

# Water Planning in Wyoming

A scenic landscape of a Wyoming valley. In the background, a range of rugged, snow-capped mountains stretches across the horizon under a clear blue sky. The middle ground features a wide, green valley with scattered trees and a small stream. In the foreground, a rustic wooden fence made of logs runs across the frame. The overall scene is bright and clear, suggesting a sunny day.

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Wyoming Water Development Office

# Presentation Outline

- History of Wyoming's Planning Process
- Products developed for first round plans
- The additions and updates from the second round plans
- Look Forward at the third round and our wish list for the future

Cities Government Business Water

## 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
- National Planning Documents
- Wyoming Water Facts

**River Basin Plans**

- Statewide Framework Plan
- Bear River Basin
- Green River Basin
- HD River Basin
- Platte River Basin
- Powder/Tongue River Basin
- Snake/Salt River Basin
- Wind/Eighth River Basin
- Groundwater Reports

**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**

Water Plan Home Page  
Water Development Office

### Summary of the State Water Planning Process

In 1997 the Legislature directed the WWDC to conduct a water planning feasibility study with the assistance of the University of Wyoming (UW). In conjunction with the State Engineer and the University, the WWDC completed an intensive public outreach effort, a pilot analysis in the Bear River Basin and a statewide water data inventory. During the process, the planning team was advised by a multi-agency scoping group. An independent consulting firm under contract to the WWDC assisted with development of implementation recommendations.

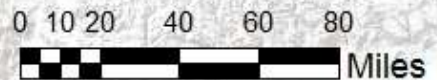
The 1999 Legislature approved the recommended planning framework and authorized the Bear and Green Basin Plans. In the years that followed, the Legislature authorized funding for the five remaining river basin plans. The Platte River Basin Plan was the last plan completed in May 2006. Anticipating completion of the individual river basin plans, the 2005 Legislature authorized funding for the Statewide Framework Water Plan. The purpose of this plan was to summarize the results of all seven river basin plans and provide recommendation for future updates.

More information on the River Basin Planning Process and Plan Updates can be found by clicking on the links on the left side of the page.

GIS Web Mapping    Framework Water Plan    Send Us Your Comments



# Major River Basins

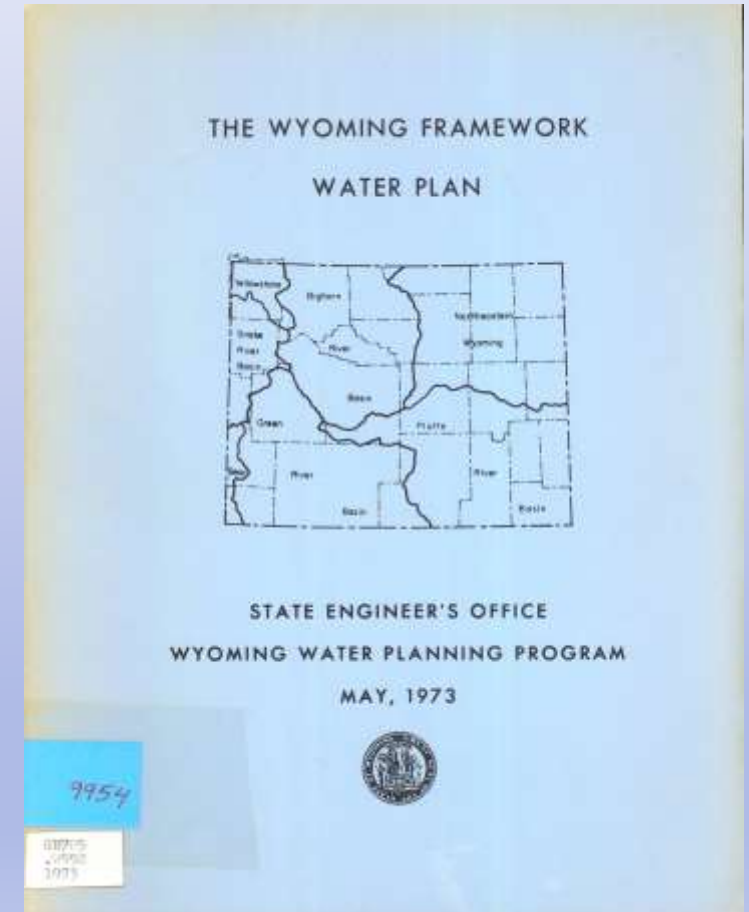


## Legend

- Reservoirs
- Interstate Highways
- National Park Boundaries
- Cities and Towns
- Major Roads

