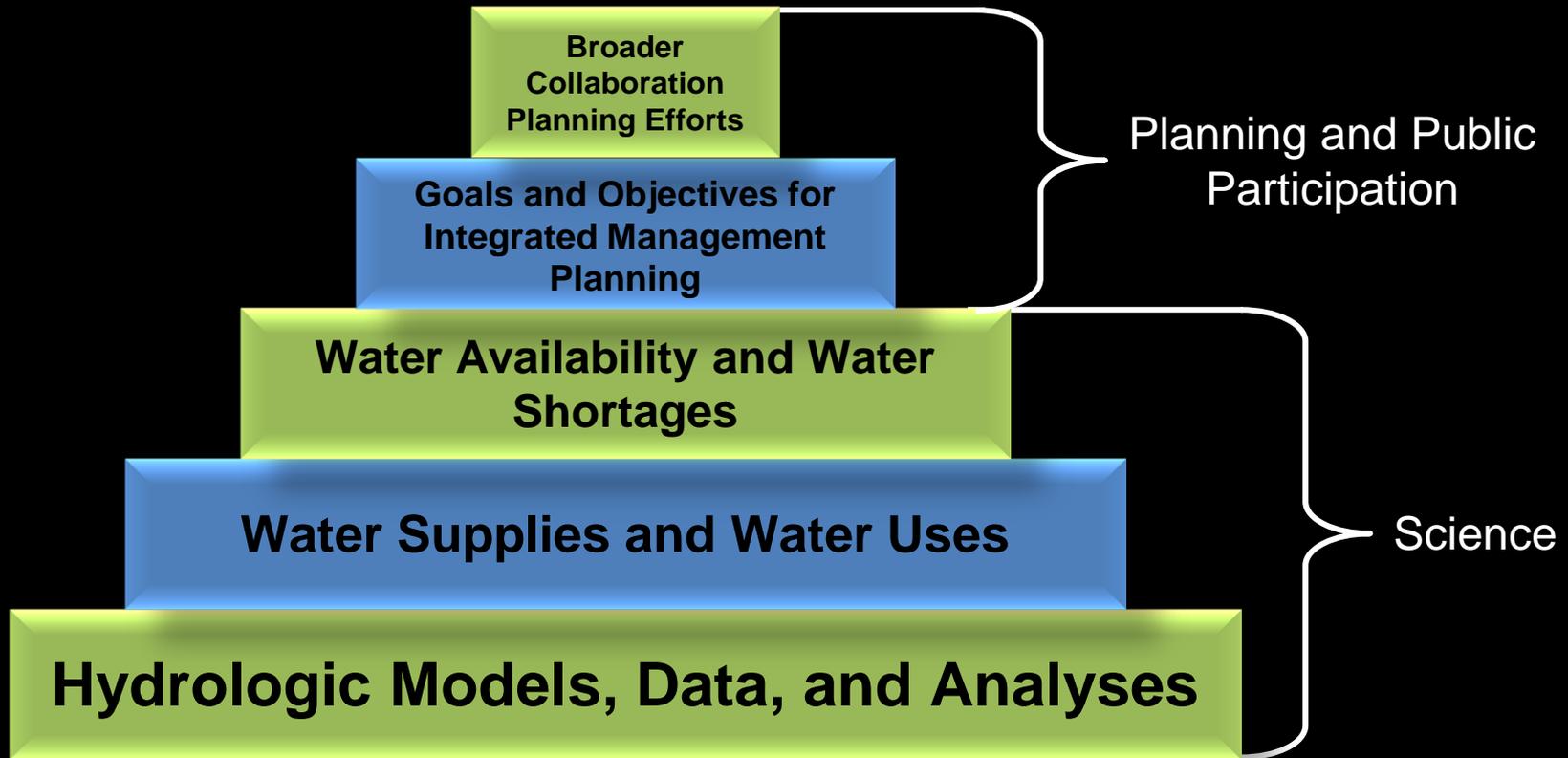
Jim Schneider Ph.D., *Nebraska Department of Natural Resources, Deputy Director*

Jesse Bradley, *Nebraska Department of Natural Resources, Integrated Management Division Head*



# Outline

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# Hydrologic Models, Data, and Analyses

