

River Basin Planning: What Does the Future Hold?



Jodee Pring, Supervisor, River Basin Planning

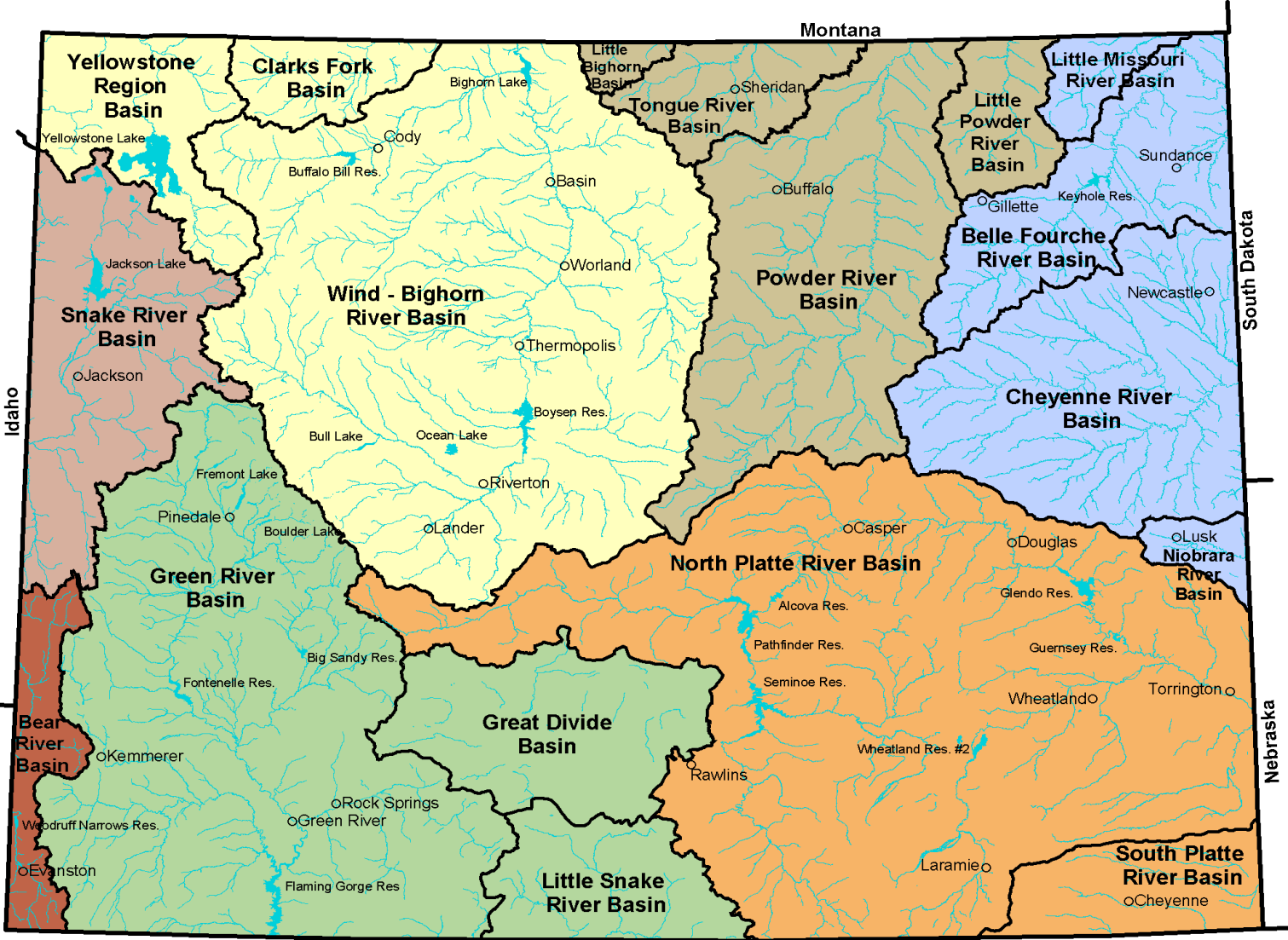
Wyoming Water Development Office

September 17, 2017

Wyoming River Basin Planning

- The River Basin Planning (RBP) section is responsible for water resource planning which includes watershed plans and river basin plans for the state
- The RBP section consists of three employees with assistance from the Water Resources Data System (WRDS) and the State Engineer's Office

