

# Integrated Management Planning

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## *Moving Beyond the Minimum*

***Mid-Winter CCA Conference***

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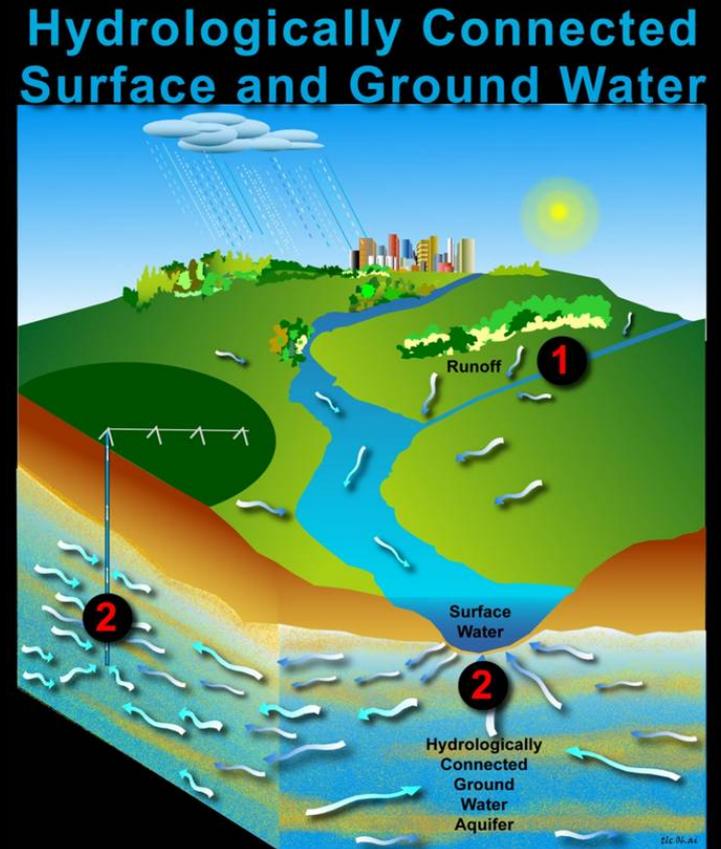
# Outline

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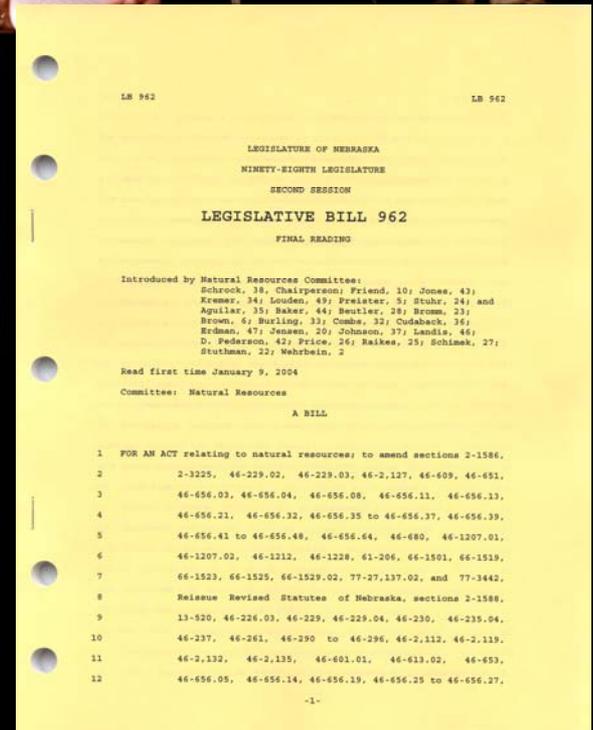
- Background on LB962 and Integrated Management
- Process used by the Department to “trigger” a fully appropriated designation
- Key components of integrated management plans
- Monitoring and studies to implement current IMPs
- Integrated management’s role in broader statewide water planning

# Hydrologically Connected Surface Water and Groundwater

- In many areas of the state, surface water and groundwater are hydrologically connected. Therefore, it is important to manage them as a single resource.