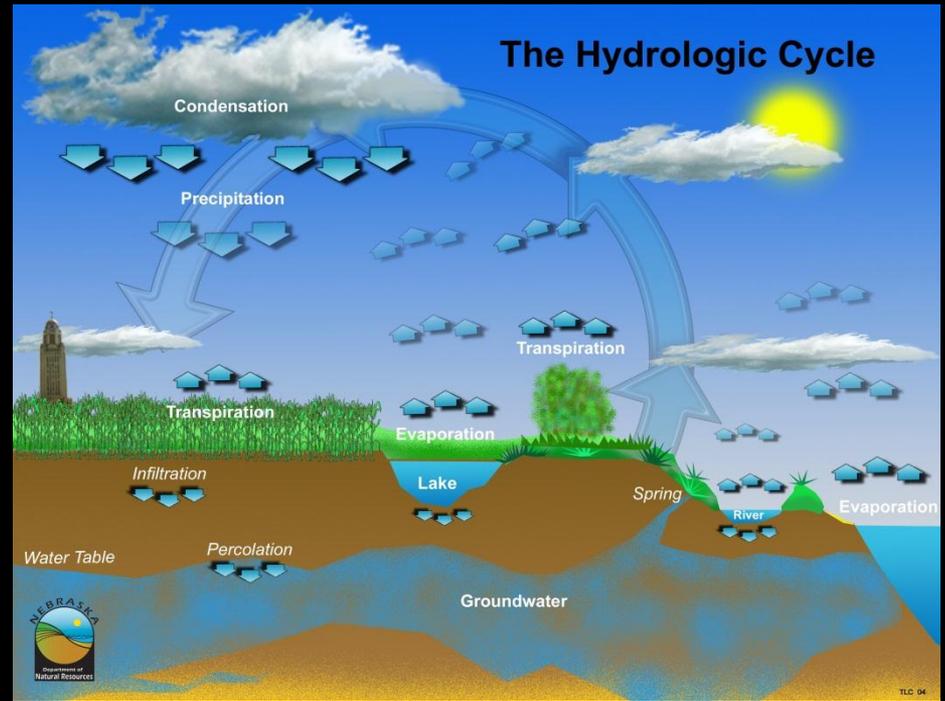
# Hydrologic Models, Data, and Analyses

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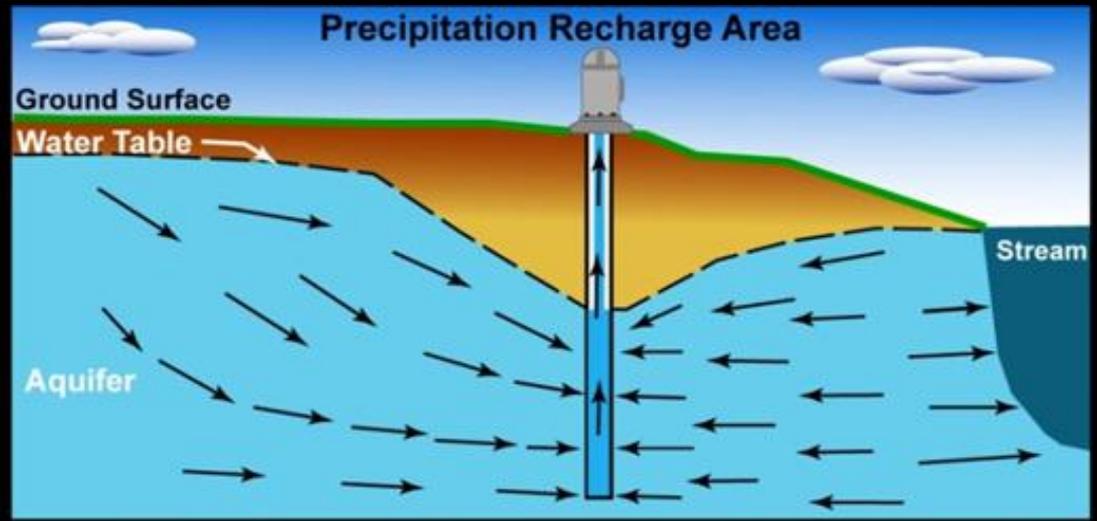
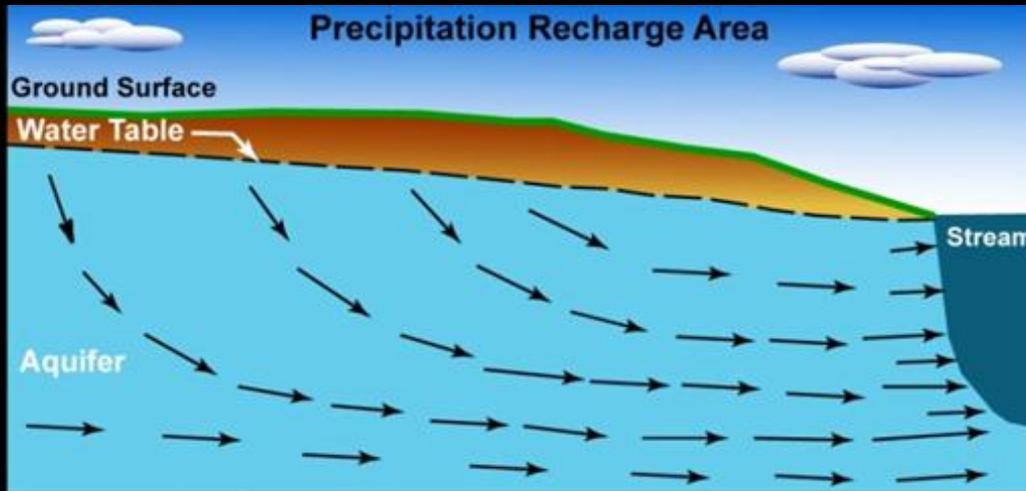
- Climate
- Streamflows
- Landuse
- Water consumption
- Hydrogeology
- Models

# Hydrologic Models, Data, and Analyses

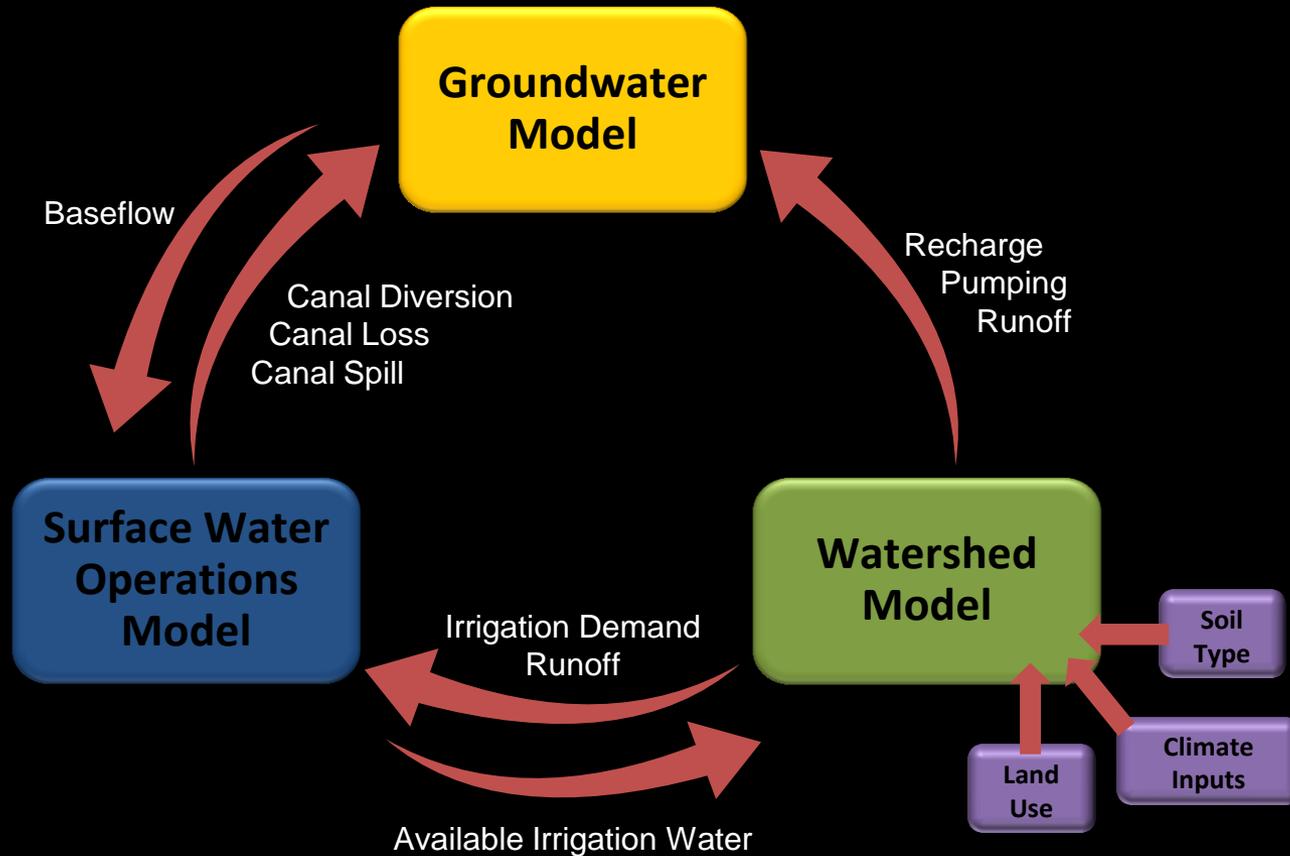
- Understand the impacts of water consumption in time and space
  - Surface Water Consumption
  - Groundwater Consumption



