

# Wyoming Water Planning an Update

Phil Ogle

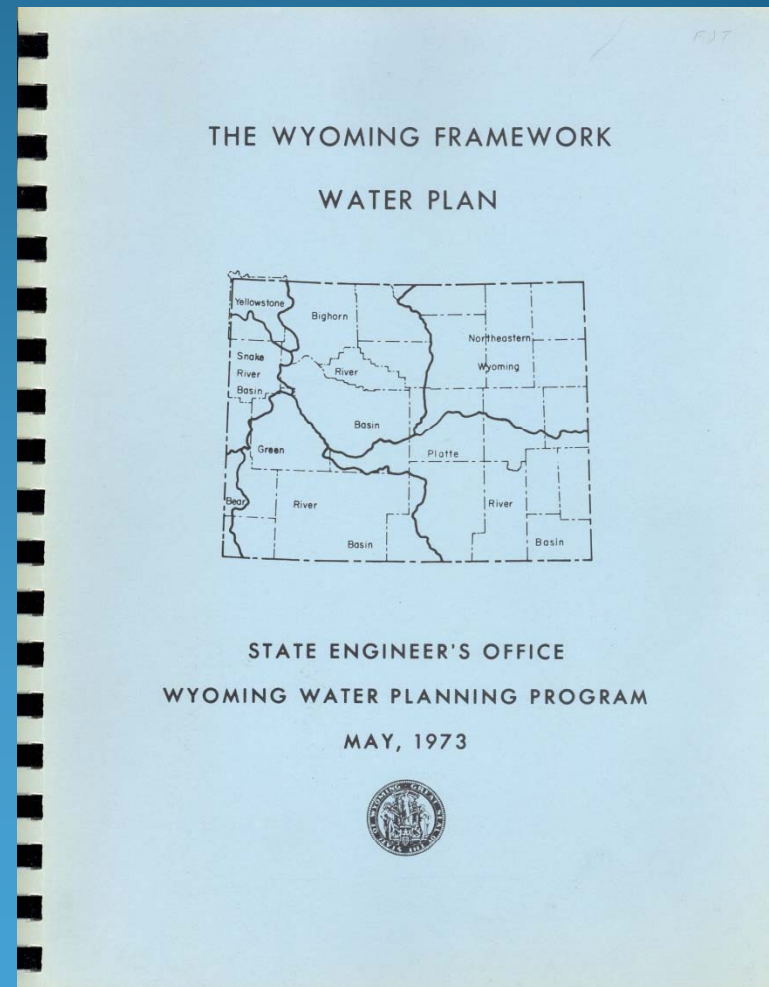
River Basin Planning Supervisor  
Wyoming Water Development Office  
May 23, 2012

# Wyoming River Basin Planning

- History of River Basin Planning
- Current Status of River Basin Planning
- The Future of River Basin Planning