Wyoming River Basin Plan Areas

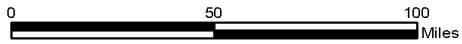


Legend

- Cities
- ~ Major Streams
- Lakes/Reservoirs
- Major River Basins

River Basin Plans

- Bear
- Green/Little Snake
- Northeast
- Platte
- Powder/Tongue
- Snake/Salt
- Wind/Bighorn



Mission Statement

Basin Planning Mission Statement: Develop essential information concerning the current status and future availability of water resources in Wyoming

- Inform state water policy and project development
- Provide a proactive stance in the legal arena
- Provide an opportunity for local input on water policy and projects



Why all the Planning?

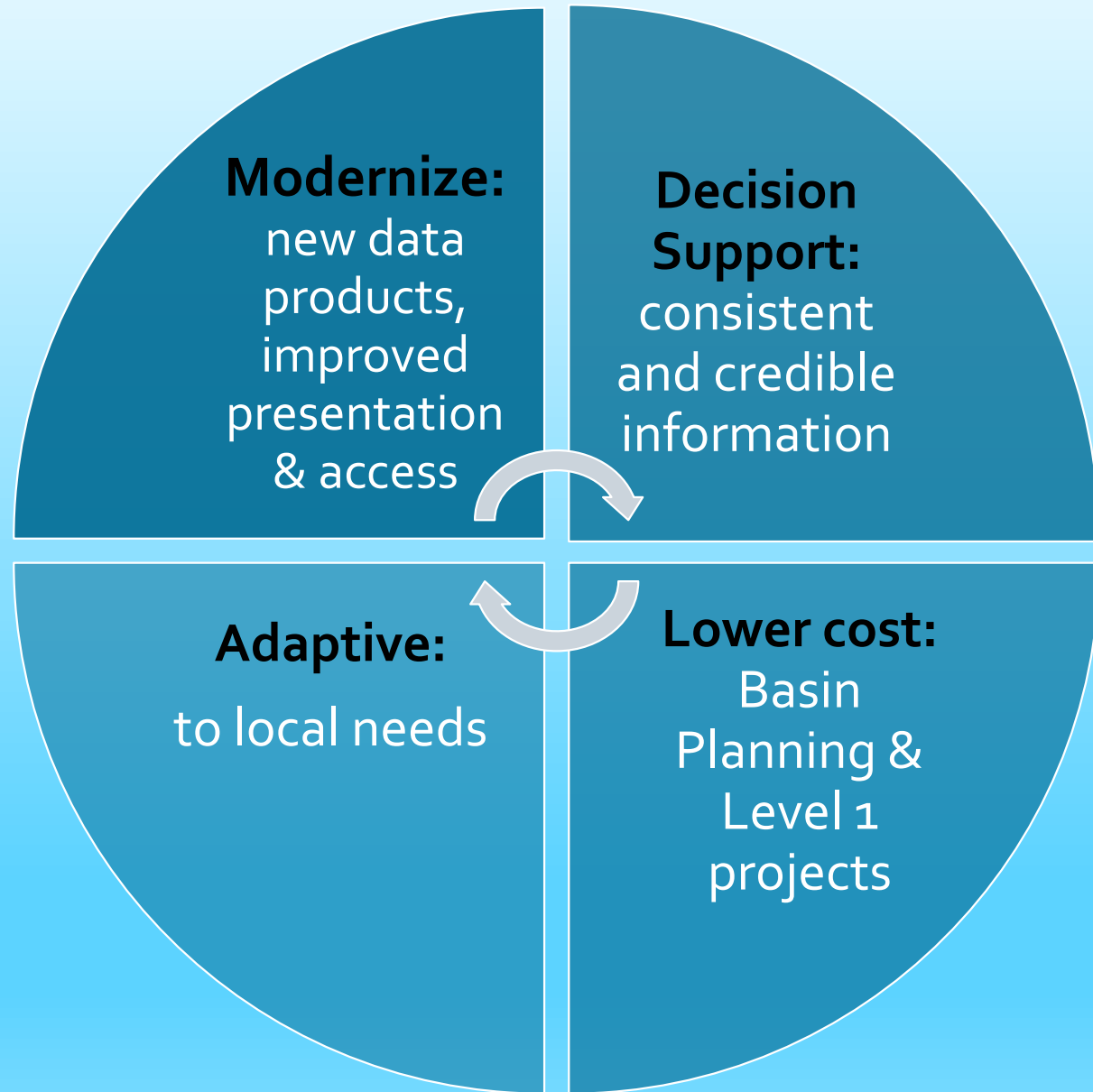
- The State has gone through two cycles of planning.
- First round took place between 2001 – 2006
- Second round took place between 2010 – 2018
- Resulted in lots of valuable information