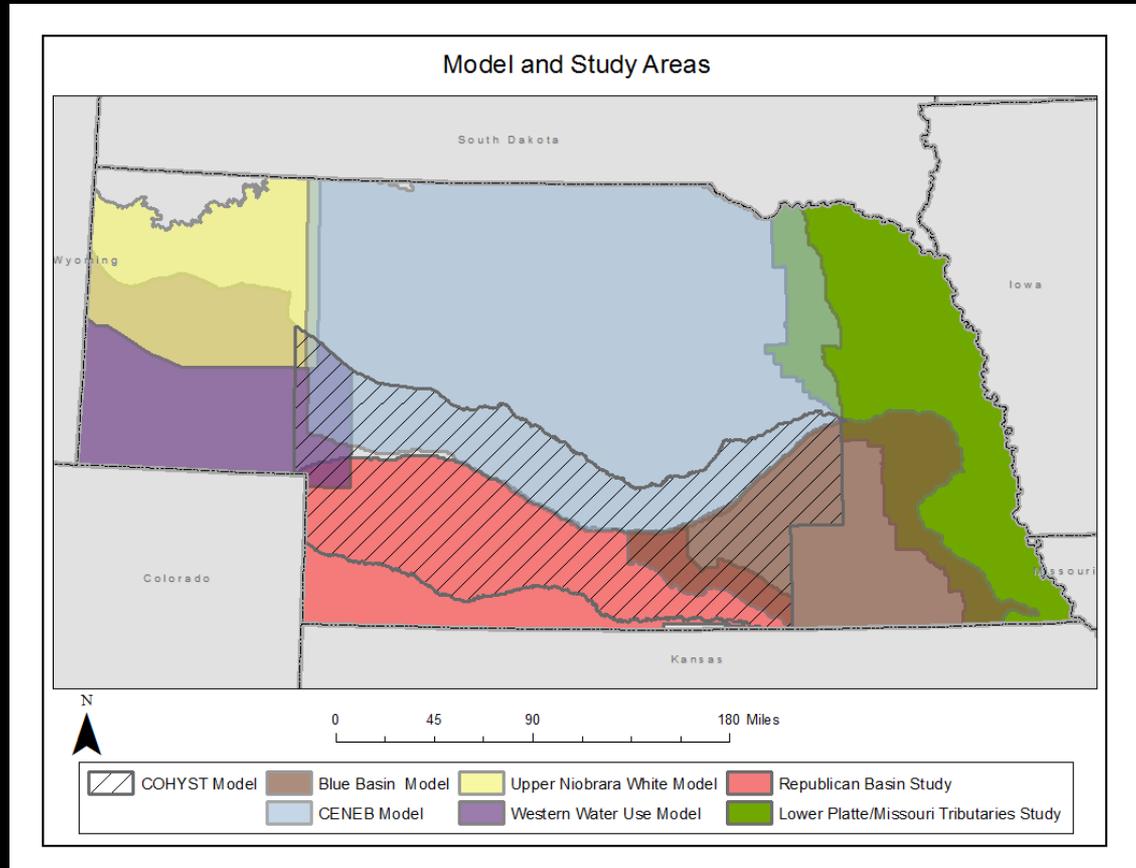
# Groundwater Depletions



# Modeling Process



# Current Models and Studies



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# Water Supplies and Water Uses

# Water Supplies and Water Uses

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- Current Processes in IMP areas
  - Republican Basin
    - Compact accounting prescribes methods and allocations
  - Upstream portion of the Platte Basin
    - First increment focuses on post 1997 uses
- New Evaluation Methods
  - Other Basins across the state

# Water Supplies and Water Uses

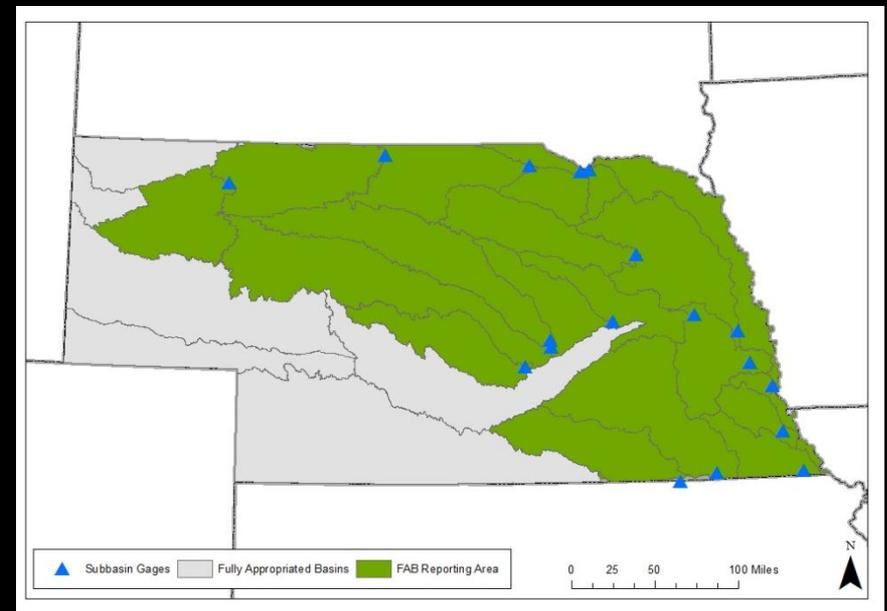
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- Platte Basin NRDs and Department initiate methodology study (2009)
- Final report of recommendation published (2013)
- Draft rules released April 2013
- Public Q&A sessions May 2013
- Public hearings Summer 2013

<http://dnr.ne.gov/website/MainPage.aspx>

# Water Supplies and Water Uses

- Basin Water Supplies
  - Streamflow
  - Groundwater Depletions
  - Surface Water Consumption
- Total Water Uses
  - Groundwater Consumption
  - Surface Water Consumption
  - Instream Flow Demands
  - Hydropower Demands
  - Downstream Water Demands



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# Water Availability and Water Shortages

# Water Availability and Water Shortages

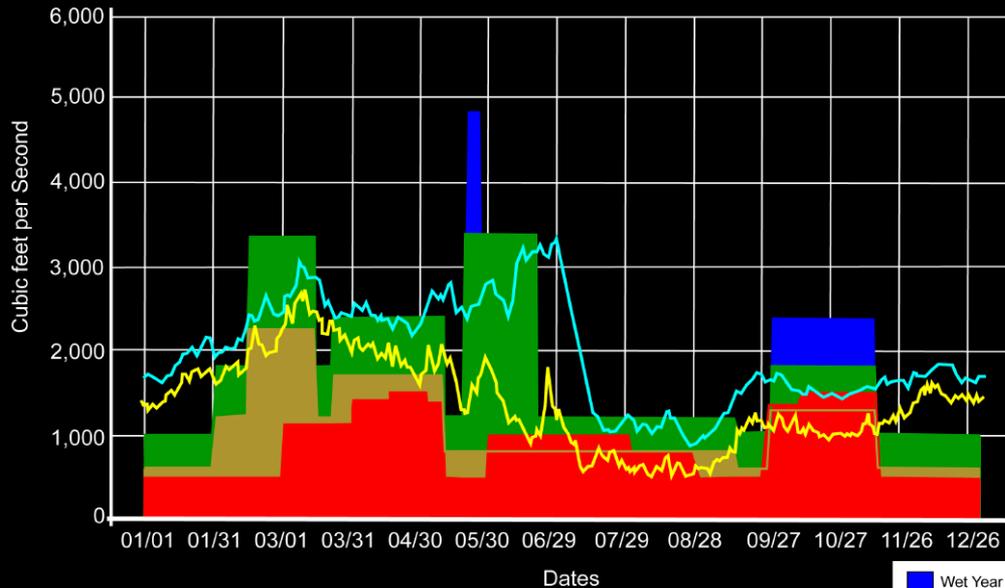
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- Variable water supplies
- External factors – Compacts and Agreements
- Existing groundwater and surface water uses within Nebraska