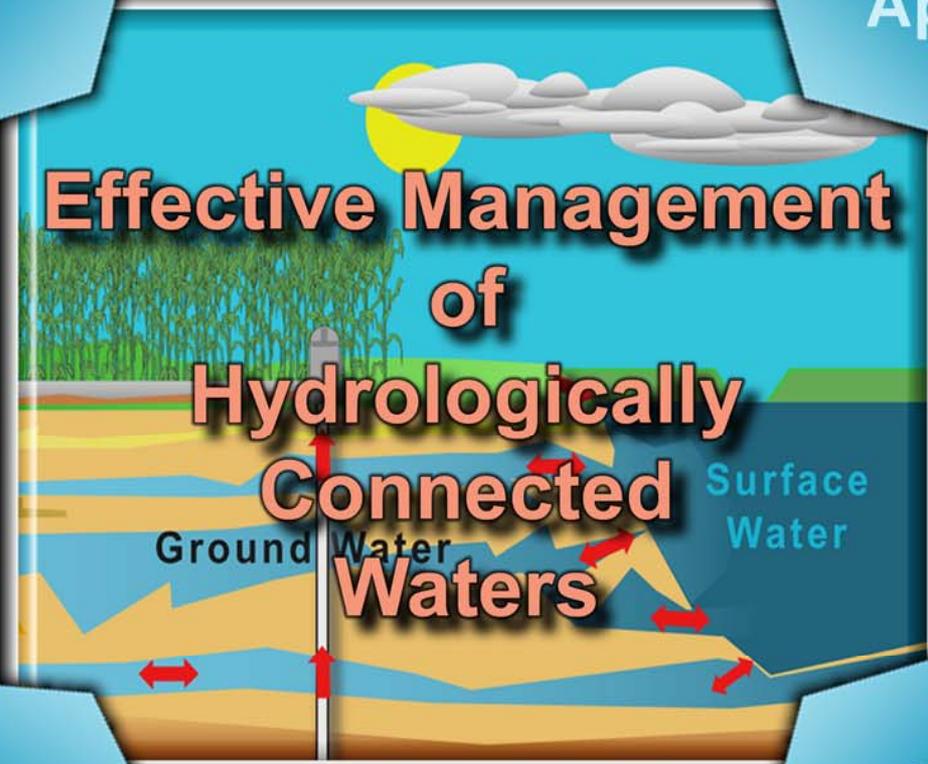


**LB962** was  
signed by then  
Governor  
Johanns on  
April 15, 2004



**Ground Water  
Correlative  
Rights**

**Surface Water  
Prior  
Appropriations**



The diagram illustrates the interaction between surface water and groundwater. At the top, a sun and clouds are shown. Below them, a green field with a well is depicted. The well is connected to a subsurface aquifer. Red arrows indicate the flow of water between the surface water body and the groundwater. The text 'Effective Management of Hydrologically Connected Waters' is centered over the diagram. Labels 'Ground Water' and 'Surface Water' are placed near their respective layers. The diagram is framed by four blue arrows pointing towards the center, each associated with a regulatory or legal concept.