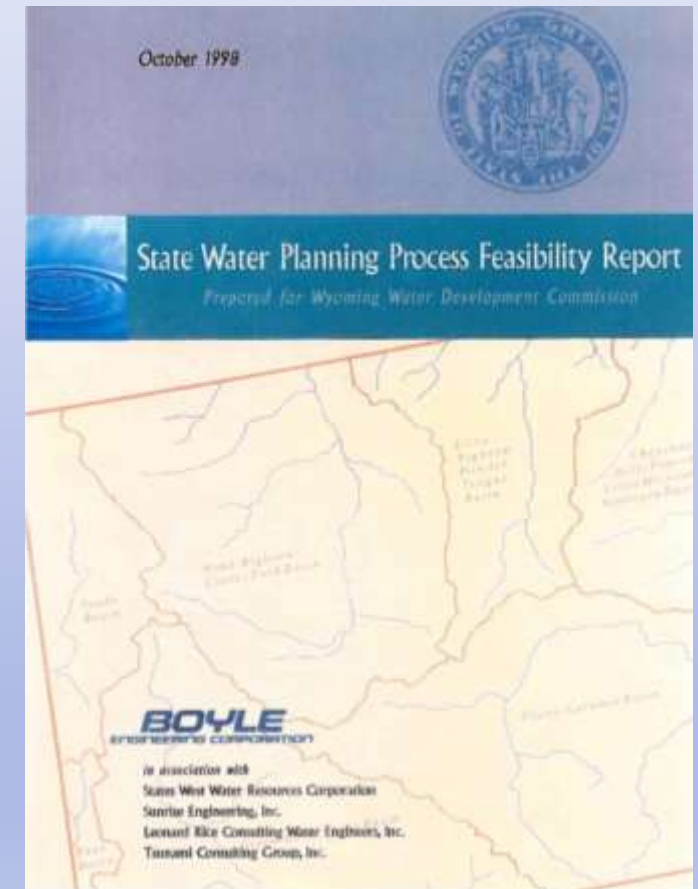
# Wyoming River Basin Planning History

- The first plans were completed in the late 1960's to early 1970's
- Similar format to those of today
  - Individual Basin reports
  - Statewide Framework Water Plan 1973
  - Miscellaneous Statewide Topical Studies
- After the 1973 Framework Plan - work stopped
  - The plans quickly became dated



# Wyoming River Basin Planning History

- 1997 - Legislature authorized the completion of the State Water Planning Process Feasibility Study
  - 7 Basins (all treated the same)
  - Plans Updated every 10 years
  - Statewide Framework Water Plan completed after all the individual plans were finished
  - Each cycle new data is added, new products are developed
  - All products available digitally on the Water Plan Website
  - Citizen Advisory Groups formed for each basin