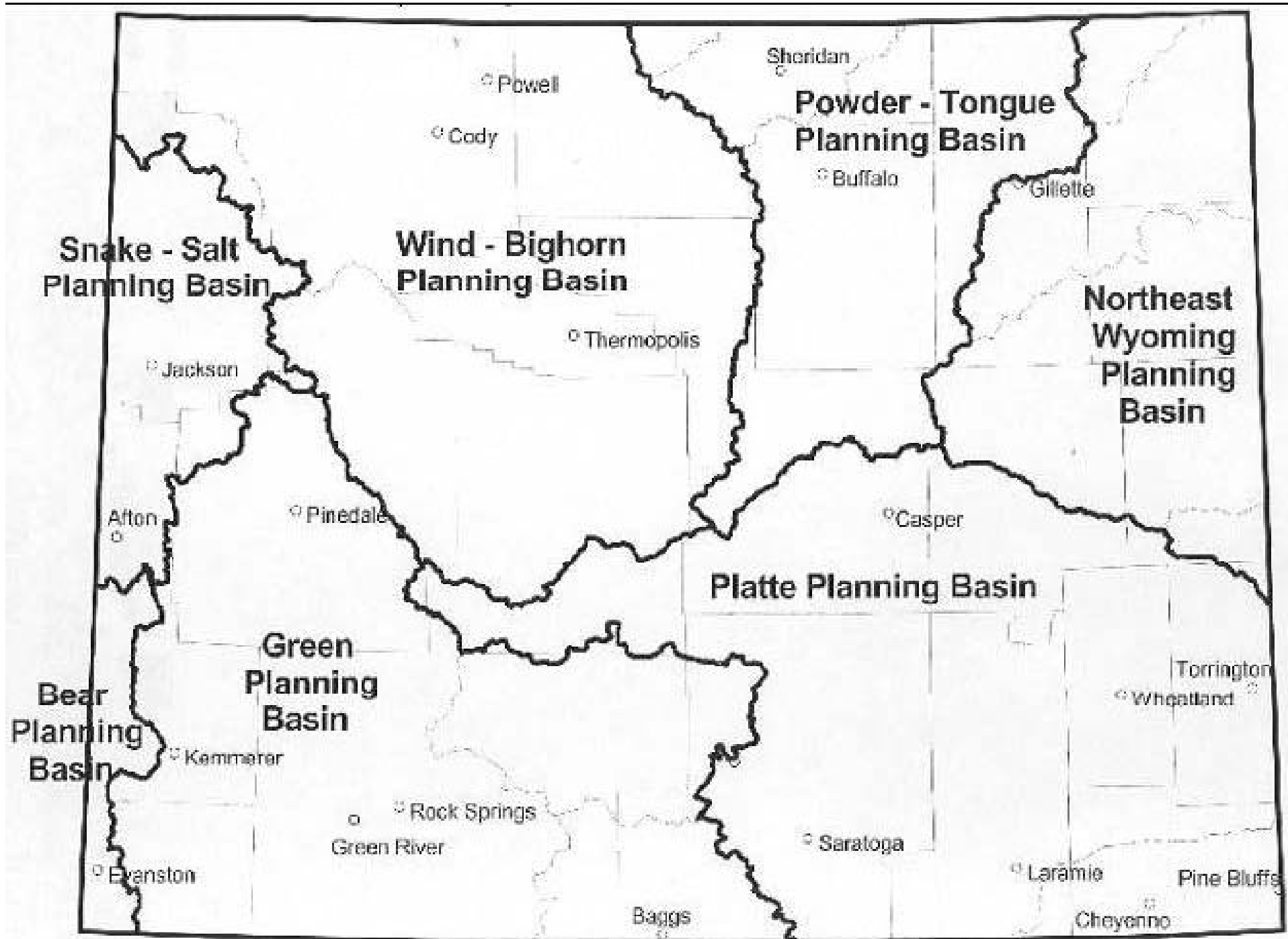
# Wyoming River Basin Planning

- River Basin Planning began in the late 1960s & early 1970s which culminated in the 1973 The Wyoming Framework Water Plan



# Wyoming's River Basin Planning Process

- In the mid-1990s it was determined that updated river basin plans were needed
  - In 1996 the Legislature directed the WWDC and the SEO to develop a proposal for updating the state water planning process.
  - A pilot study was conducted in the Bear River in 1997 and a State Water Planning Process Feasibility Report was prepared in 1998.
    - State Water Planning Process Feasibility Report



# Wyoming's River Basin Planning Process

- The purpose of Wyoming's River Basin Planning Process is to collect data on a basin wide scale that describes water uses, defines shortages and surpluses, and makes projections for future water demands.



# Wyoming's River Basin Planning Process

- Elements of the Planning Process
  - Public Involvement Program
  - Basin Water Use Profile
  - Flow Modeling
  - Demand Projections
  - Future Water Use Opportunities
  - Water Resource Database

# Wyoming's River Basin Planning Process

- In 1999 the State Water Planning Process was formally authorized by the legislature and the WWDC established a River Basin Planning Section to implement the planning process.
- The legislature also provided funding to initiate the first basin plans. The Bear River Basin Plan and the Green River Basin Plan were the first basins studied.



# Wyoming's River Basin Planning Process

- Components of a River Basin Plan
- Organize Basin Advisory Groups
- Inventory of Water Used
- Hydrologic Modeling
  - Develop spreadsheet models
- Population Projections
- Economic Demand Projections for Agriculture, Industry, Municipal, Rural Domestic, Environmental and Recreation water needs.
- Develop web based data presentations
  - WRDS hosts the web site and data storage

Water Available – Water Used = Basin Surpluses and Shortages



# Wyoming State Water Plan

Wyoming Water Development Office

6920 Yellowtail Rd

Cheyenne, WY 82002

Phone: 307-777-7626



## News and Information

- ◆ Newsletter
- ◆ Water Planning Process History
- ◆ Historical Planning Documents
- ◆ Wyoming Water Facts

