

# Integrated Management Planning

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## *Moving Beyond the Minimum*

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# Integrated Mgmt Plans

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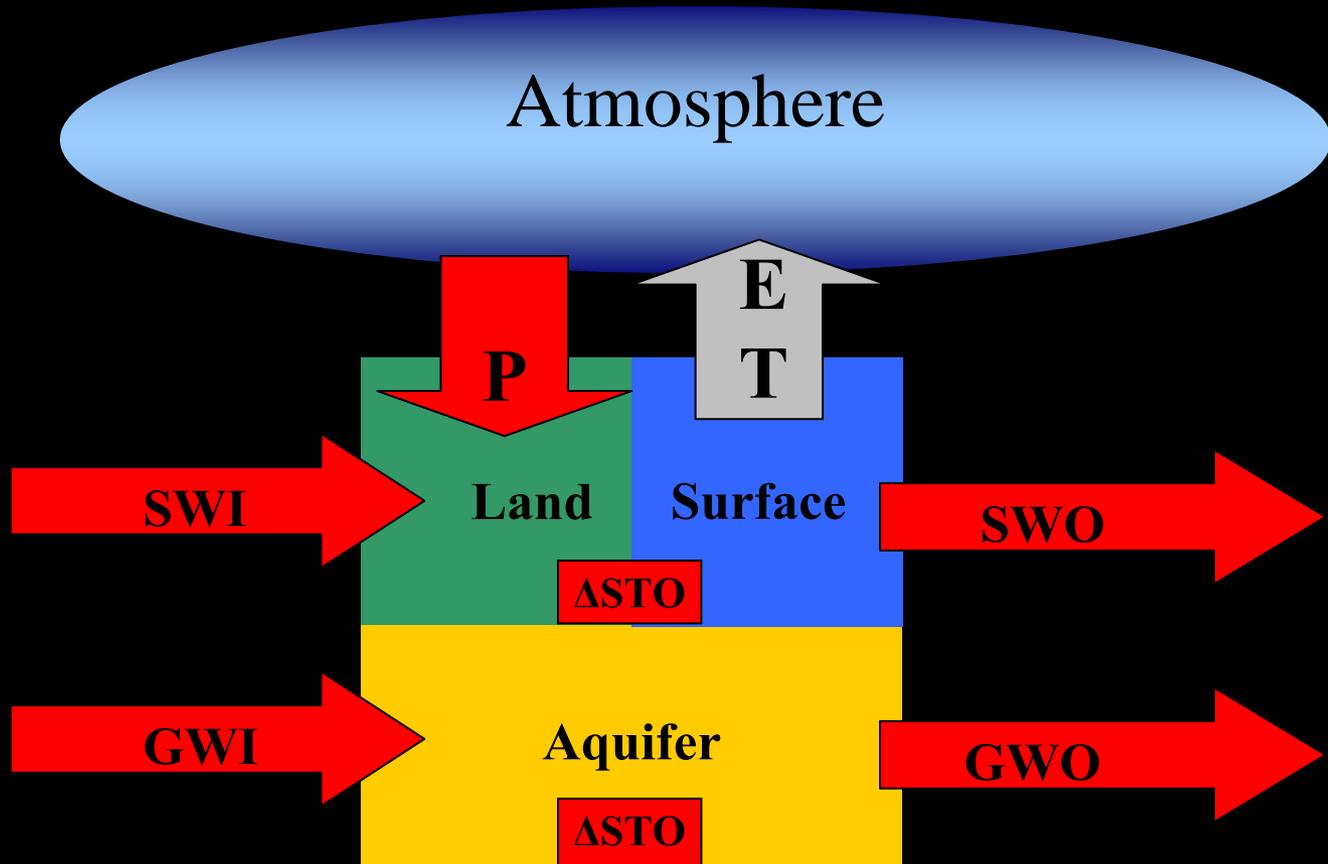
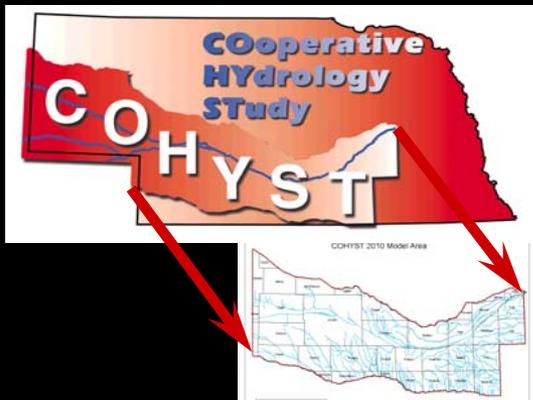
- The process of developing and adopting IMPs in fully and overappropriated basins is an important first step.
- All integrated management plans are required to contain comprehensive monitoring protocols
- Monitoring protocols are tailored to the specific goals of each plan

# Monitoring and Studies

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- Tracking ongoing management activities and exchanging information
- Identification, development and implementation of the necessary studies and tools for sound management of hydrologically connected water supplies

# COHYST



# Western Water Use Model

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- Redevelopment of COHYST Western Model Unit
- Development of surface water operations model
- Integration of models for conjunctive management analysis

# 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

# North Platte River Studies

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

# 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 that the UNWNRD and NDNR will consider through the integrated management planning process
  - 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 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.