AND.....

Why all the Planning?



What Does the Future Hold?



What Does the Future Hold?

- What are the questions we need to be able to answer?
- What tools can help answer those questions?

What Are the Questions We Need To Be Able to Answer?

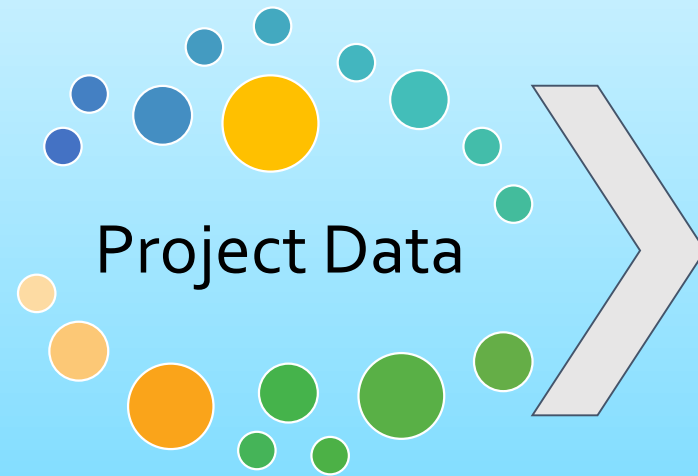
Questions such as:

- What areas are most affected on low water years?
Is there a mitigation plan in place?
- How has water use changed in the last 20-30 years?
What will it look like 20 years from now?
- How can state resources be invested strategically?
How do we reduce costs?
- Is there enough physical water to support a project?
- How does water move across the landscape and what are the conditions of the infrastructure?

Tools To Help Answer Those Questions

- GIS Data Model Implementation
 - Water Infrastructure Mapping
- Water Availability Index
 - Supplemental Water Supply Analysis (POU mapping)
 - Water Bulletin and web-based infographics
- StreamStats

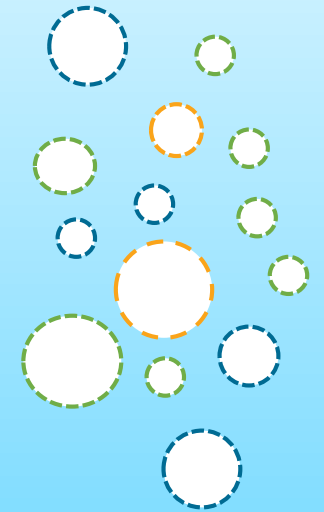
GIS Data Model Implementation



Current



Future



Water Infrastructure Mapping

Points of
Diversion

Conveyances

Reservoirs

Water Availability Index

- Review of water supply and use intended to identify trends.
- Statewide index provides an active understanding of water supplies, and highlights areas of change within Wyoming.
- Done in-house this would take the place of RBPs in order to minimize cost and provide current, credible information to assess trends.