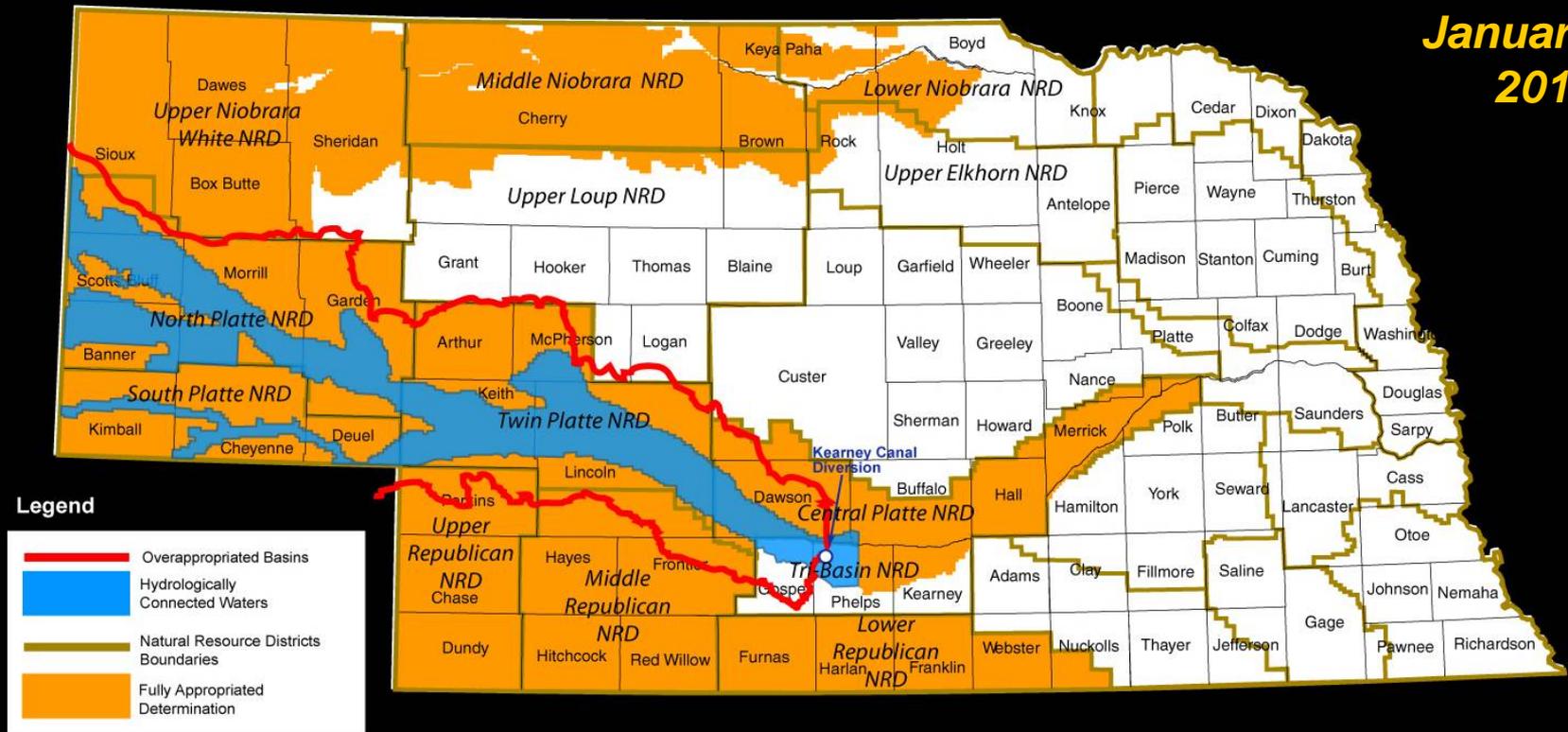
**Effective Management  
of  
Hydrologically  
Connected  
Waters**