# First Round Basic Scope

Task 1: Project Meetings

Task 2: Basin Water Use Profile

Agricultural

Municipal

Industrial

Recreational

Environmental

Water Use from Storage

Task 3: Surface Water and  
Groundwater determination

Task 4: Demand Projections

Task 5: Future Water Use  
Opportunities

Task 6: Discretionary Task

Task 7: Standards for Basin  
Water Plans

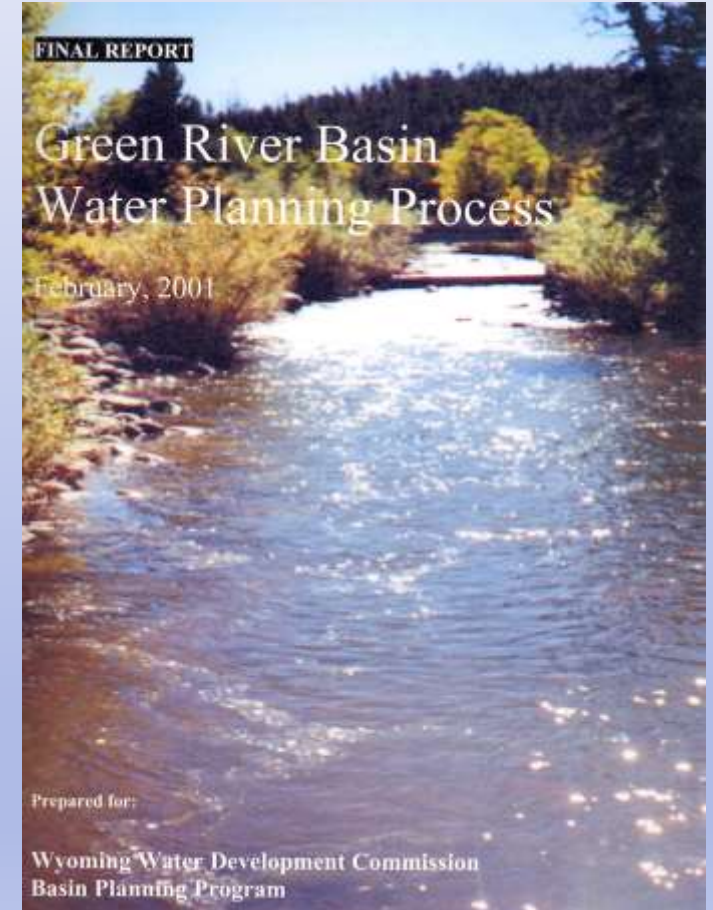
Task 8: Report



# Wyoming River Basin Planning History

## Completion Dates for 1<sup>st</sup> Round Plans

- 2001 Bear and Green River Basins
- 2002 Northeast and Powder/Tongue
- 2003 Snake/Salt and Wind/Bighorn
- 2006 Platte River Basin Plan
- 2007 Statewide Framework Water Plan



# Wyoming River Basin Planning History

## Statewide Framework Water Plan

### Lessons Learned:

- Some things should be done statewide  
Ex. Demand Projection, Population Growth Estimates
- Focus on Consistency within the Individual Basin Plans
- One consistent Table of Contents for all Plans  
Ex. A reader would always go to Chapter 5 for Instream flow data
- Framework Tables - Minimum Data Standard

Citizen Government Business Visitor

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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 7-1 Average Annual Streamflow and Uses - Normal 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 Evap <sup>2</sup>	Total <sup>2</sup>		
ac-ft								
<b>GREAT BASIN</b>								
Bear River	526,000	92,300	1,400	300	5,300	99,300	426,700	187,800
<b>COLORADO RIVER</b>								
Green River <sup>4</sup>	2,616,500	401,000	20,900	66,300	121,300	609,500	2,007,000	221,300
<b>MISSOURI RIVER</b>								
Northeast Wyoming <sup>5</sup>	240,500	69,000	0	0	23,500	92,500	148,000	9,800
Platte River <sup>6</sup>	1,307,400	477,300	19,300	70,300	213,800	780,700	526,700	0
Powder/Tongue River	982,600	184,000	12,300	0	11,300	207,600	775,000	248,100
Wind/Bighorn River	4,628,600	1,165,500	9,300	15,700	138,700	1,329,200	3,299,400	2,491,500
Yellowstone River <sup>7</sup>	3,149,600					0	3,149,600	0
<b>COLUMBIA RIVER</b>								
Snake/Salt River <sup>8</sup>	3,540,000	122,000	0	0	72,200	194,200	3,345,800	155,000
<b>Total</b>	<b>16,991,200</b>	<b>2,511,100</b>	<b>63,200</b>	<b>152,600</b>	<b>586,100</b>	<b>3,313,000</b>	<b>13,678,200</b>	<b>3,313,500</b>

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.  
<sup>3</sup> Depleted flows are based on outflow estimates from the current river basin plans.  
<sup>4</sup> Depletions for municipal, domestic, and stock include 14,400 acre-feet diverted to the N. Platte for City of Cheyenne use.  
<sup>5</sup> Excludes the flows for the Little Missouri and Niobrara Rivers.  
<sup>6</sup> The Platte River system is fully appropriated: a water right with a current-day priority cannot be expected to provide a reliable supply. Estimates exclude the flows and depletions from the Horse Creek and South Platte drainages.  
<sup>7</sup> Drainage area is within Yellowstone National Park and includes estimates for the Madison, Gibbon, Firehole, and Gallatin Rivers.  
<sup>8</sup> Excludes the flows for the Henrys Fork and Teton Rivers.