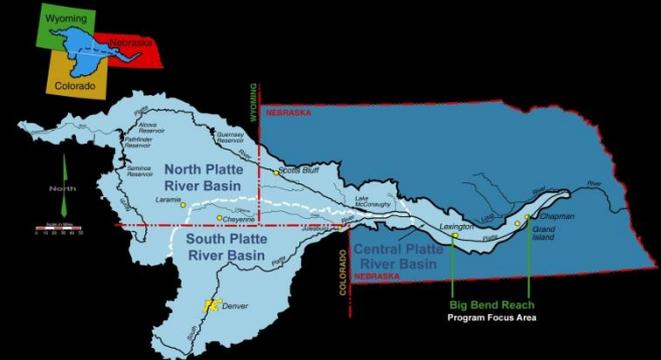
# Water Availability and Water Shortages

## Comparison

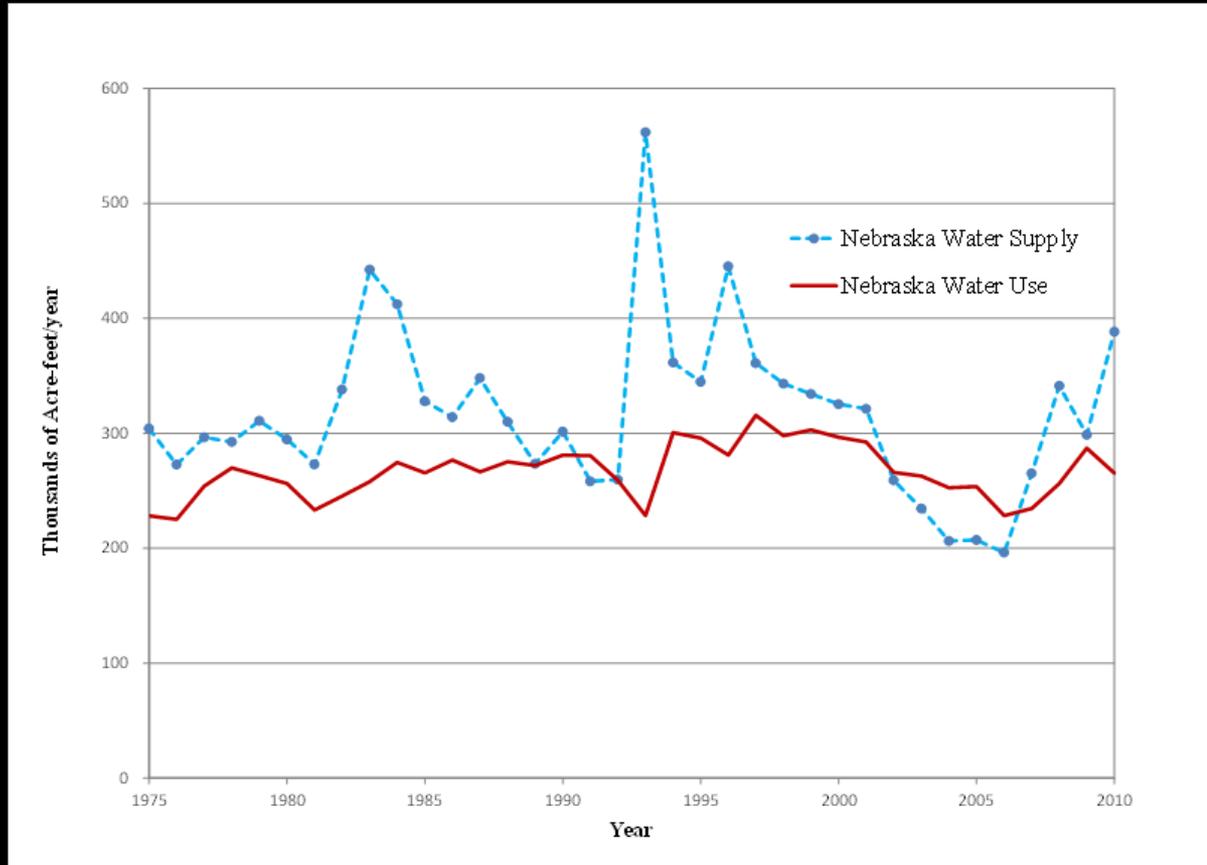
USF&WS "Target Flows", Nebraska "Instream Flows",  
Average and Median Flows/  
Platte River at Grand Island



- Wet Year USFWS "Targets"
- Average Year USFWS "Targets"
- Dry Year USFWS "Targets"
- Nebraska Instream Flows
- Average Flow 1975-2002
- Median Flow 1975-2002



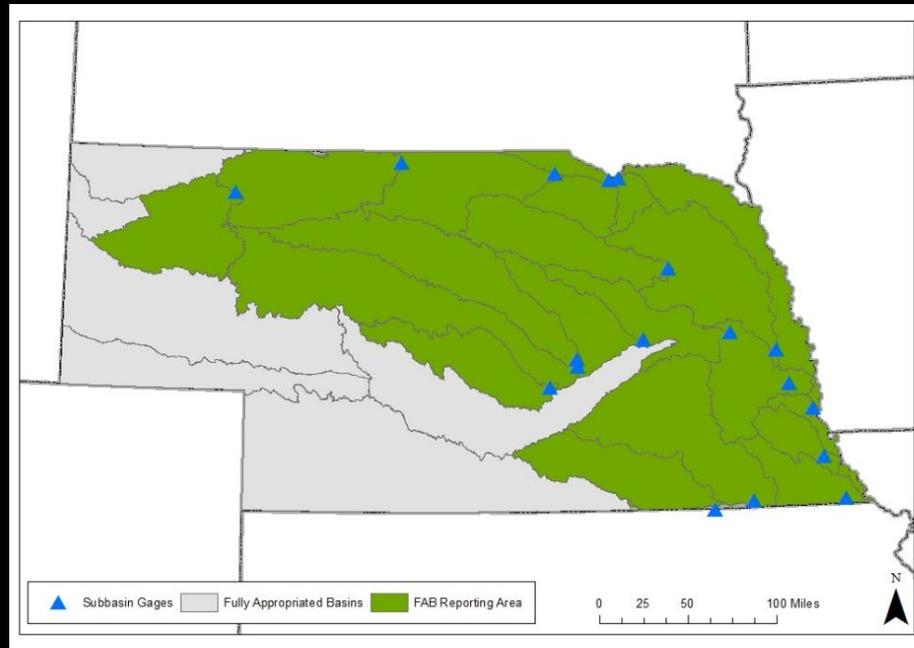
# Water Availability and Water Shortages



