

WIND RIVER RESERVOIR STUDIES

Wyoming Water Development
Commission

June 11, 2002

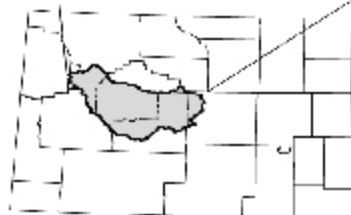
WIND RIVER RESERVOIR STUDIES

- Upper Wind River Storage Level I Study
 - Joint Tribal Water Board
 - Short Elliott Hendrickson, Inc.
- Popo Agie River Watershed Level I Study
 - Popo Agie Conservation District
 - Anderson Consulting Engineers, Inc.

Upper Wind River Storage Level I Study

- Project Purposes

- Determine the need for water storage within the basin.
- Evaluate alternative storage sites to meet the needs.



Wyoming



Upper Wind River
Storage Project

Location Map

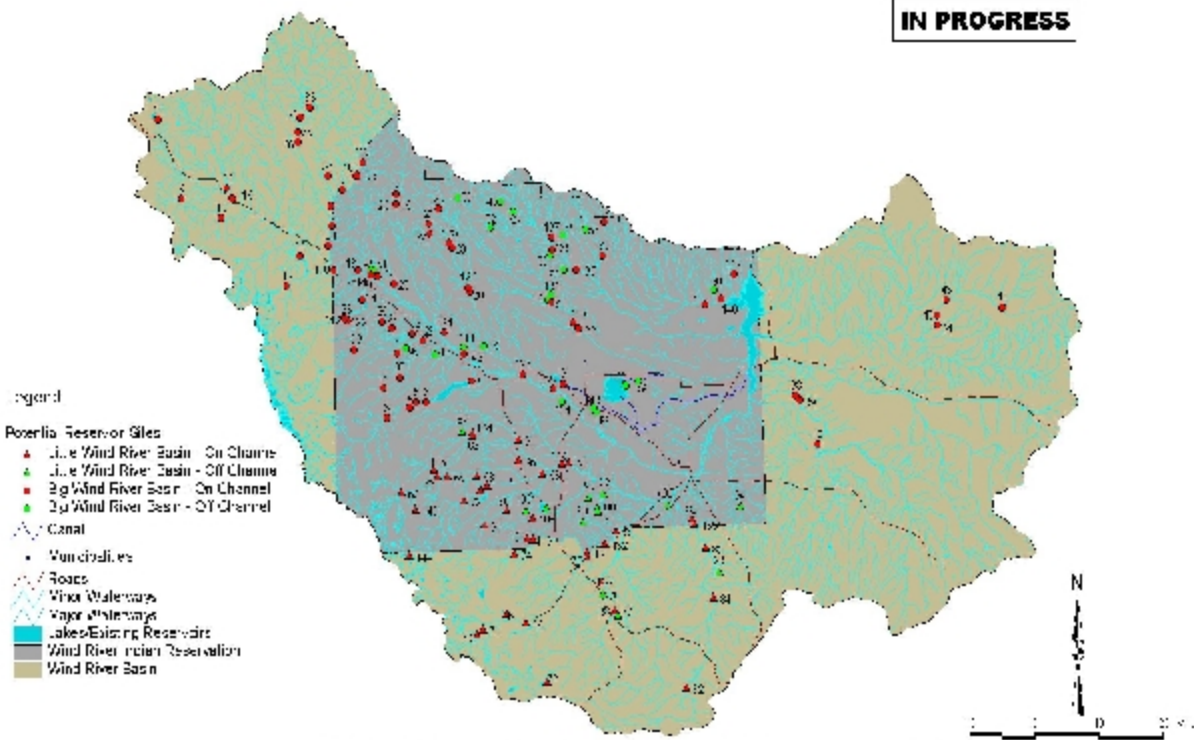
Upper Wind River Storage Level I Study

- Review Background Information
- Needs Analysis/Demands Projections
- Evaluate Potential Sites
- Select Alternatives to Meet Needs