Privacy Policy



# History

First Round of Basin Planning  
Appropriations

Total 1<sup>st</sup> Round = \$4,750,000

Plan	Year	Appropriation
Feasibility	1997	\$250,000
Bear	1999	\$1,050,000
Green	1999	
Powder/Tongue	2000	\$500,000
Northeast	2000	\$300,000
Snake/Salt	2001	\$573,000
Wind/Bighorn	2001	\$977,000*
Platte	2003	\$600,000
Framework	2005	\$500,000

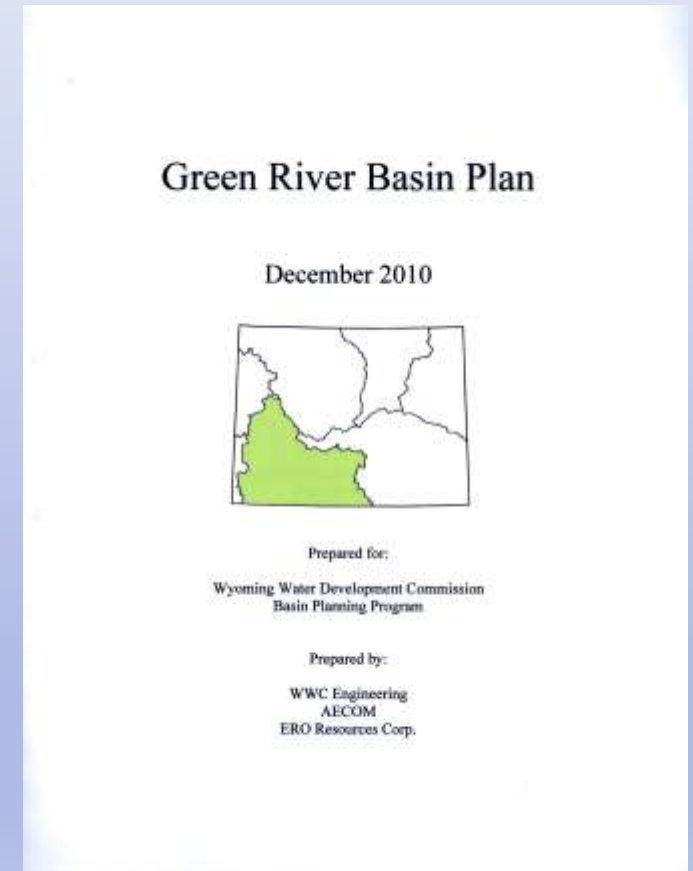
\* Included Basin Wide Power Study

# Second Round River Basin Plans

- Update all the data from the first round plans
  - Agricultural Use, Irrigated Lands
  - Municipal Use
  - Industrial Use
  - Environmental Use
  - Recreational Use
- Update the Hydrologic Model (adding 10 more years)
- Improved CU estimates
- Added a Groundwater Plan for each basin
  - Prepared by Wyoming State Geological Survey and United States Geological Survey
  - The Groundwater Plans have become a one stop shop for all geologic information for the basins

# Second Round Water Plans Surface Water Updates

- 2010 Green River Basin Plan Update
- 2010 Wind/Bighorn River Basin Plan Update
- 2011 Bear River Basin Plan Update
- 2012 Snake Salt River Basin Plan Update
- 2016 Platte River Basin Plan Update (Ongoing)
- Northeast and Powder/Tongue – Funding will be requested from the 2015 Legislature