## River Basin Plans

- ◆ Statewide Framework Plan
- ◆ Bear River Basin
- ◆ Green River Basin
- ◆ NE River Basin
- ◆ Platte River Basin
- ◆ Powder/Tongue River Basin
- ◆ Snake/Salt River Basin
- ◆ Wind/Bighorn River Basin

## Basin Advisory Groups

- ◆ Mission and Purpose
- ◆ Calendar
- ◆ Agendas
- ◆ Meeting Records
- ◆ Reference Material

## Planning Products

- ◆ GIS Web Mapping
- ◆ Framework Water Plan
- ◆ Platte Water Atlas
- ◆ Water Search Engine
- ◆ Send Us Your Comments

## Partners

- ◆ State Engineer's Office
- ◆ Water Resources Data System

## Contact Us

## Green River Basin Water Plan

The 2001 Green River Basin Water Plan and the 2010 Green River Basin Plan Update are listed below. The Plans may be viewed in either HTML or in PDF. It is recommended that users download the latest version of [Adobe Acrobat®](#) Reader to view the PDF files.

### 2010 Plan Update

- ◆ [Final Report](#)
- ◆ [Executive Summary](#) (PDF 1,572 kb)
- ◆ [Groundwater Report](#)
- ◆ [Technical Memoranda](#)
- ◆ [Fontenelle Contract Water Memorandum](#)
- ◆ [GIS Products](#)
- ◆ [Hydrologic Models](#)



### 2001 Plan

- ◆ [Executive Summary](#)  
[HTML \(39 kb\)](#) | [PDF \(118 kb\)](#)
- ◆ [Final Report](#)
- ◆ [Technical Memoranda](#)
- ◆ [GIS Products](#)
- ◆ [Hydrologic Models](#)



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## Powder/Tongue River Basin Water Plan 2002

The 2002 Powder/Tongue River Basin Water Plan is listed below. The Plan may be viewed in either HTML or in PDF. It is recommended that users download the latest version of [Adobe Acrobat®](#) Reader to view the PDF files.

- ◆ **Executive Summary**  
[HTML \(235 kb\)](#) | [PDF \(988 kb\)](#)
- ◆ [Final Report](#)
- ◆ [Technical Memoranda](#)
- ◆ [GIS Products](#)
- ◆ [Hydrologic Models](#)

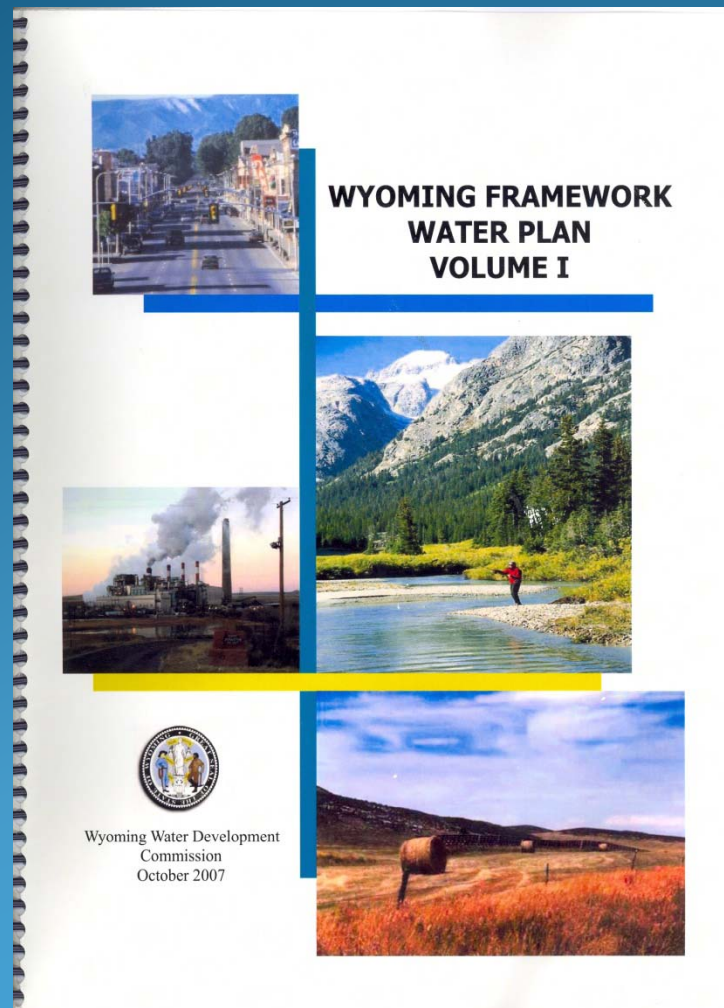




# Wyoming's River Basin Planning Process

- Bear River Basin – 2001
- Green River Basin – 2001
- NE River Basins – 2002
- Powder/Tongue River Basin – 2002
- Wind/Bighorn River Basin – 2003
- Snake/Salt River Basin – 2003
- Platte River Basin – 2006