# Water Availability and Water Shortages

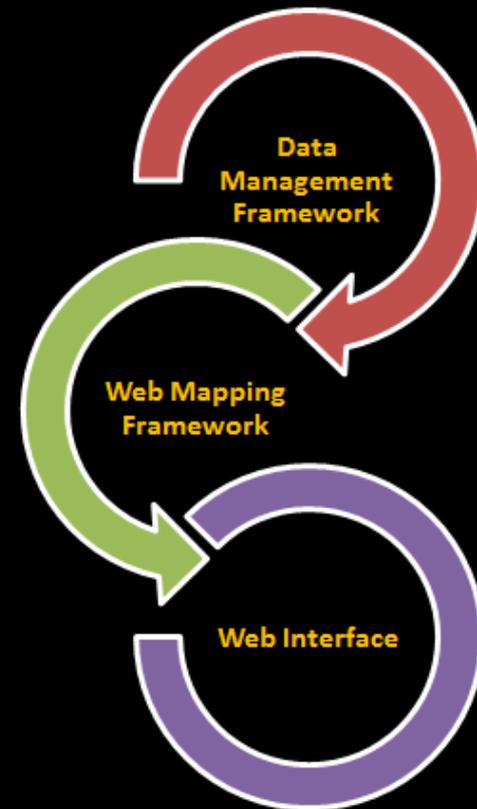
## INSIGHT

(Integrated Network of Scientific Information and GeoHydrologic Tools)

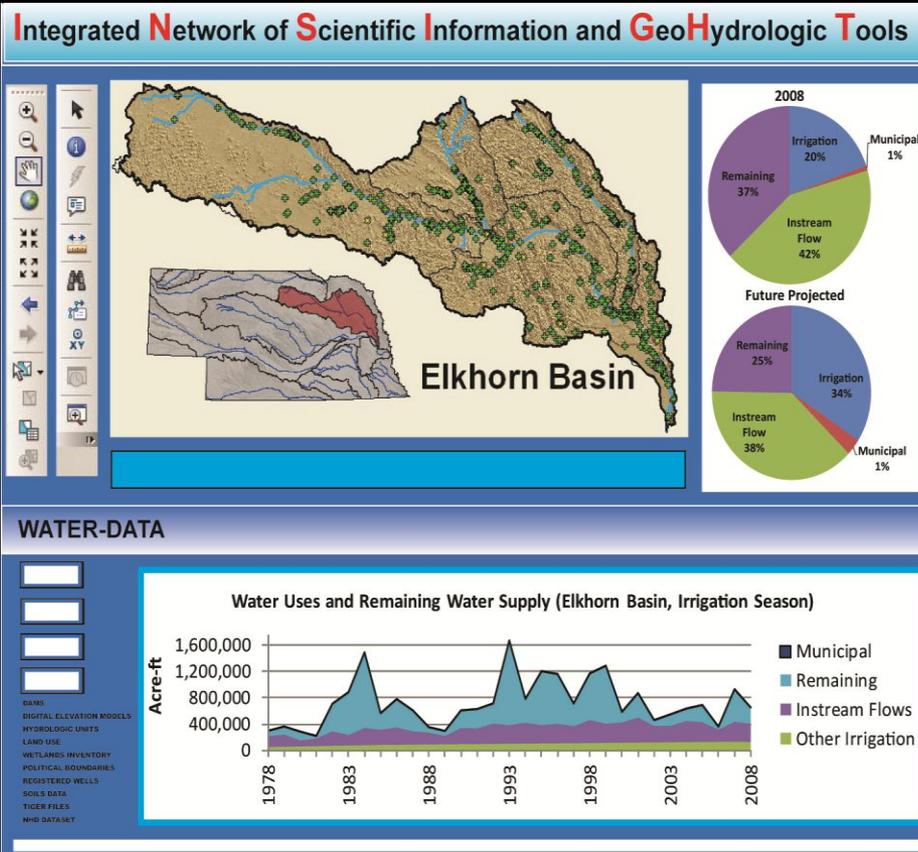


# Water Availability and Water Shortages

- 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...



# Water Availability and Water Shortages

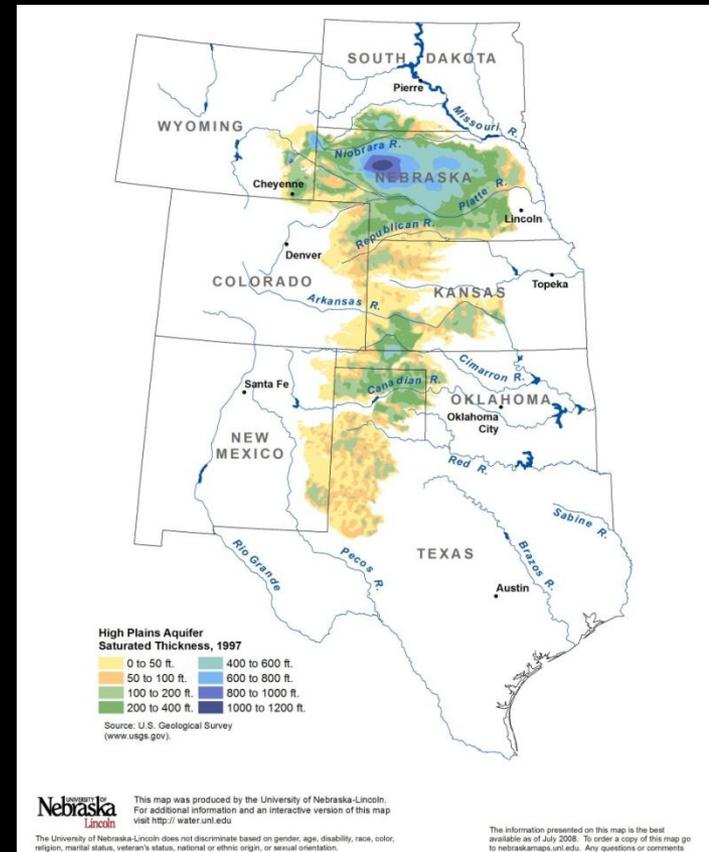


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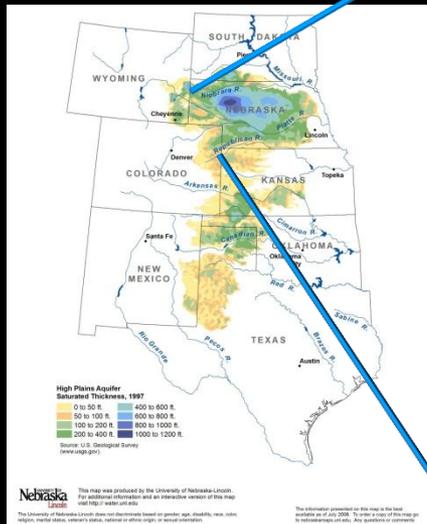
# Goals and Objectives for Integrated Management Planning