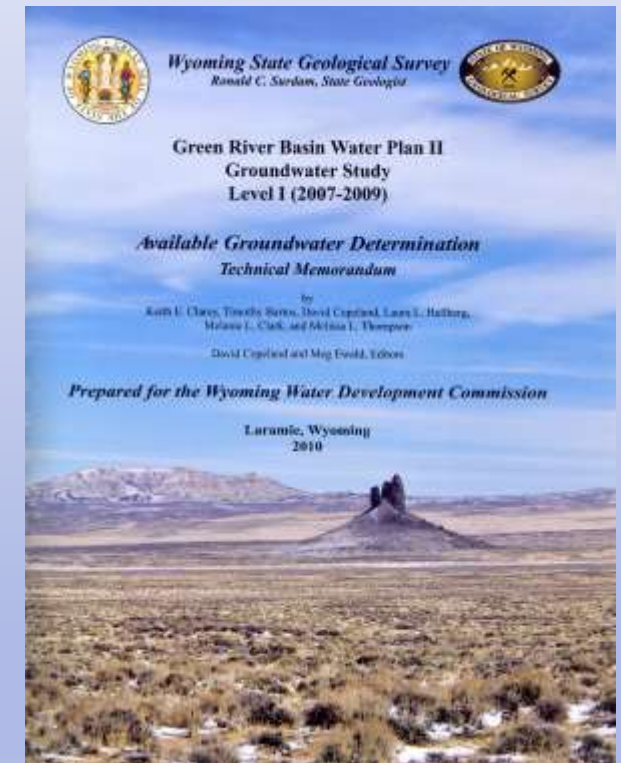
# Second Round Groundwater Studies

## Basic Scope

1. Project Meetings
2. Identify Aquifers Present in the Basin
3. Identify the Extent of the Aquifers
4. Identify the Properties of the Aquifers
5. Estimate the Quantity of Water in the Aquifers
6. Identify the Aquifer Recharge Areas
7. Estimate the Aquifer Recharge Rate
8. Estimate Safe Yield
9. Identify Existing Groundwater Studies and Models
10. Identification of Future Water Use Opportunities
11. Groundwater Basin Planning Report

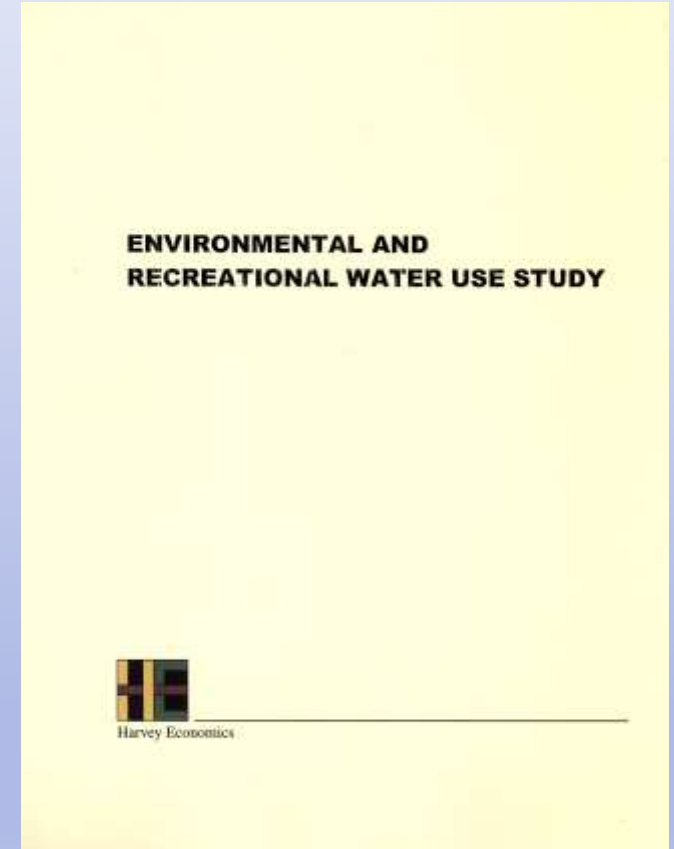
# Second Round of Water Plans Groundwater Updates

- 2010 Green River Basin Water Plan Update Groundwater Study
- 2012 Wind/Bighorn River Basin Water Plan Update Groundwater Study
- 2013 Platte River Basin Water Plan Update Groundwater Study
- 2014 Bear River Basin Water Plan Update Groundwater Study
- 2014 Snake/Salt River Basin Water Plan Update Groundwater Study
- Northeast and Powder/Tongue funding will be requested of the 2015 Legislature



# Environmental and Recreational Uses

- Environmental and Recreational Uses are Nonconsumptive
- Consistency was problem in the first round plans
- Needed a methodology to consistently address these uses in the context of traditional depletions