Supplemental Water Supply Analysis

Statewide look into
water shortages



Local Assessment of
Goals & Opportunities



New Supplies
Developed

Water Bulletin and Web-based Infographics

Water Bulletin - Booklet/Circular

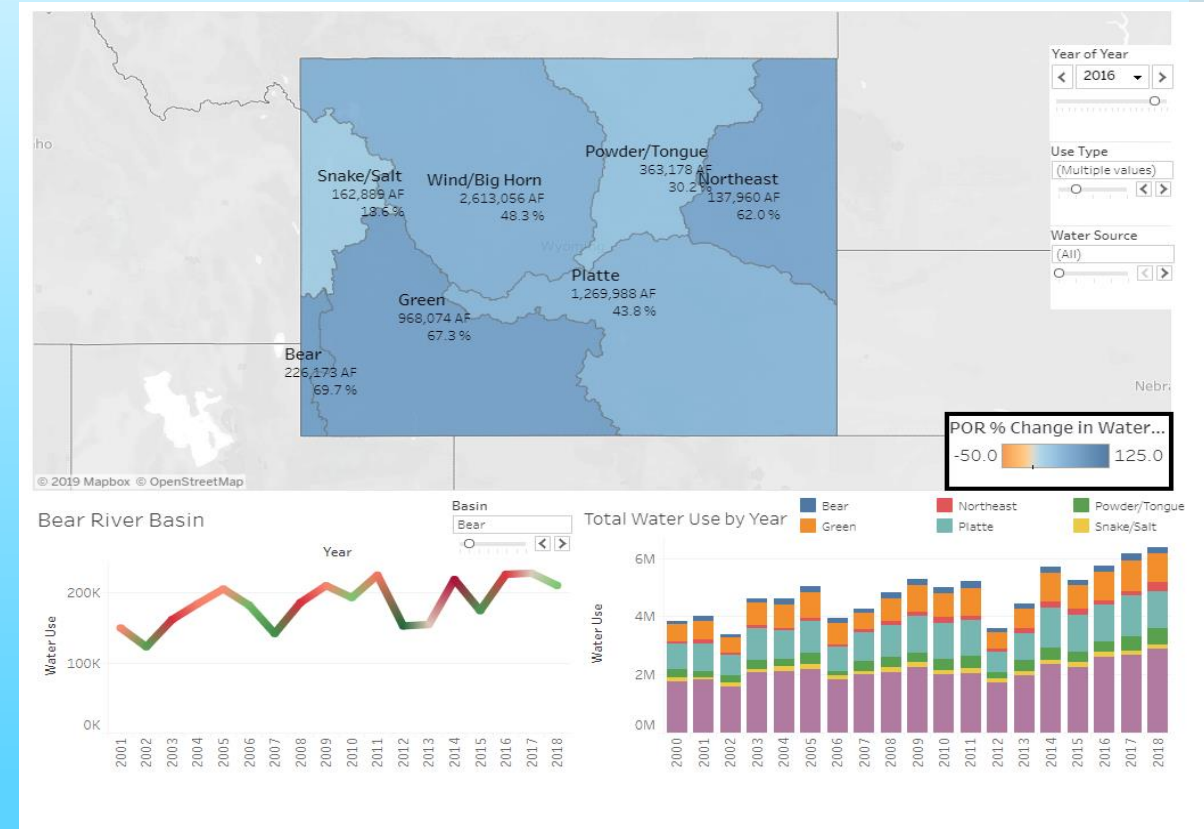
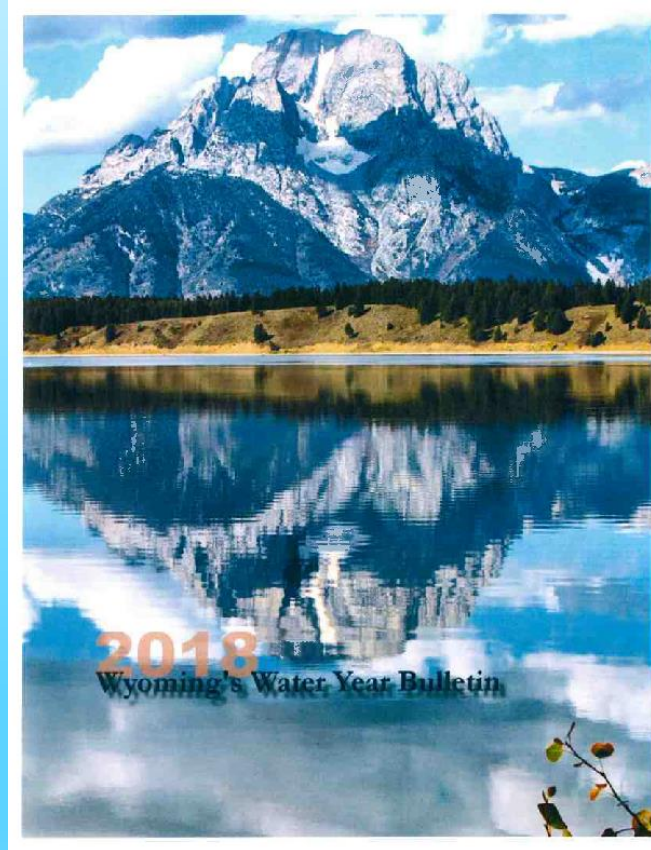