**Ground Water  
Regulated by  
NRDs**

**Surface Water  
Regulated by  
DNR**

# Fully and Overappropriated Areas

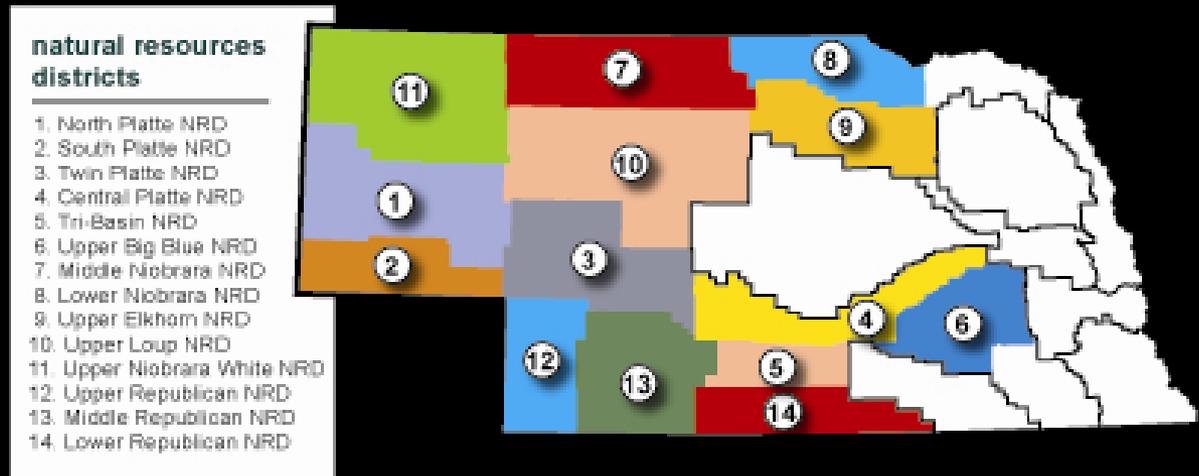
as of  
January  
2010



# Status of IMPs

- 14 NRDs are fully or overappropriated

- **Ten** have completed IMPs
- **Four** are in the process of developing IMPs



# Annual Evaluation and Report

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- The Department reports annually on its evaluation of the expected **long-term availability** of hydrologically connected water supplies
- Proactive approach in preventing conflicts between surface water and groundwater users (canary in the coal mine)

# What is a Fully Appropriated Basin?

(As determined through the Department's Annual Evaluation)

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- Water supply is **inadequate to satisfy junior surface water appropriations for irrigation**
- A fully appropriated determination **does not** necessarily mean that supplies and uses are in balance
- If not addressed through a planning process, conflicts will likely result between groundwater and surface water users in the future

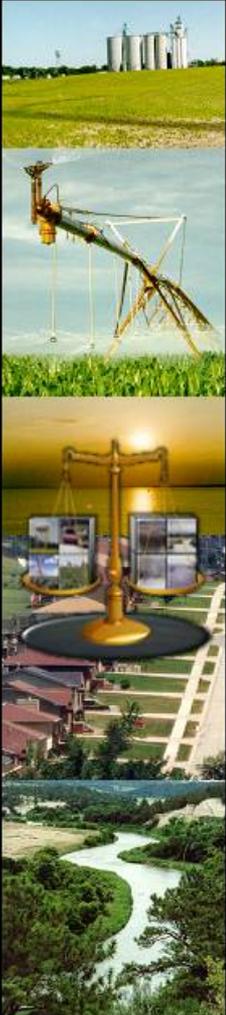


# Why is Integrated Management Necessary?

- Integrated management is the process of jointly (NRDs and the Department) identifying the appropriate path forward to soundly manage the groundwater and surface water supplies as a single resource



# A key goal of an IMP is to...



Sustain a balance between basin supplies and uses...

...to sustain the **economic** viability and **environmental** and **social** health, safety, and welfare of the basin...

...for both the near and long term.

# Integrated Management Plans are Required to Include:

- Clear goals and objectives with a purpose of sustaining or reaching a sustainable balance between water uses and water supplies (near term and long term)
- A map of the area subject to the IMP
- At least one groundwater control and one surface water control
- **A monitoring plan**



# Surface Water and Groundwater Controls

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- Are consistent with the goals and objectives of the IMP.
- **Ensure** state compliance with federal and state laws and interstate compacts and agreements. Compliance is a driving force for IMPs in areas where there are laws and/or compacts and agreements that regulate water use.
- **Protect** groundwater users dependent on stream recharge and surface water appropriators existing at the time of the preliminary determination from depletions caused by uses begun after the preliminary determination.