# Wyoming's River Basin Planning Process



- Framework Water Plan – completed in 2007
  - Summarized the seven Basin Plans
  - Provided the statewide perspective
  - Updated the 1973 Framework Water Plan
  - Helped set the course for second round of basin planning

# Wyoming's River Basin Planning Process

## Framework Water Plan Table of Contents

- 1.0 Introduction
- 2.0 Presentation Tool
- 3.0 Setting
- 4.0 Water Resources
- 5.0 Current Water Use
- 6.0 Water Use Projections
- 7.0 Water Availability
- 8.0 Basin Issues, Strategies and Water Use Opportunities
- 9.0 Program Strategies and Recommendation



# Wyoming State Water Plan

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[Home Page](#) [News & Information](#) [River Basin Plans](#) [Basin Advisory Groups](#) [Planning Products](#)

[Statewide Framework Plan Updated Data Tables](#)  
[Updated Table](#)

**Table 7-3 Average Annual Streamflow and Uses - Mid-Level Development - Dry Condition**

Basin	State Line Outflow - Natural Conditions <sup>1</sup>	Depletions of Streamflow to Wyoming					Depleted Streamflow Leaving Wyoming <sup>3</sup>	Wyoming's Remaining Share Under Compact
		Irrigation <sup>2</sup>	Municipal, Domestic, & Stock <sup>2</sup>	Industrial <sup>2</sup>	Reservoir Evaporation <sup>2</sup>	Total <sup>2</sup>		
ac-ft								
GREAT BASIN								
Bear River	235,200	94,500	3,400	0	5,300	103,200	132,000	0
COLORADO RIVER								
Green River <sup>4</sup>	1,614,500	423,000	30,800	106,400	121,300	681,500	933,000	150,200
MISSOURI RIVER								
Northeast Wyoming <sup>5</sup>	145,300	72,800	0	0	23,500	96,300	49,000	2,500
Platte River <sup>6</sup>	1,110,800	484,600	27,100	61,300	213,800	786,800	324,000	0
Powder/Tongue River	733,300	194,000	15,000	17,000	11,300	237,300	496,000	248,100
Wind/Bighorn River	3,686,100	1,305,700	18,000	38,700	138,700	1,501,100	2,185,000	1,648,000
Yellowstone River <sup>7</sup>	2,374,000					0	2,374,000	0
COLUMBIA RIVER								
Snake/Salt River <sup>8</sup>	2,164,300	107,100	0	0	72,200	179,300	1,985,000	90,000
Total	12,063,500	2,681,700	94,300	223,400	586,100	3,585,500	8,478,000	2,138,800