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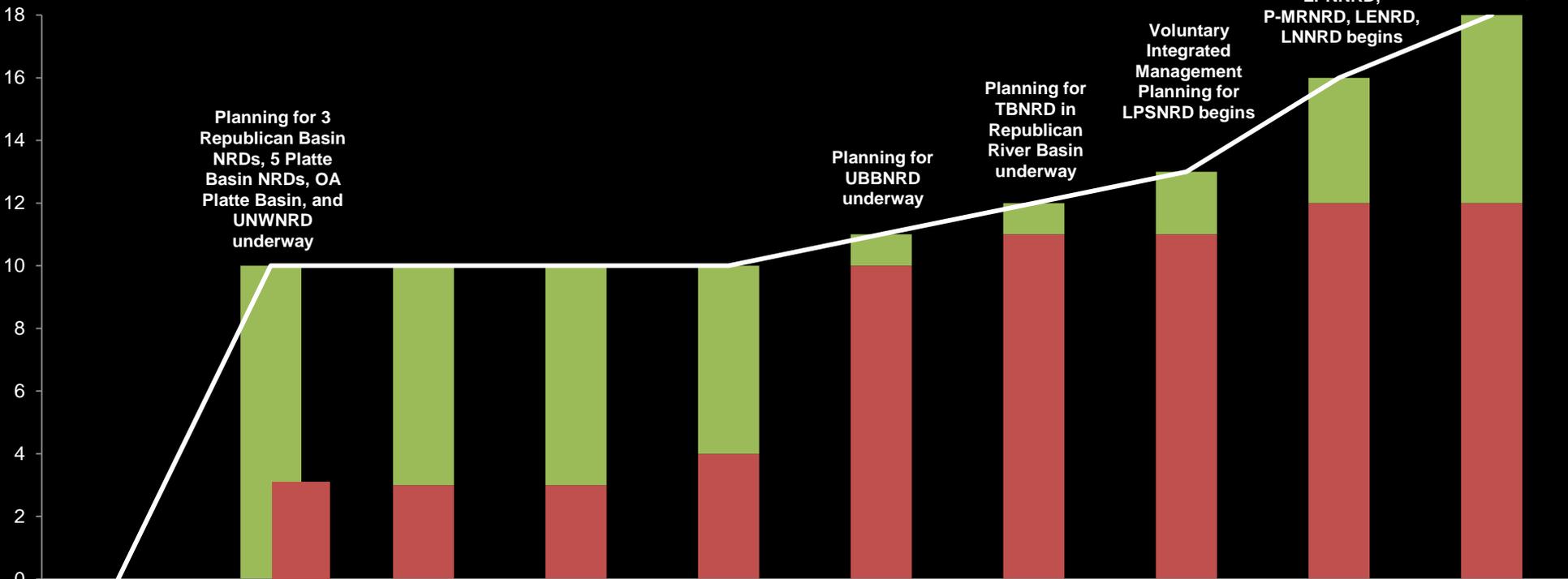
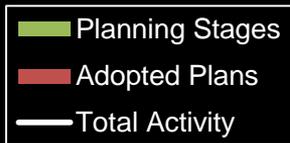
- Joint plans used to manage hydrologically connected water supplies
- Ensure compliance with Interstate obligations
- Protect existing groundwater and surface water users



# Goals and Objectives for Integrated Management Planning



# Timeline of IMP Activity



Planning for 3 Republican Basin NRDs, 5 Platte Basin NRDs, OA Platte Basin, and UNWNRD underway

Planning for UBBNRD underway

Planning for TBNRD in Republican River Basin underway

Voluntary Integrated Management Planning for LPSNRD begins

P-MRNRD, LENRD, LNNRD begins

Voluntary Integrated Management Planning for LCNRD begins

**2004**

**2005**

**2006**

**2007**

**2008**

**2009**

**2010**

**2011**

**2012**

**2013**

**LB 962 becomes effective**

URNRD, MRNRD, and LRNRD IMPs adopted

SPNRD IMP adopted  
URNRD, MRNRD and, LRNRD IMPs revised

CPNRD, NPNRD, TBNRD, TPNRD IMPs, Basin-Wide Plan for OA Platte Basin adopted  
UNWNRD IMP adopted  
SPNRD IMP revised

UBBNRD IMP adopted  
MRNRD and URNRD IMPs revised

UNWNRD IMP revised  
LRNRD IMP revised

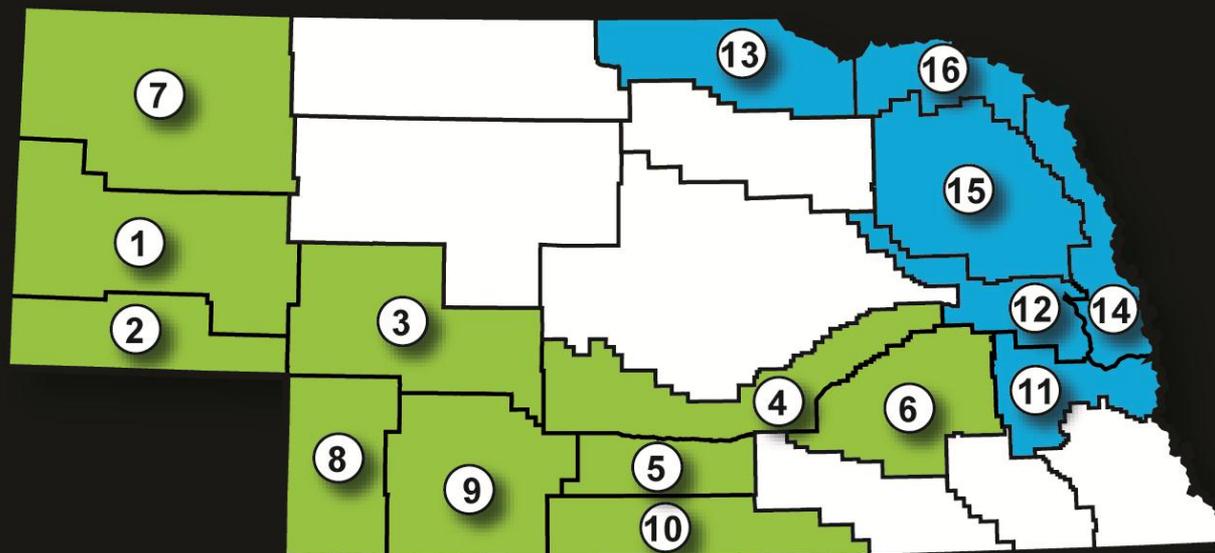
TBNRD Republican River Basin IMP adopted  
CPNRD IMP revised