# IMP Process Requires Consultation

(Local input to determine most appropriate path forward)

- Irrigation and reclamation districts, mutual irrigation and canal companies
- Public power and irrigation districts
- Municipalities
- Other stakeholders deemed appropriate by the Department or NRDs



# Components of an IMP in a Fully Appropriated Basin (Without Externalities)

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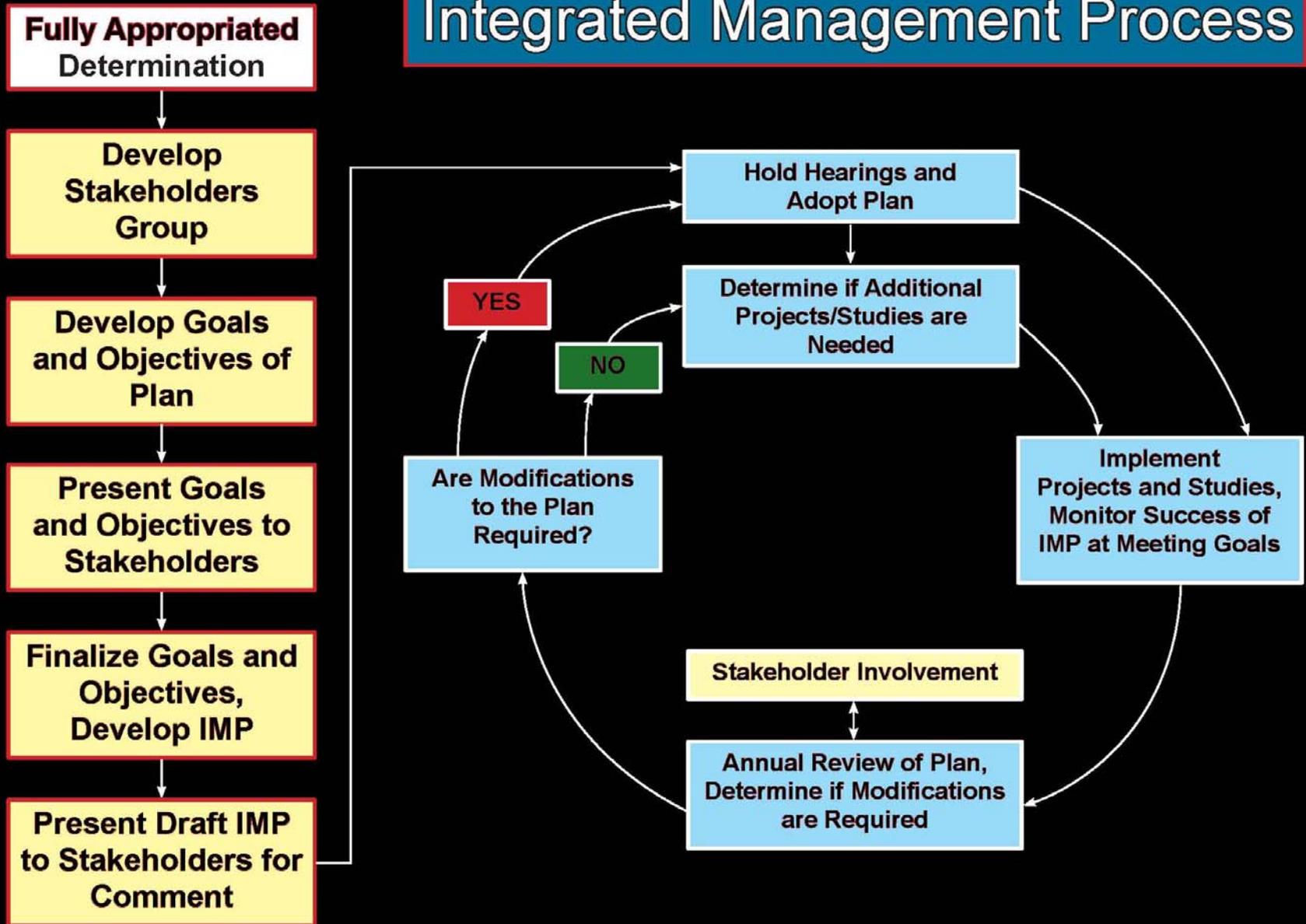
- **Process to certify existing uses** to provide a baseline.
- **Rules to allow transfers** from an old use to a new use, and offsets, **as necessary**, for new uses that adversely affect existing users. Water banking may also be used when appropriate.
- **Clear and transparent procedures** to track depletions and gains to streamflow.
- **Guidelines for consultation with other water users** to provide for economic development opportunities.
- **Guidelines to monitoring** surface water and groundwater conditions.