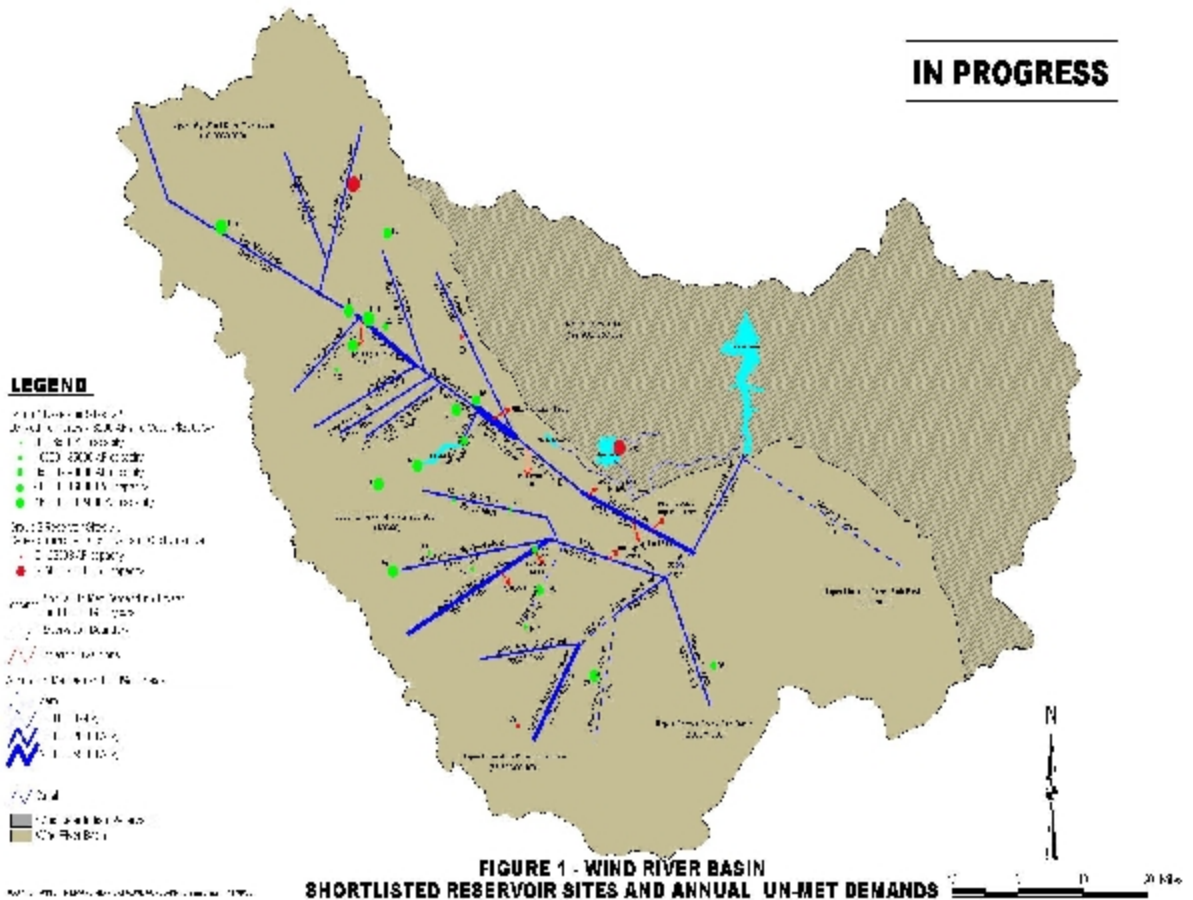
Upper Wind River Storage Level I Study – Phase 1

- Review background information
Review past reports for potential storage sites, 50 plus reports.
- Evaluate modeling of water demands within the basin.
- Initial screening and evaluation of potential reservoir sites

IN PROGRESS



Wind River Basin Potential Reservoir Sites



**FIGURE 1 - WIND RIVER BASIN
SHORTLISTED RESERVOIR SITES AND ANNUAL UN-MET DEMANDS**

Integration of information

- 150 potential reservoir sites.
- Major area of interest
- Water needs with in the area of interest.
- 120 potential sites that may meet some of the needs.