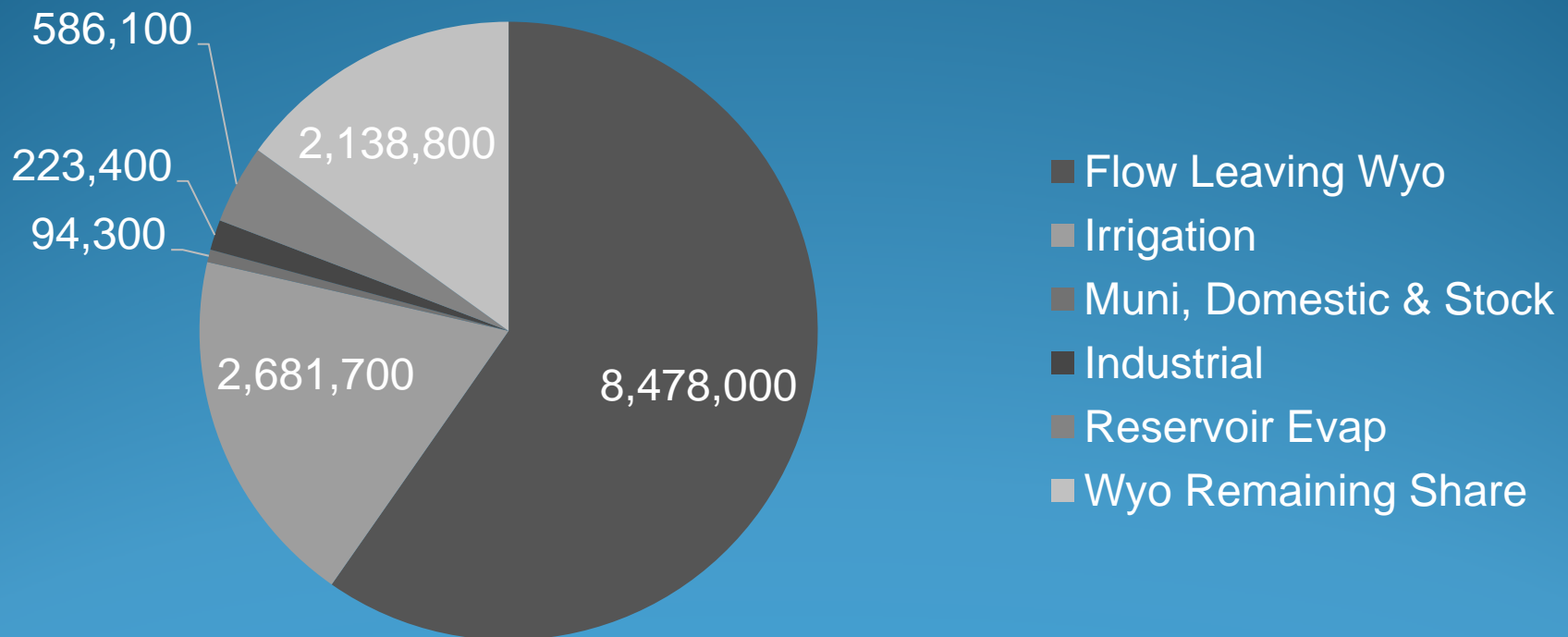
Note: Blanks indicate that information was not presented in the individual basin plans.

<sup>1</sup> Estimates are based on outflow plus depletions from the current river basin plans.

<sup>2</sup> Depletion estimates are from the current river basin plans.

# Wyoming Water Resources and Uses Under Dry Hydrologic Conditions

## Water in AF





# Wyoming's River Basin Planning Process

## The Second Phase

- Update the Plans (include recent drought)
- Focus on Groundwater
- Increase Accuracy of Spreadsheet Models
- Develop Strategies to Address Basin Issues
- Incorporate Data from Level I and II Studies
- Improve data sources and analysis

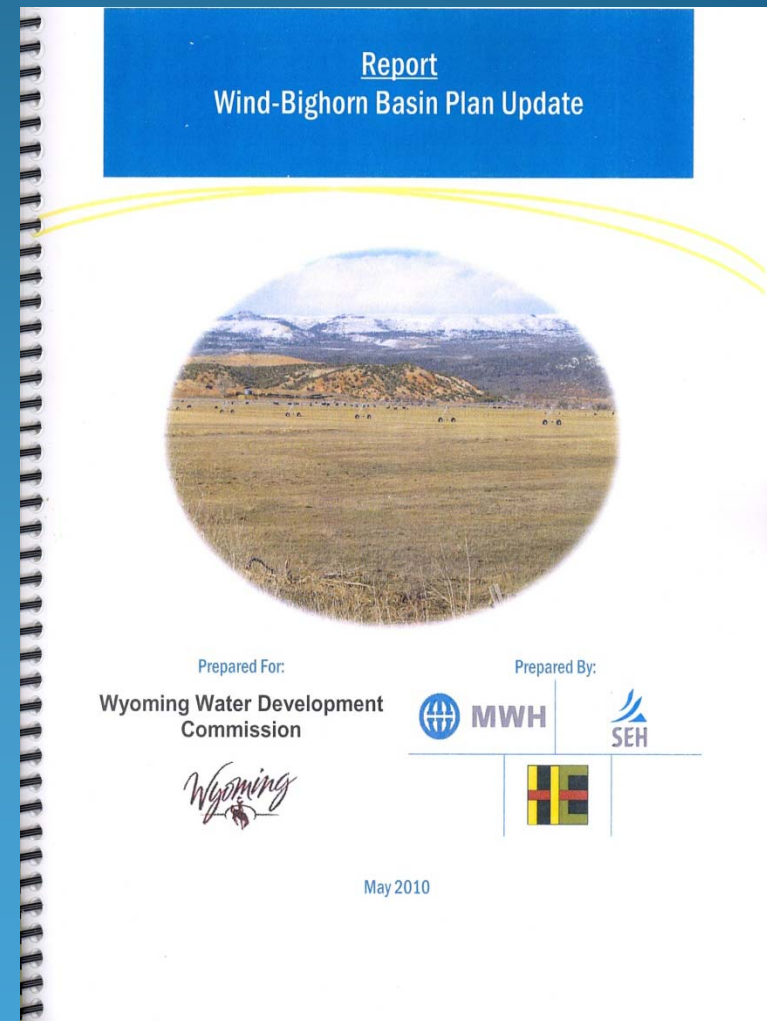
## Second Phase of the River Basin Planning Process