# Integrated Management Plans Are Not Required to Include:



- Restrictions on current users (allocations, reduced irrigated acres, etc.)
- Moratoriums on new uses (once certain controls are implemented through the IMP to protect current users)
- Restrictions on municipal and industrial development

# Integrated Management Process



# Monitoring and Studies

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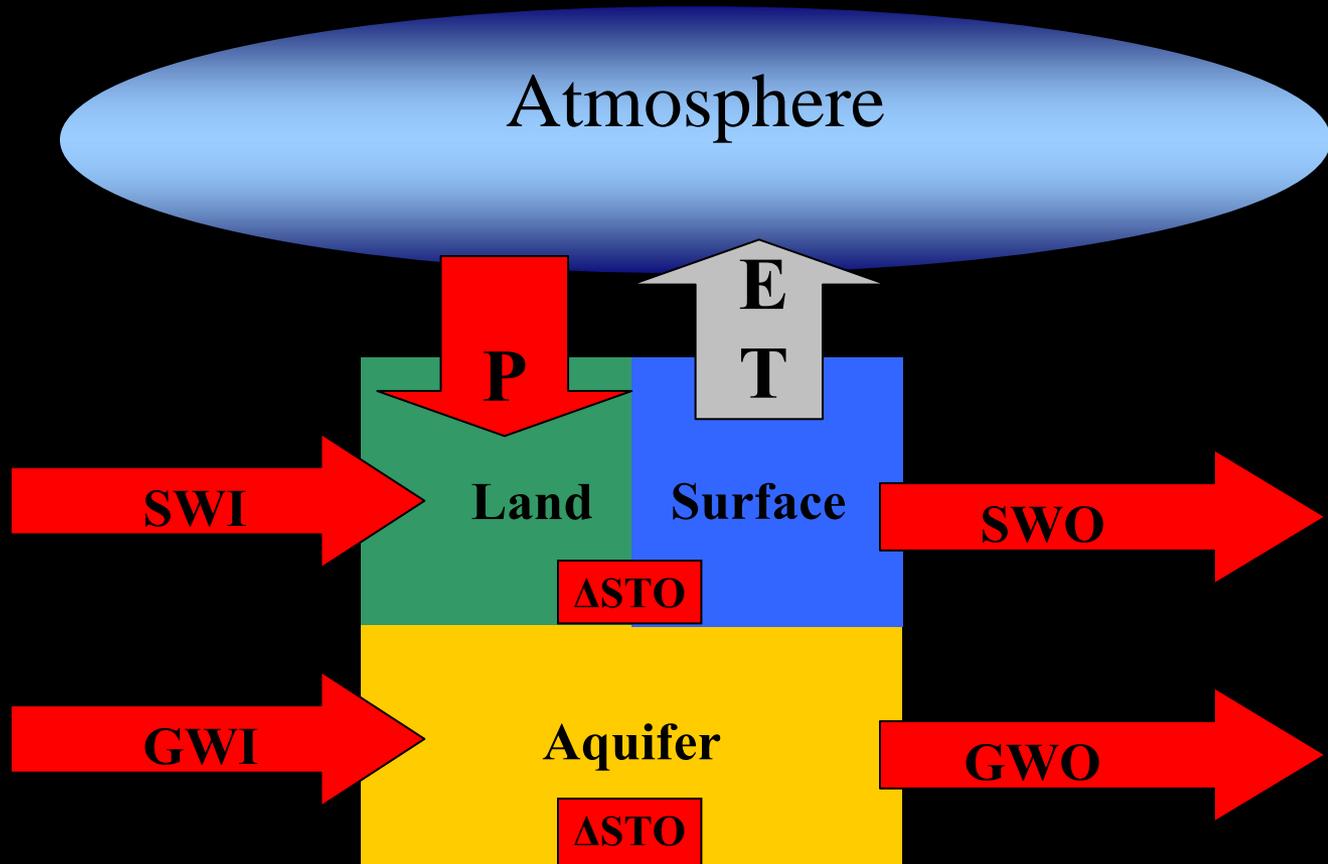
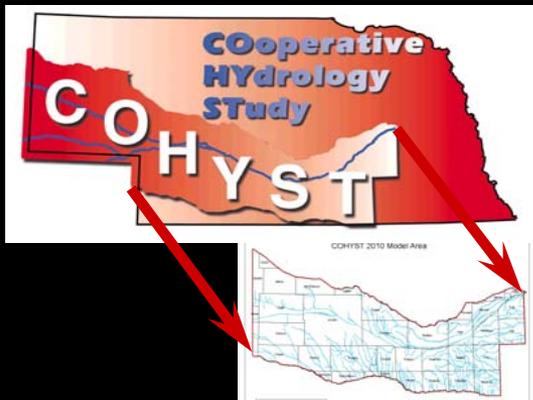
- All integrated management plans are required to contain comprehensive monitoring protocols
- Monitoring protocols are tailored to the specific goals of each plan
- Focus of monitoring protocols is the development and implementation of the necessary studies and tools for sound management of hydrologically connected water supplies