Reservoir site screening

- Cost/AF < \$3,000
- 120 potential sites to 75 sites
- Storage > 8,500AF

Screening of the 75 potential sites

- Environment Constraints
- Cultural Resource Constraints
- Other/ Stakeholder Considerations
- Reduce 75 potential sites to 26 sites

Upper Wind River Storage Level I Study – Phase 2

- Evaluation of Recommended Alternatives
 - Hydrology and Water Rights Analysis
 - Geologic Conditions
 - Permitting and Environmental Constraints and Mitigation
 - Cultural Resources Constraints
 - Conceptual Designs and Cost Estimates
 - Funding Sources

Upper Wind River Storage Level I Study - Results

- Basin Runoff/yr
 - Min = 312,000AF
 - Ave = 1,031,000AF
 - Max = 1,918,000AF
- Current Surface Water Use/yr
 - 662,600AF
- Future Awards
 - 250,000AF

Upper Wind River Storage Level I Study - Results

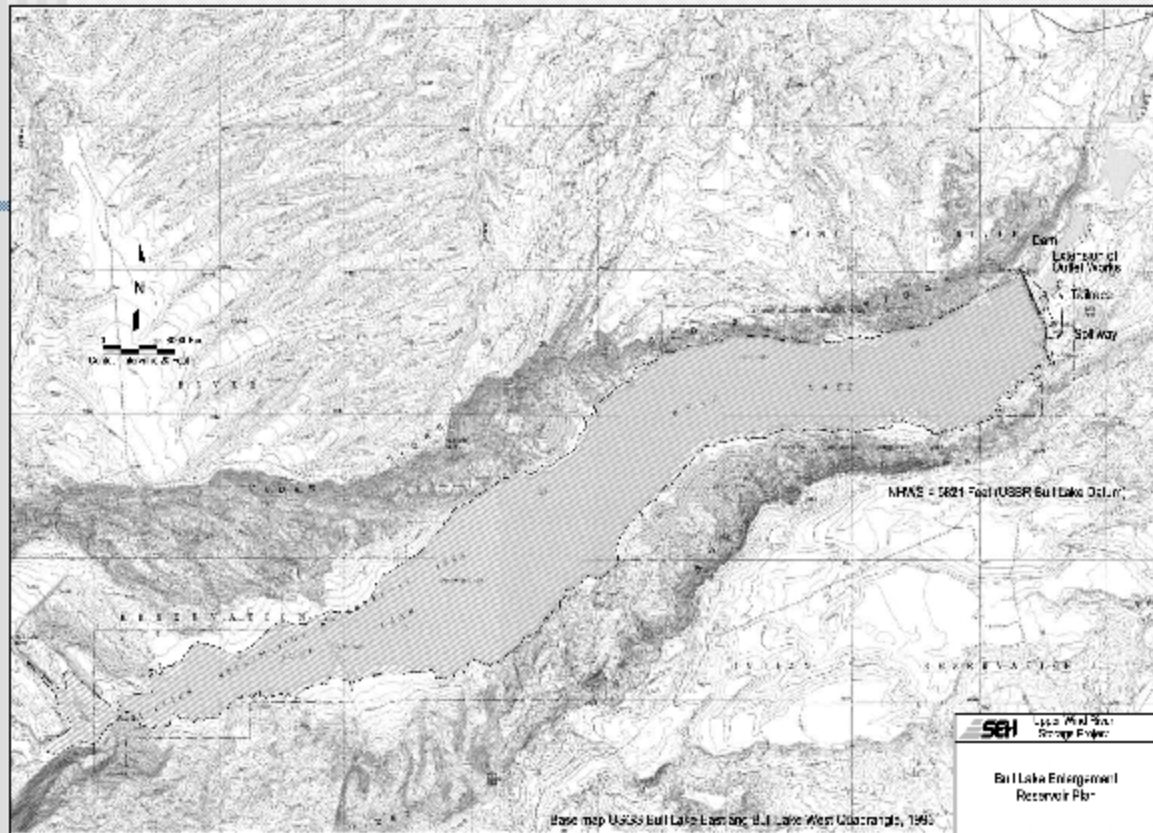
- **Timing of Flow**
 - Major flows occur in May, June & July
 - Major demands occur in July, Aug, & Sept
 - Current un-met demands = approx 250,000AF/yr