- Work with Basin Advisory Groups to formulate strategies that would address Issues within the Basin

# Second Phase of the River Basin Planning Process

- Working on River Basin Plan Updates
  - Wind/Bighorn – May 2010
  - Green – December 2010
  - Bear – Complete
  - Snake/Salt – Just Started



# Second Phase of the River Basin Planning Process

## Water Remaining for Development Under Normal Hydrologic Conditions and Current Uses in the Wind/Bighorn River Basin

Basin Plan Date	Acre Feet per Year
2003 Plan	2,491,500
2010 Plan	2,377,100

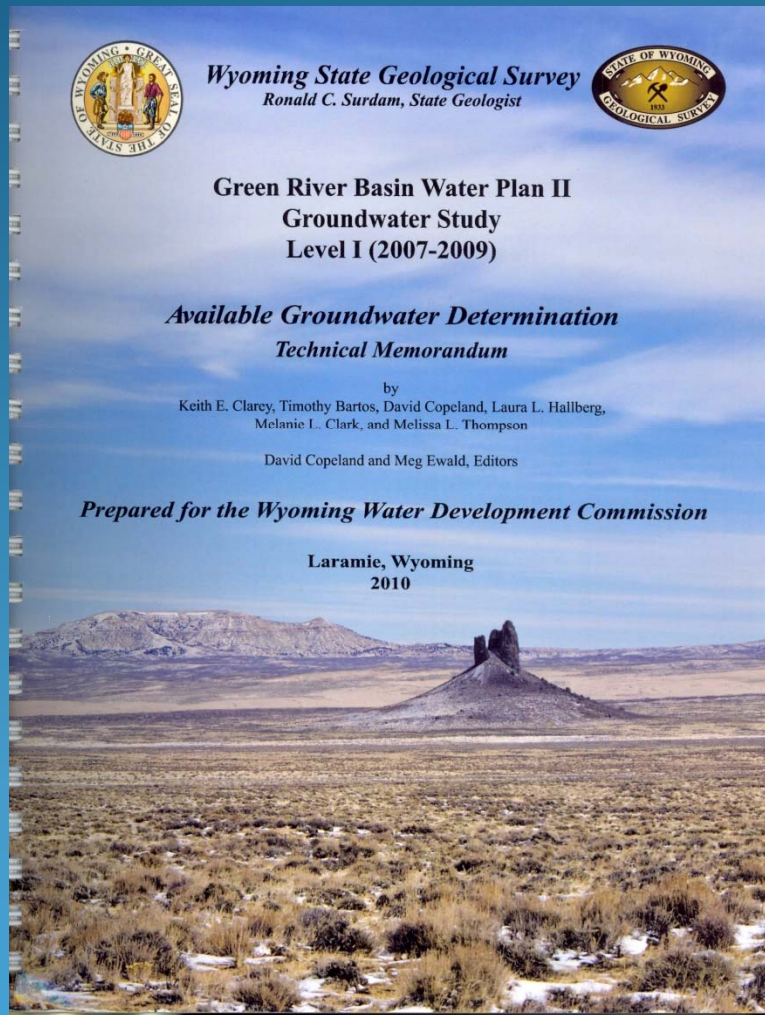
# Second Phase of the River Basin Planning Process

## Water Remaining for Development Under Mid-Level Development and Dry Hydrologic Conditions in the Wind/Bighorn River Basin

Basin Plan Date	Acre Feet per Year
2003 Plan	1,648,000
2010 Plan	1,404,200



# Second Phase of the River Basin Planning Process



- Working on Groundwater Studies
  - Green – 2010
  - Wind/Bighorn – 2012
  - Platte – First Draft 2012
  - Bear – Under Way
  - Snake/Salt – Just Started