# Republican River Forecast

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- Compact allocations limit Nebraska's water use
- Compact accounting occurs after the fact so we must forecast dry year water supplies to evaluate if reductions in use may be necessary
- Forecast and NRD specific tracking allows for local decisions to be made on the best management strategy to ensure compliance

# COHYST



# North Platte River Studies

*(Western Water Use Model)*

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- Development of a surface water operations model for integration with a regional groundwater model and runoff model
- Integration of models for conjunctive management analysis
- Development of a management options plan
  - *Evaluation of potential management alternatives*
  - *Cost benefit analysis of alternatives*
  - *Pre-feasibility evaluation of select alternatives*

# Lodgepole Creek Study

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- How do depletions or accretions to flow translate to changes in streamflow in the South Platte River in Nebraska?
- Refine the existing stream depletion analysis completed by COHYST (2008) – Proportion of depletions that occur in Lodgepole vs. South Platte
- Evaluate the feasibility of utilizing flows in the Lodgepole Creek subarea to augment flows in the South Platte River

# UNWNRD Conjunctive Management Model

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- Development of a hydrogeologic framework for the Niobrara Basin
- Develop the necessary tools and models that will provide the flexibility to analyze potential conjunctive management options
  - Land use model
  - Groundwater model
  - Surface Operations model

# Niobrara Basin Study

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- Bureau of Reclamation funded study providing \$350,000 (in-kind funding) to define options for meeting future water demands – expands UNWNRD studies to the entire Niobrara River Basin
- Assist in the development and implementation of IMPs and other water planning activities
- Identify opportunities for meeting water supply needs through structural and nonstructural means
- Analyze potential effects of climate variability on water supply