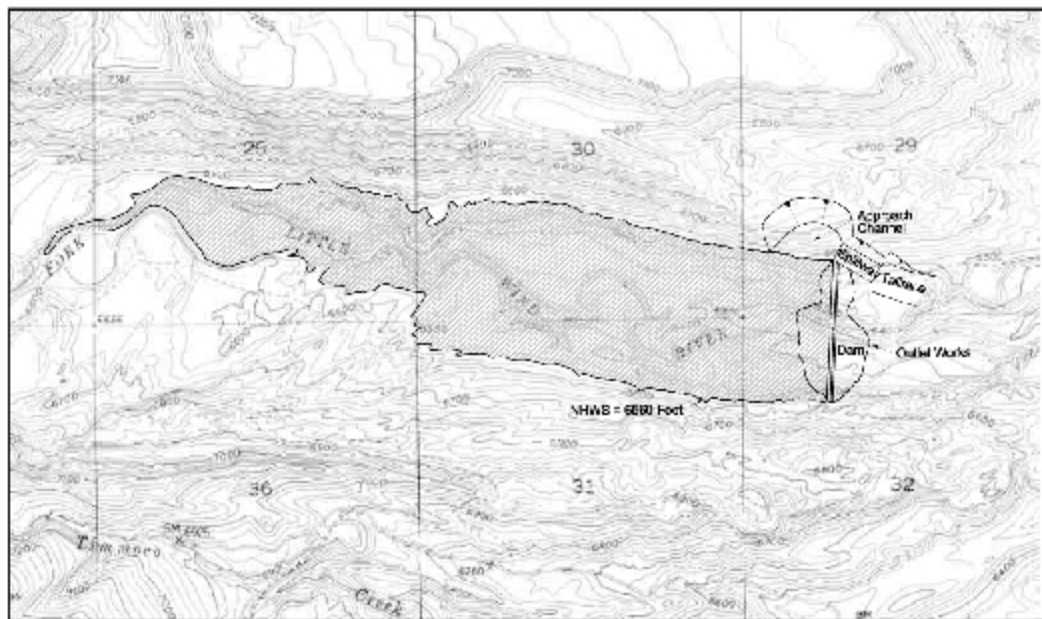
- **Future Awards and other Future Demands > 250,000AF**

Upper Wind River Storage Level I Study - Results

- Bull Lake Enlargement
- Little Wind River North Fork No. 3
- Dinwoody Lake Enlargement
- Wind River East Fork No. 1
- Steamboat