TPNRD IMP revised

# Status of IMPs Across the State

## natural resources districts

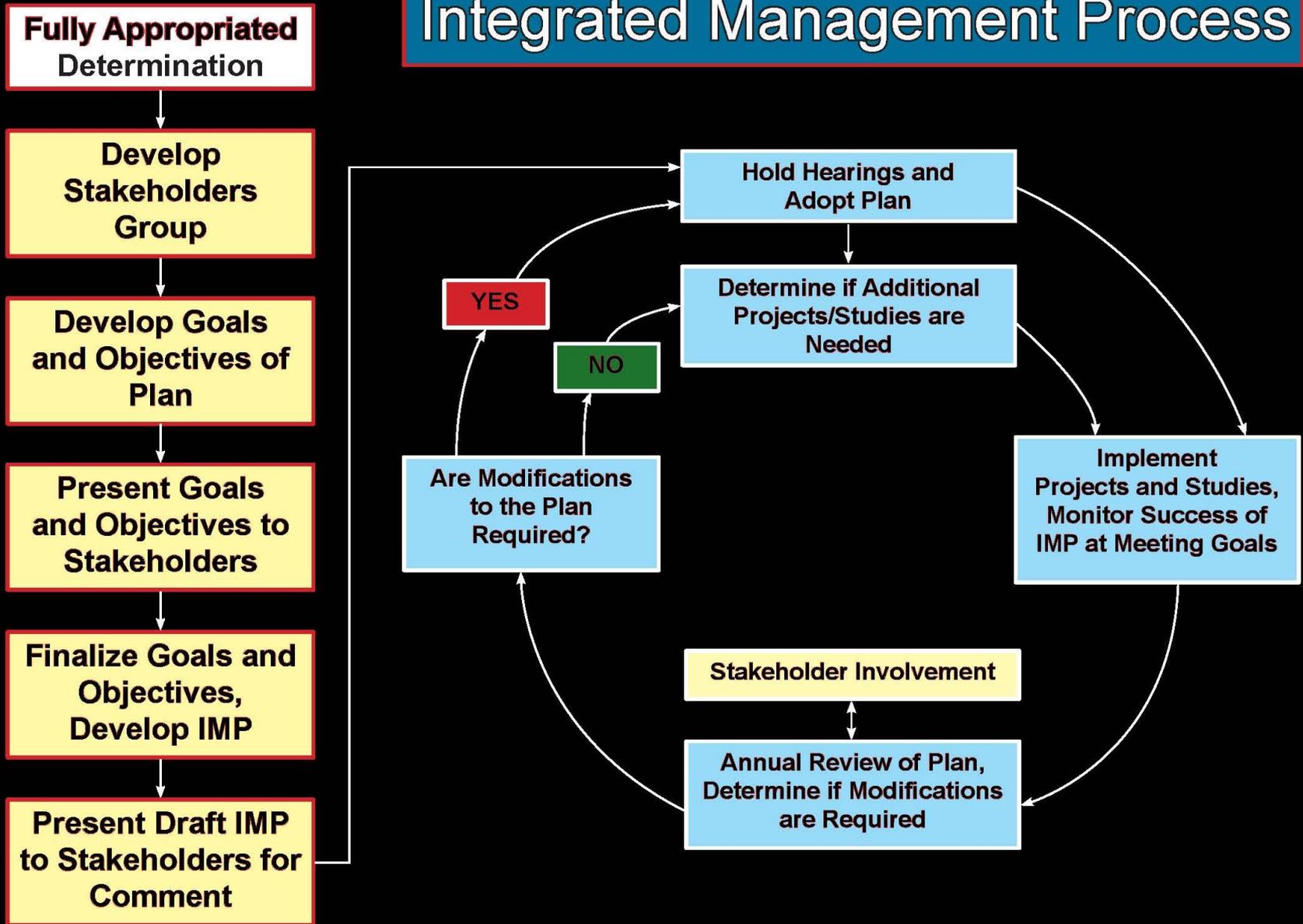
1. North Platte NRD
2. South Platte NRD
3. Twin Platte NRD
4. Central Platte NRD
5. Tri-Basin NRD
6. Upper Big Blue NRD
7. Upper Niobrara-White NRD
8. Upper Republican NRD
9. Middle Republican NRD
10. Lower Republican NRD
11. Lower Platte South NRD
12. Lower Platte North NRD
13. Lower Niobrara NRD
14. Papio-Missouri River NRD
15. Lower Elkhorn NRD
16. Lewis and Clark NRD