# Second Phase of the River Basin Planning Process

## Green River Decision Support System Feasibility Study

What is needed to establish a DSS

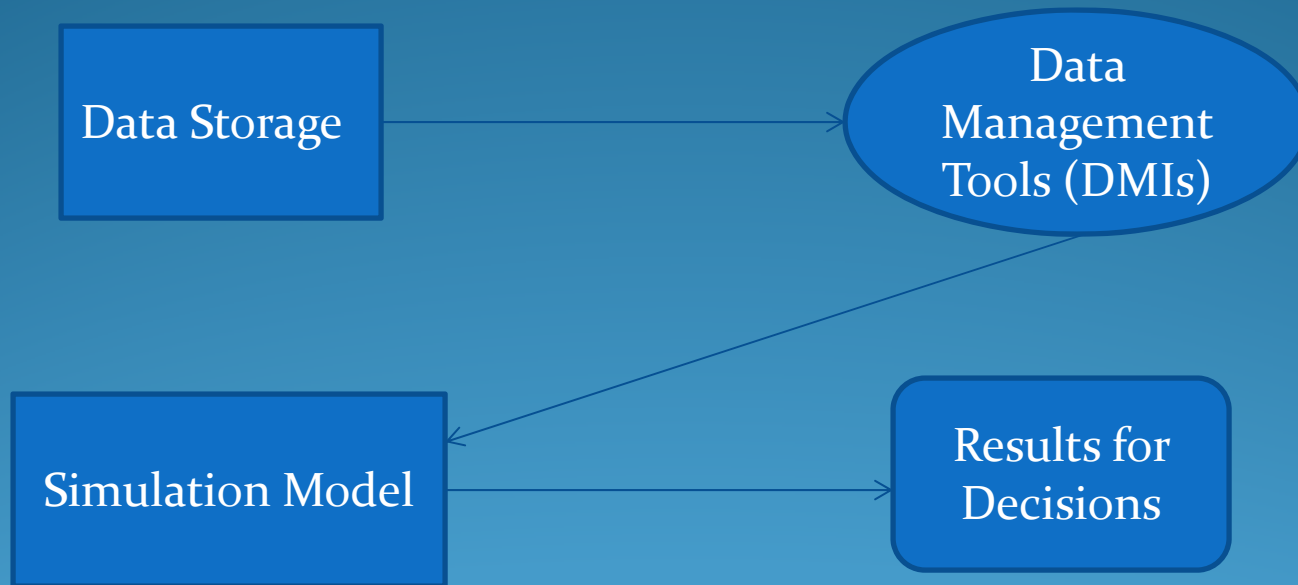
How should a DSS be set up

What are the alternatives

What are the costs and staff requirements

# Second Phase of the River Basin Planning Process

- A Decision Support System





# Second Phase of the River Basin Planning Process

- StateMod is the recommended model
- SEO should manage data storage
- WDO should develop data to model integration tools
- WDO should develop the model
- Staff and budget would be required for both SEO & WDO??



# Second Phase of the River Basin Planning Process

- With budgets tight, additional \$\$ are not available and added staff are not likely.
- So what are we doing?
  - SEO will continue to work on developing data bases and water rights mapping.
  - WDO will work on data management tools and model development.
  - WRDS will help gather data and integrate data sets into the proper format.



# Second Phase of the River Basin Planning Process

- Basin Planning Environmental and Recreation Study
  - This study is to help refine the statewide water planning process to better address environmental and recreational water uses.
  - Environmental and recreational uses have been considered but the data are hard to find and difficult to interpret.



# Second Phase of the River Basin Planning Process

- Environmental and Recreation Study
  - Develop a cookbook or handbook on data sources and data evaluation.
  - Evaluate Environmental and Recreational water uses as protected, complementary, or competing.
  - Use spatial mapping tools (GIS) to present data

# The Future of the Wyoming River Basin Planning Process

- What is the future of River Basin Planning?