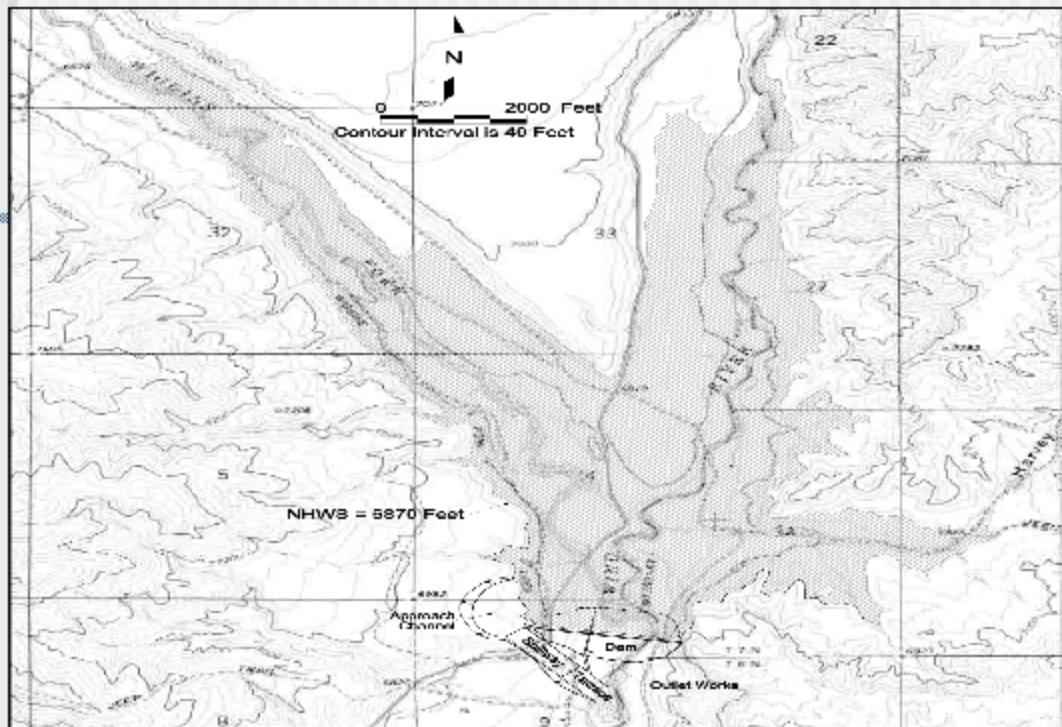


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Upper Wind River
Storage Project

Little Wind River North Fork No. 3
Reservoir Plan

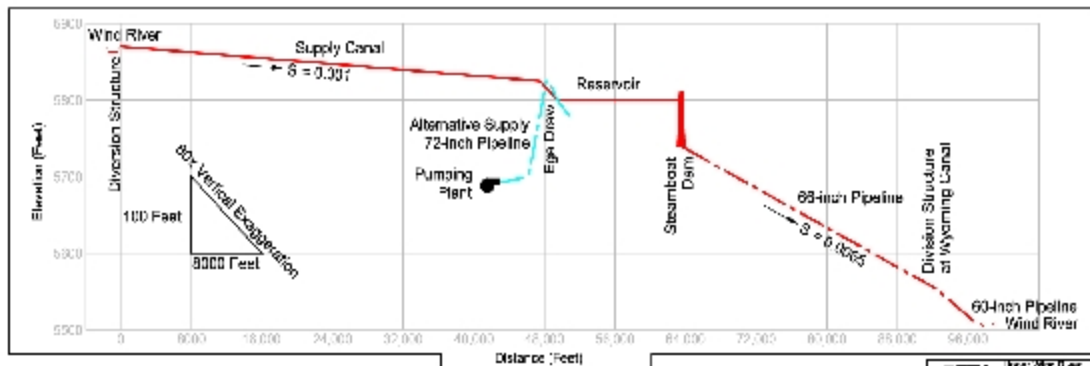
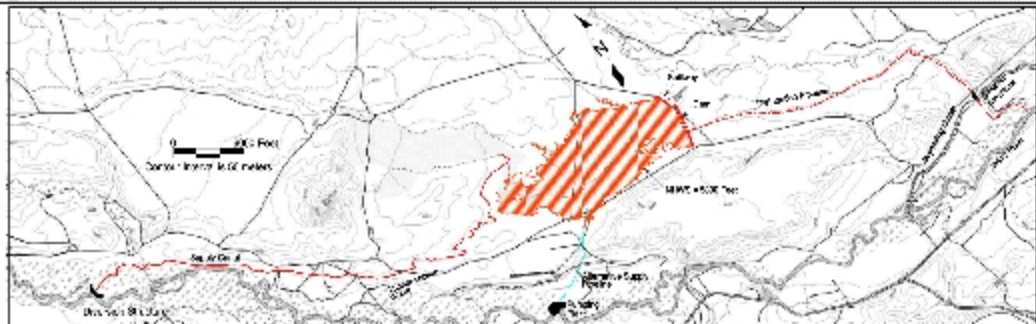