Tableau Data Visualizations

StreamStats

StreamStats: A Water Resources Web Application

by Kernell G. Ries III, John D. Guthrie, Alan H. Rea, Peter A. Steeves, and David W. Stewart

Introduction

Streamflow statistics, such as the 1-percent flood, the mean flow, and the 7-day 10-year low flow, are used by engineers, land managers, biologists, and many others to help guide decisions in their everyday work. For example, estimates of the 1-percent flood (the flow that is exceeded, on average, once in 100 years and has a 1-percent chance of being exceeded in any year, sometimes referred to as

the 100-year flood) are used to create flood-plain maps that form the basis for setting insurance rates and land-use zoning. This and other streamflow statistics also are used for dam, bridge, and culvert design; water-supply planning and management; water-use appropriations and permitting; wastewater and industrial discharge permitting; hydropower facility design and regulation; and the setting of minimum required streamflows to protect freshwater ecosystems. In addition, researchers, planners,

regulators, and others often need to know the physical and climatic characteristics of the drainage basins (basin characteristics) and the influence of human activities, such as dams and water withdrawals, on streamflow upstream from locations of interest to understand the mechanisms that control water availability and quality at those locations. Knowledge of the streamflow network and downstream human activities also is necessary to adequately determine whether an upstream activity, such as a water

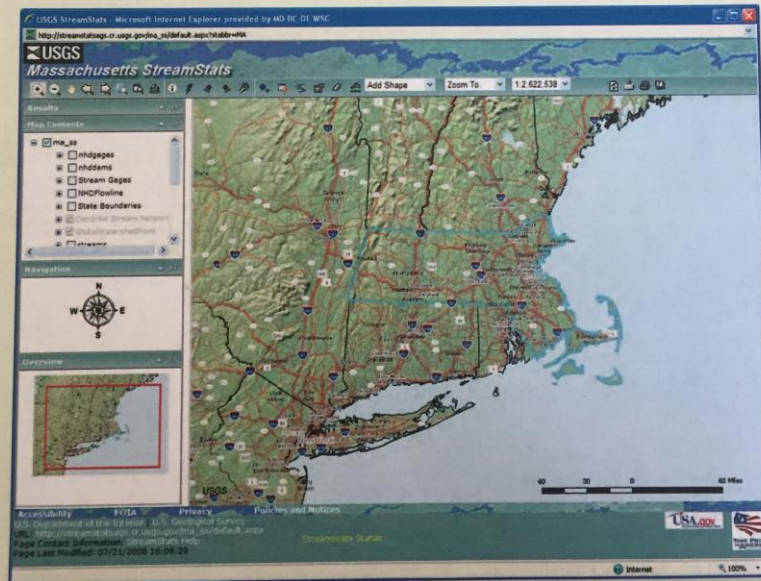


Figure 1. View of the StreamStats user interface for Massachusetts.

The Future of Wyoming RBP

- New, more focused direction for RBP
- Opportunity to modernize and improve the information needed to guide development and decision-making and lower costs
- Direction that could lead to a basic Decision Support System (DSS) for Wyoming
- Information that is usable and up-to-date

Contact:

Wyoming Water Development Office

307-777-7626

Jodee Pring

jodee.pring@wyo.gov