# Statewide Water Planning

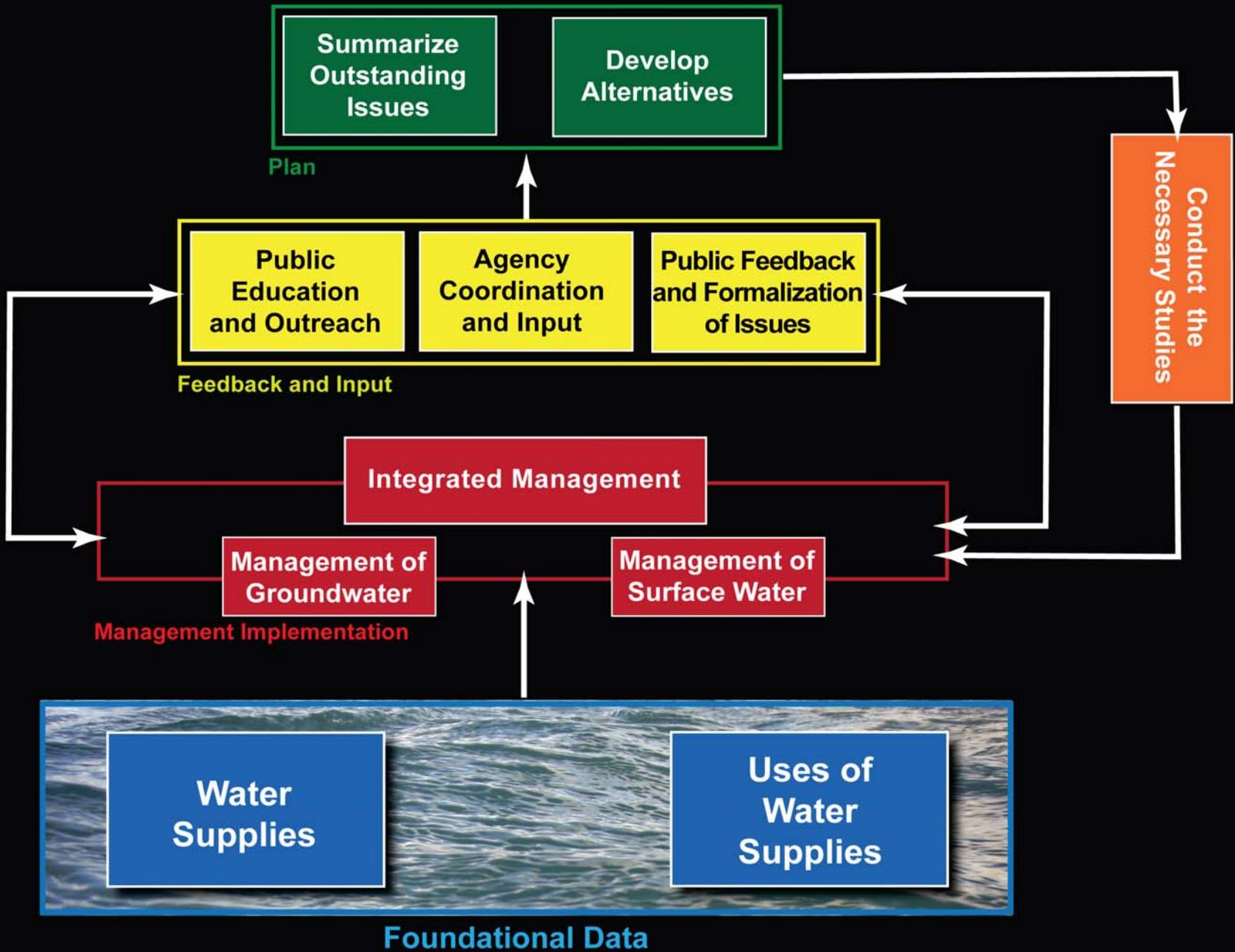
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- The challenge is to manage the water supply and its current and future variability, in:
  - Time
  - Location
  - Types of Use
- Understanding our water supplies and uses creates great opportunities within integrated water management and can ultimately provide the opportunity and information needed for comprehensive water planning at the local, basin, and state level

# Proactive Statewide Water Planning

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- By proactively managing water supplies and uses now, existing uses are protected and new uses may be available
- A management area established for the purpose of integrated management allows for new uses to be regulated differently from pre-existing uses
- May require complex and sophisticated science



# Summary

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- The process of developing and adopting IMPs in fully and overappropriated basins is an important first step. *(initiate joint planning for a single resource)*
- Implementing the proper monitoring and studies is critical to the success of integrated management. *(develop tools for multiple management options)*
- The Department, in collaboration with the NRDs, is developing the science needed for the success of integrated management and water planning for the State of Nebraska. *(identifying the great opportunities that exist across much of the state)*

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**Thank you!**

**Questions?**

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**Nebraska Department of Natural Resources**