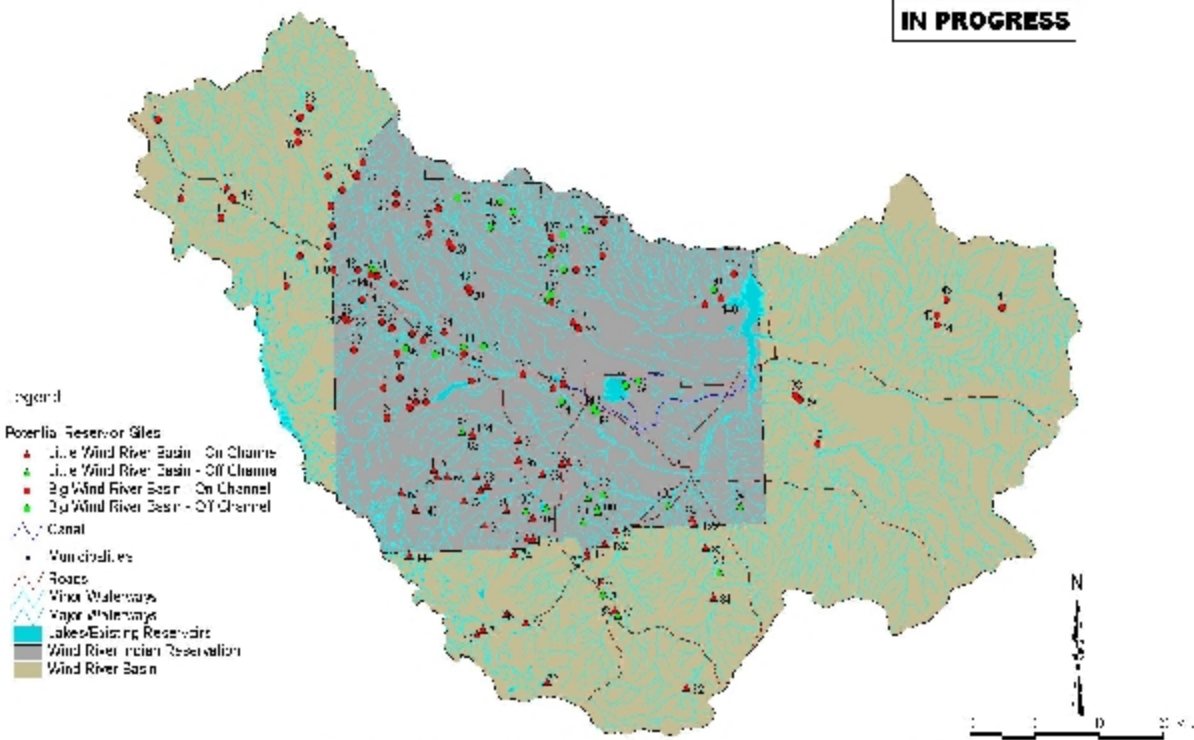
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Upper Wind River
Storage Project

Wind River East Fork No. 1
Reservoir Plan



IN PROGRESS



Wind River Basin Potential Reservoir Sites

Upper Wind River Storage Level I Study - Results

<u>Site</u>	<u>Cost</u>	<u>Capacity</u>	<u>Storage Cost</u>
Bull Lake Enlargement	\$32,089,000	48,300AF	\$660/AF
Little Wind River North Fork No. 3	\$66,374,000	38,600AF	\$1,720/AF
Dinwoody Lake Enlargement	\$40,947,000	80,700AF	\$510/AF
Wind River East Fork No. 1	\$71,016,000	70,600AF	\$1,010/AF
Steamboat	\$42,645,000	44,800AF	\$950/AF