11-16 are participating in a voluntary integrated management planning process

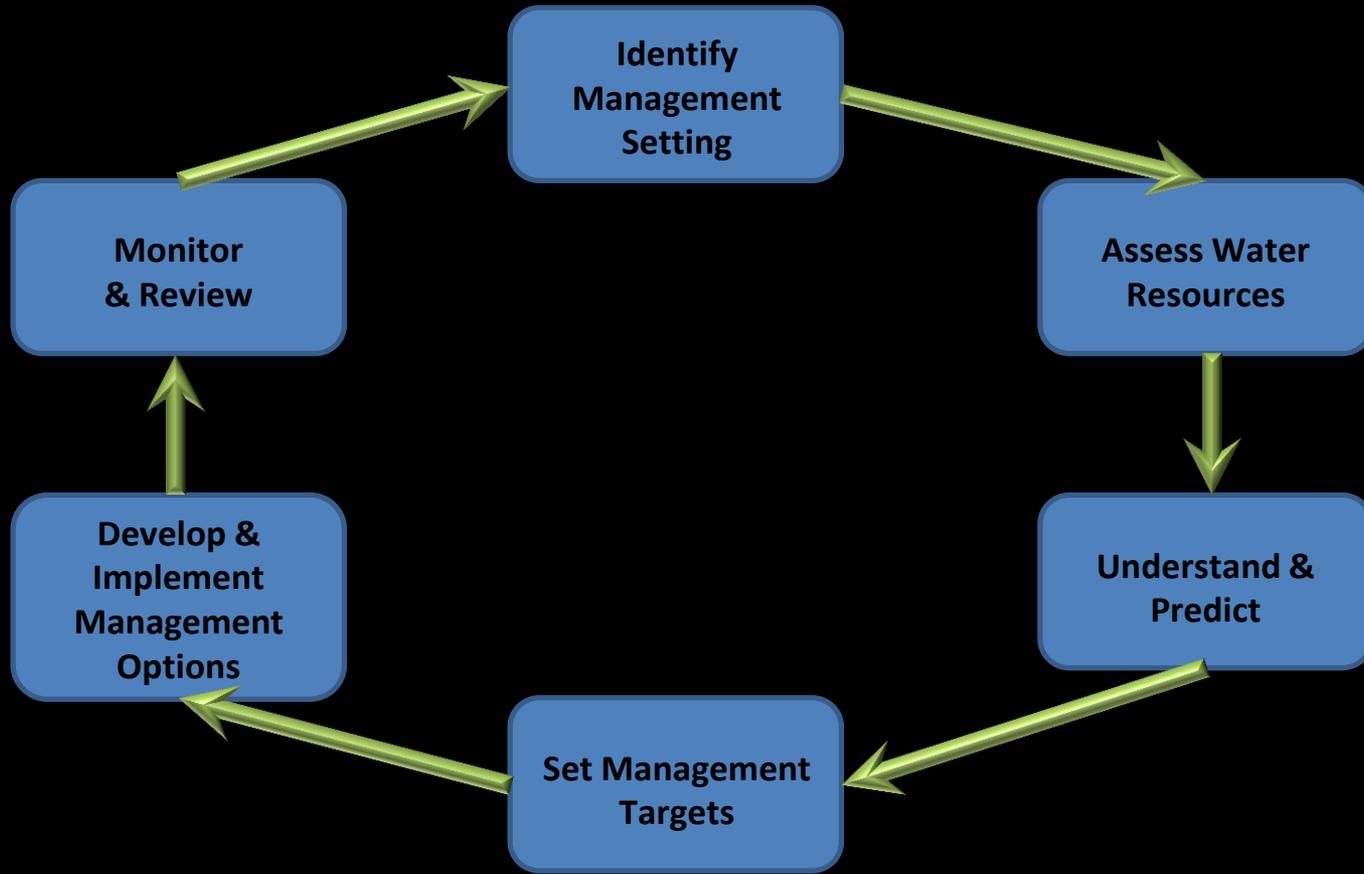
March 15, 2013

# Integrated Management Process



# Integrated Management Planning Process

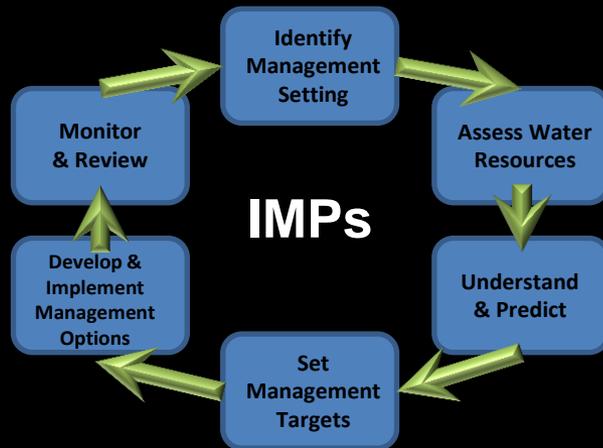
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# Broader Collaborative Planning Efforts

# Broader Collaborative Planning Efforts



**IMPs**

## Basin-Wide Planning

- Framework for consistent implementation of goals & objectives
- Communication
- Actions affect other NRDs
- Facilitate water transfers/ water banking
- Consistent reporting
- Data information exchange

# Broader Collaborative Planning Efforts

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- Upper Platte River Basin
  - PBHEP
  - Platte Basin Coalition
- Republican Basin
  - Conjunctive management study
  - N-CORPE
- Lower Platte Basin
  - Basin-wide planning

# Broader Collaborative Planning Efforts

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- Upper Platte River Basin Projects
  - 2011 Conjunctive Management Demonstration Project
    - 23 irrigation districts, 5 NRDs, and the Department
    - Diverted 142,000 af and recharged 64,000 af
  - J-2 Reregulating Reservoir
    - Approximately 10,000 ac-ft/yr
  - Canal Rehabilitation for Conjunctive Management and Water Leasing
    - Approximately 20,000 ac-ft/yr

# Summary

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**Water Availability and Water Shortages**

**Water Supplies and Water Uses**

**Hydrologic Models, Data, and Analyses**

Science

# Summary

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**Broader Collaboration  
Planning Efforts**

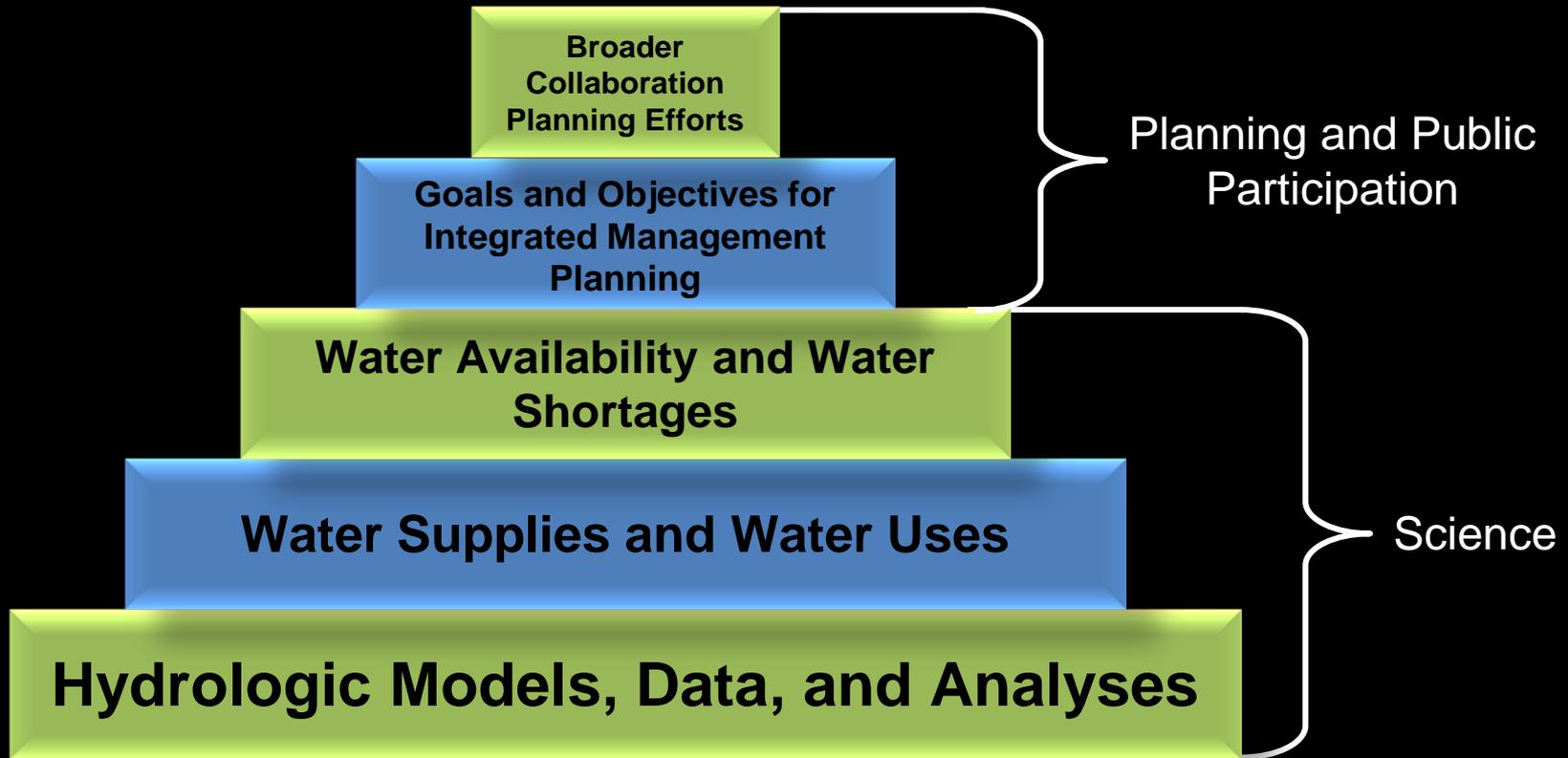
**Goals and Objectives for Integrated  
Management Planning**

Planning and Public  
Participation

A diagram consisting of two rectangular boxes with a 3D effect. The top box is yellow and contains the text 'Broader Collaboration Planning Efforts'. The bottom box is blue and contains the text 'Goals and Objectives for Integrated Management Planning'. A white bracket on the right side of these two boxes points towards the text 'Planning and Public Participation'.

# Summary

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# Thank you

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# Questions?