# Understanding the Water Supply

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- Impossible to plot a course without clear knowledge of where we are
- The undepleted “Virgin” streamflow is our water supply
- The only way to use more than this supply, on average, is to borrow from storage
- Uses must be understood in order to quantify the water supply

# Proactive Statewide Water Planning

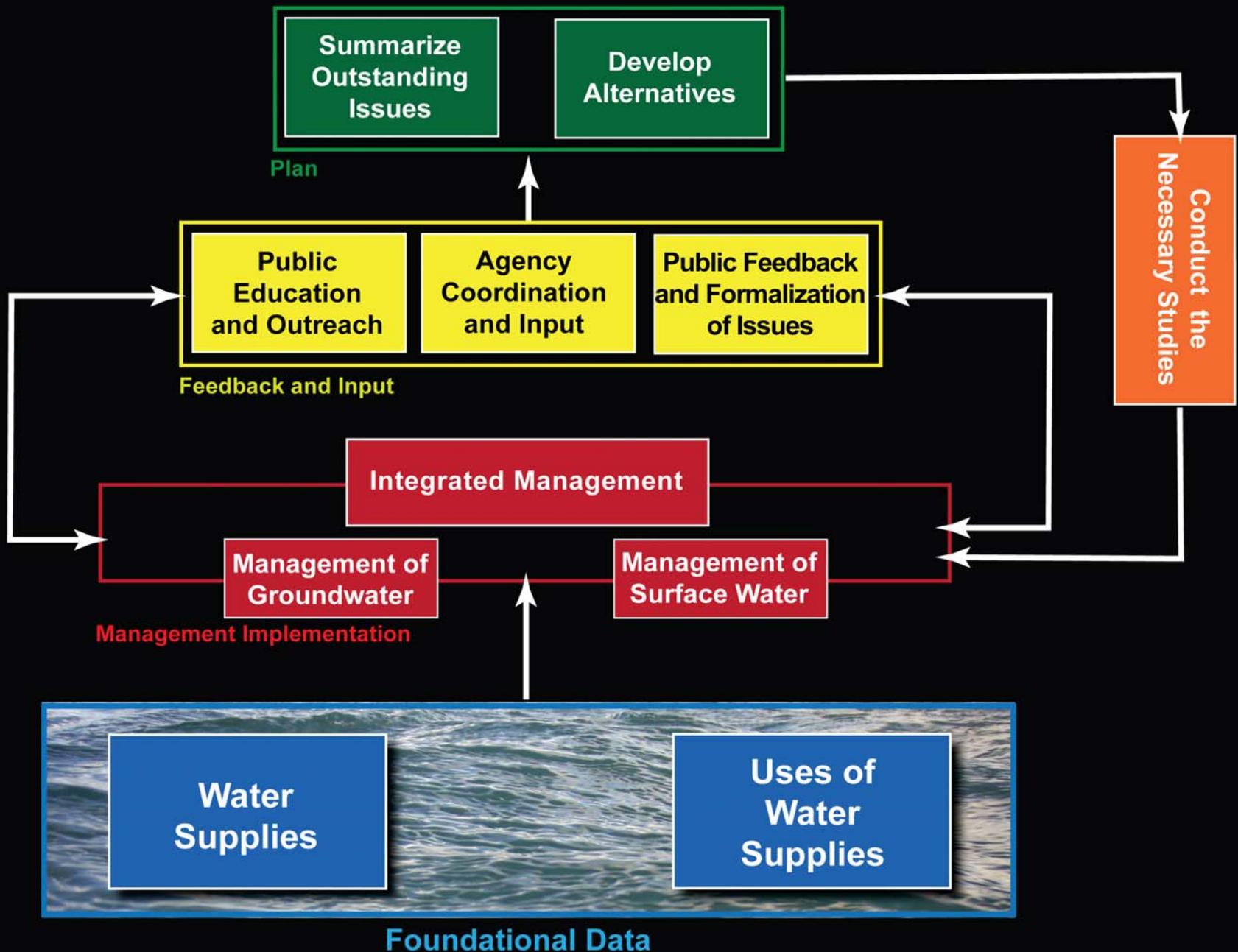
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- By proactively managing water supplies and uses now, existing uses are protected and new uses may be available
- A management area established for the purpose of integrated management allows for new uses to be regulated differently from pre-existing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

# Statewide Water Use and Supply

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- Utilize CROPSIM Model developed at UNL by Dr. Derrel Martin
- Location-based parameters for soils and crop types established for different parts of the state
- Quality assurance and quality control task
- Surface water data compilation
- Develop statewide framework
  - Construct water portfolios for the state
  - Prepare future scenarios
  - Construct management strategies



# Summary

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- The process of developing and adopting IMPs in fully and overappropriated basins is an important first step.
- Implementing the proper monitoring and studies is critical to the success of integrated management.
- 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.

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**Thank you!**

**Questions?**