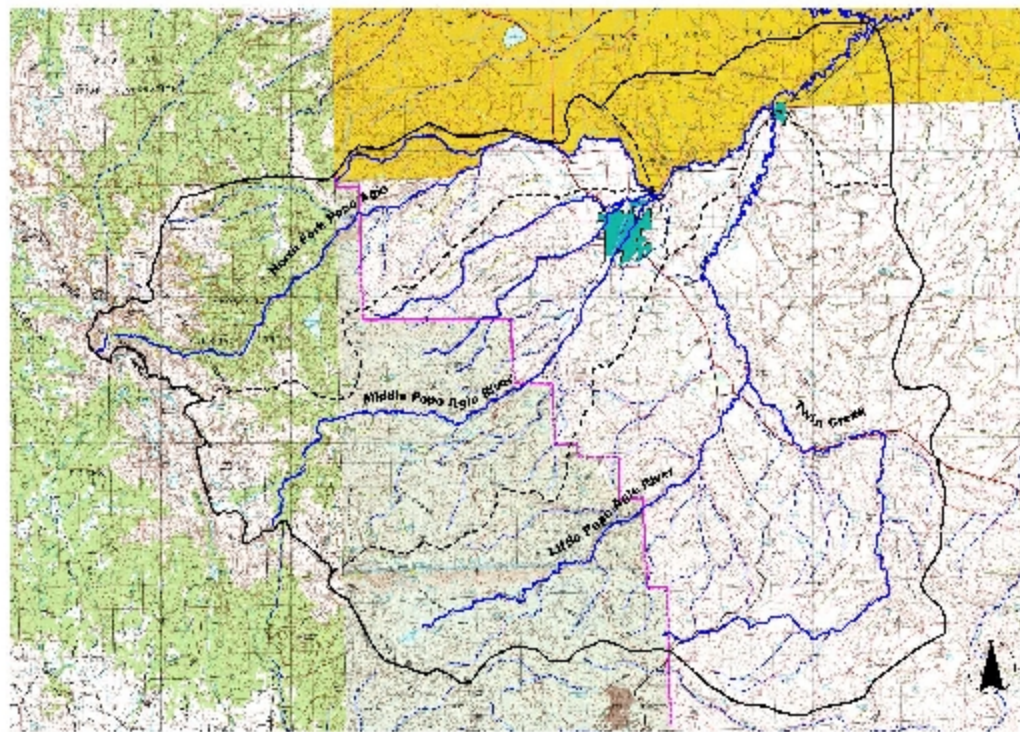
Upper Wind River Storage Level I Study - Results

- Define the Need to be Addressed
- Gain consensus of water users and stakeholders
- Conduct a more detailed study of potential alternatives

Popo Agie River Watershed Level I Study

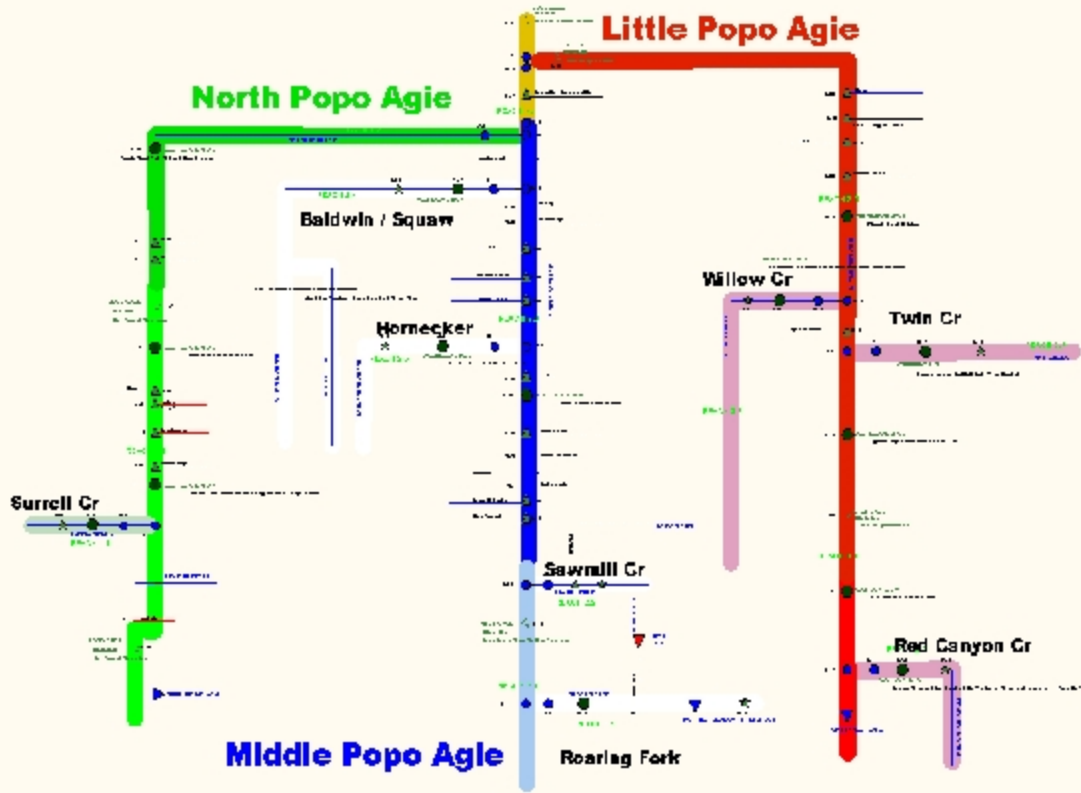
- Project Purpose
- Evaluate and describe the Popo Agie River Watershed and develop a watershed management plan
 - The plan shall identify problems and propose practical economic solutions.
 - The plan will provide a baseline which can be used and expanded.