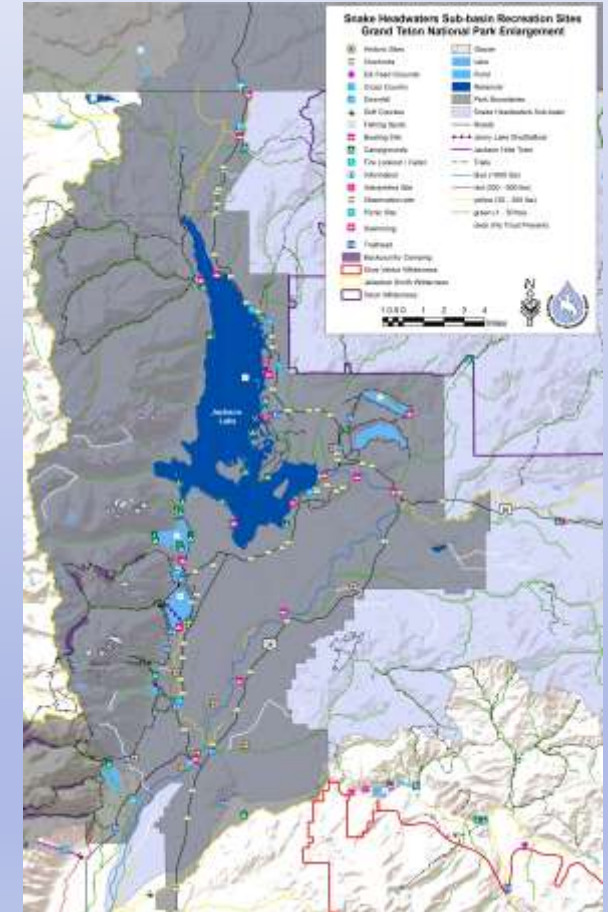
# Environmental and Recreational Uses

1<sup>st</sup> Step – Map all Environmental and Recreational Uses

2<sup>nd</sup> Step – Map Traditional Uses

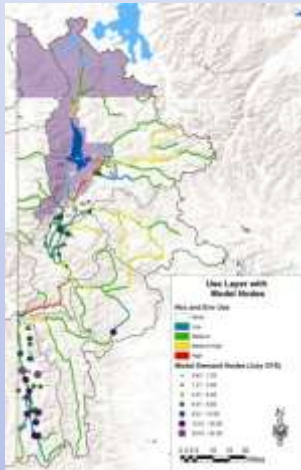
3<sup>rd</sup> Step – Categorize Uses

- Protected – recognized and protected in some way by incursion from traditional water uses
- Complementary – exist without explicit protection, but will continue to exist typically by virtue of their location or linkage with a traditional water use
- Competing – uses which are in a location where other traditional water use diverters may constrain or eliminate them at any point in time



# 3<sup>rd</sup> Step – Categorize Uses

To Determine: Protected, Competing, Complimentary



Use Map



Protection Map



Recreational Sites Map



Environmental Sites Map



Miscellaneous Sites Map

To classify the use as Protected, Competing, or Complimentary utilize all five maps listed above for each subbasin, analyze each Recreational and Environmental Use in relation to land ownership, level of use, level of protection, and traditional uses that surround it.

# Second Round Costs

Groundwater Plan	Year	Appropriation
Green Groundwater	2007	\$300,000
Wind/Bighorn Groundwater	2008	\$250,000
Platte Groundwater	2009	\$250,000
Bear Groundwater	2010	\$175,000
Snake/Salt Groundwater	2011	\$250,000
Powder/Tongue & Northeast Groundwater	2015	----

Groundwater Total to Date = \$1,225,000

Surface Water Plan Update	Year	Appropriation
Green Plan Update	2007	\$300,000
Wind/Bighorn Plan Update	2008	\$250,000
Bear Plan Update	2010	In House
Snake/Salt Plan Update	2011	In House
Platte River Plan Update	2014	\$350,000
Powder/Tongue & Northeast Plan Updates	2015	-----