# The Future of the Wyoming River Basin Planning Process

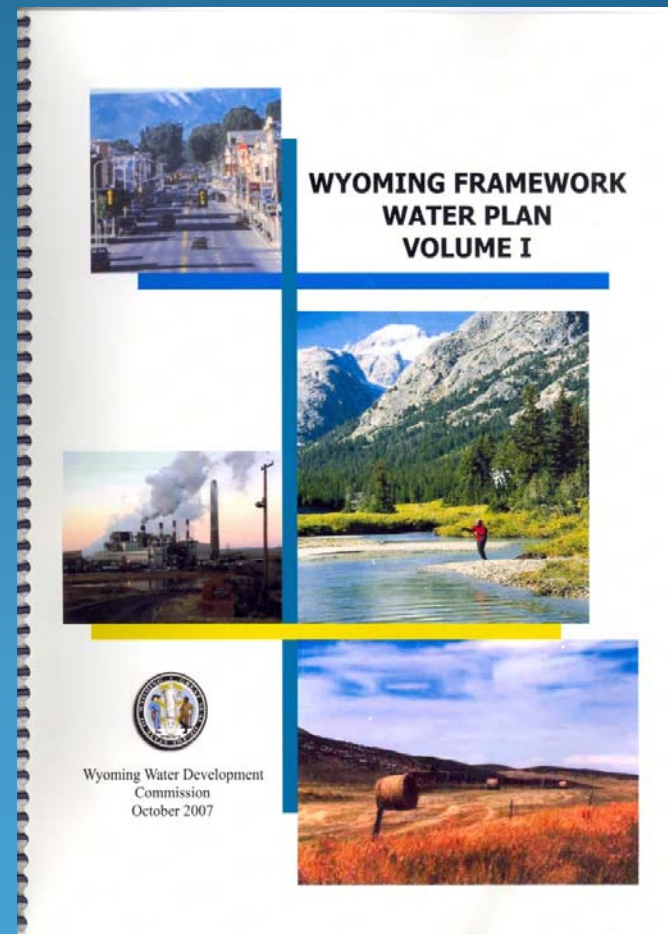
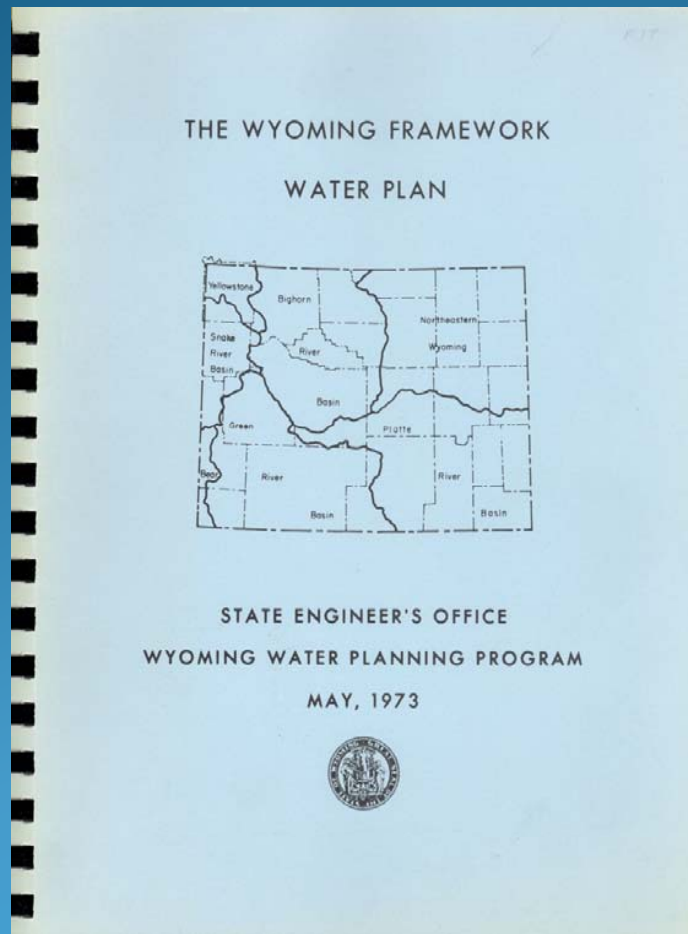
- Continue River Basin Plan Updates
  - Complete the Snake/Salt River Plan Update.
  - Complete Plan Updates for the Powder/Tongue River Basin and the Northeast River Basins.
- Continue modeling efforts moving toward a DSS
  - Prepare a StateMod model for the Bear River Basin (BearMod).
  - Determine which basin should be next in development of the DSS.

# The Future of the Wyoming River Basin Planning Process

- Continue to improve data sources and analysis methods used in planning.
- Maintain contact with Basin Advisory Groups
- Monitor economic and demographic changes within the seven basins and the state.
  - How are these changes affecting water demands
- Determine the timing for the next Framework Water Plan.
  - 2015 or 2020?
  - Don't wait 34 years



# The Future of the Wyoming River Basin Planning Process





# Wyoming Water Planning an Update

Questions