Surface Water Total to Date = \$900,000



# Looking Forward

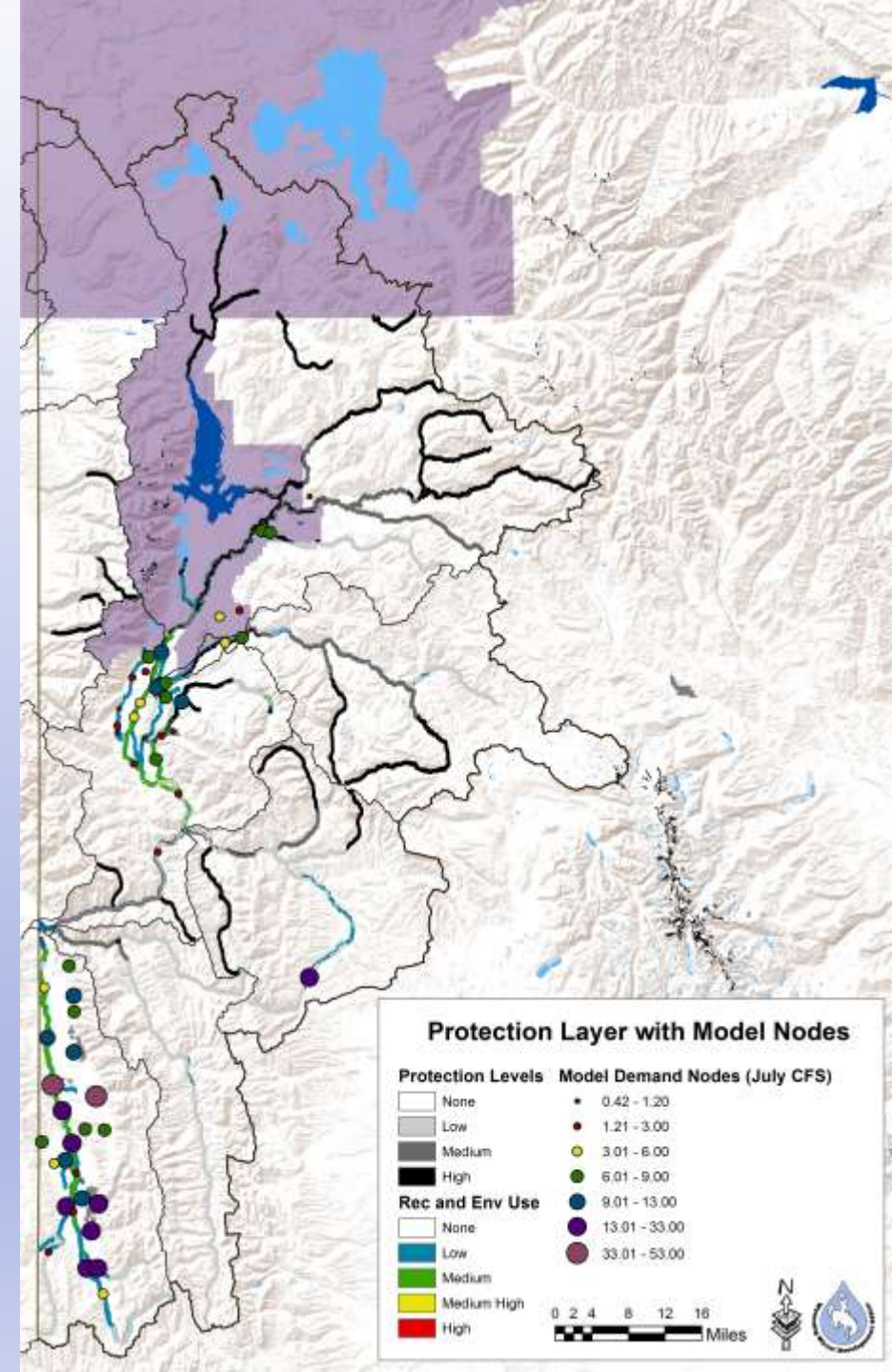
1. Finish 2<sup>nd</sup> Round Updates – NE and PT Surface water and Groundwater Plans on track to start next year. In addition to the standard updates we are planning to add the following items:
  - Add Level I Geomorphology classifications basin wide
  - HUC 12 Hydrology
  - Environmental and Recreational Use Analysis
2. Complete the 2<sup>nd</sup> round Framework Water Plan
  - Statewide Economics and Demand Projections



2007 Framework Water Plan  
Executive Summary

# Looking Forward

3. Looking at adding several other pieces maybe statewide or as a part of the 3<sup>rd</sup> round.
- Forest Health and the need to protect critical infrastructure from the effects of forest fire.
  - Add carry over storage to the models to analyze the effects of long term drought
  - Drought Management
  - Finishing the Environmental and Recreational Use Investigations for the State





# Questions?

<http://waterplan.state.wy.us>

<http://wwdc.state.wy.us>

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