Popo Agie River Watershed



Popo Agie River Watershed Level I Study

- Flooding within areas of the watershed
- Lack of late season flows through Lander
- Efficiency of Irrigation Systems
- Channel structure and erosion in the lower watershed
- Water quality within the watershed
- Water storage needs and opportunities



Little Popo Agie

North Popo Agie

Baldwin / Squaw

Hornecker

Surrill Cr

Sawmill Cr

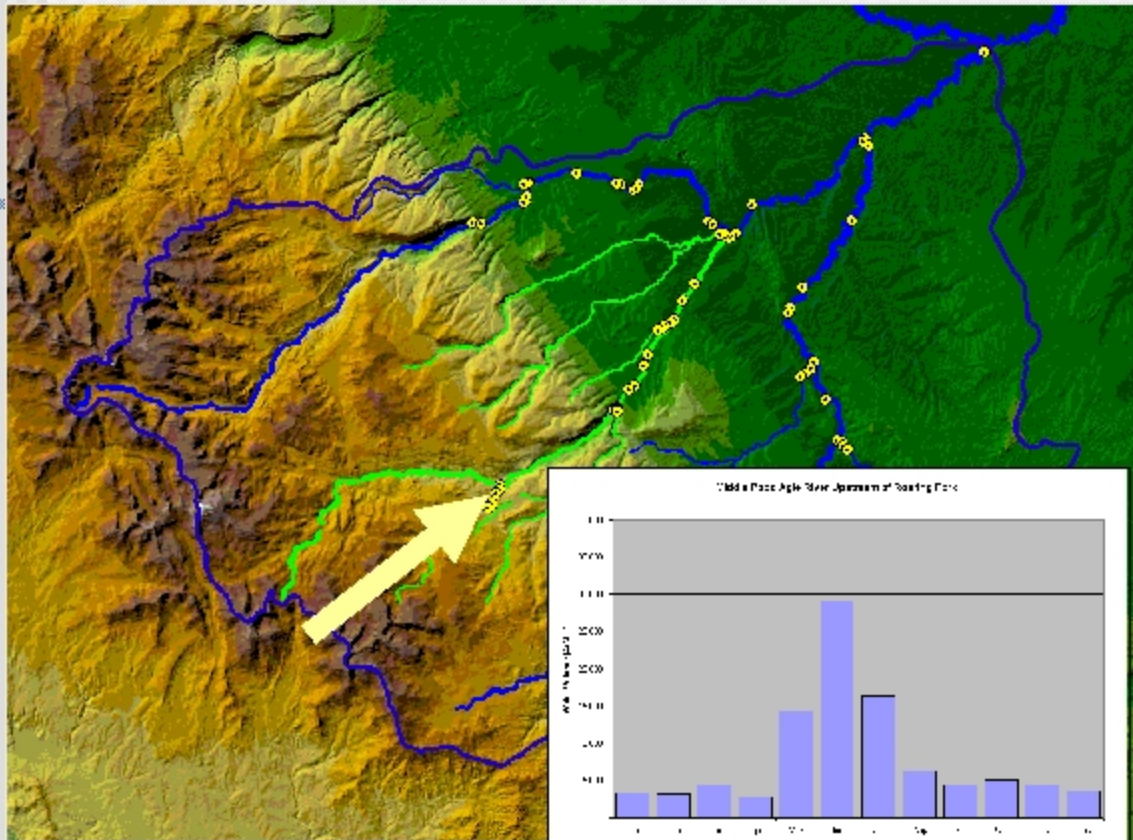
Willow Cr

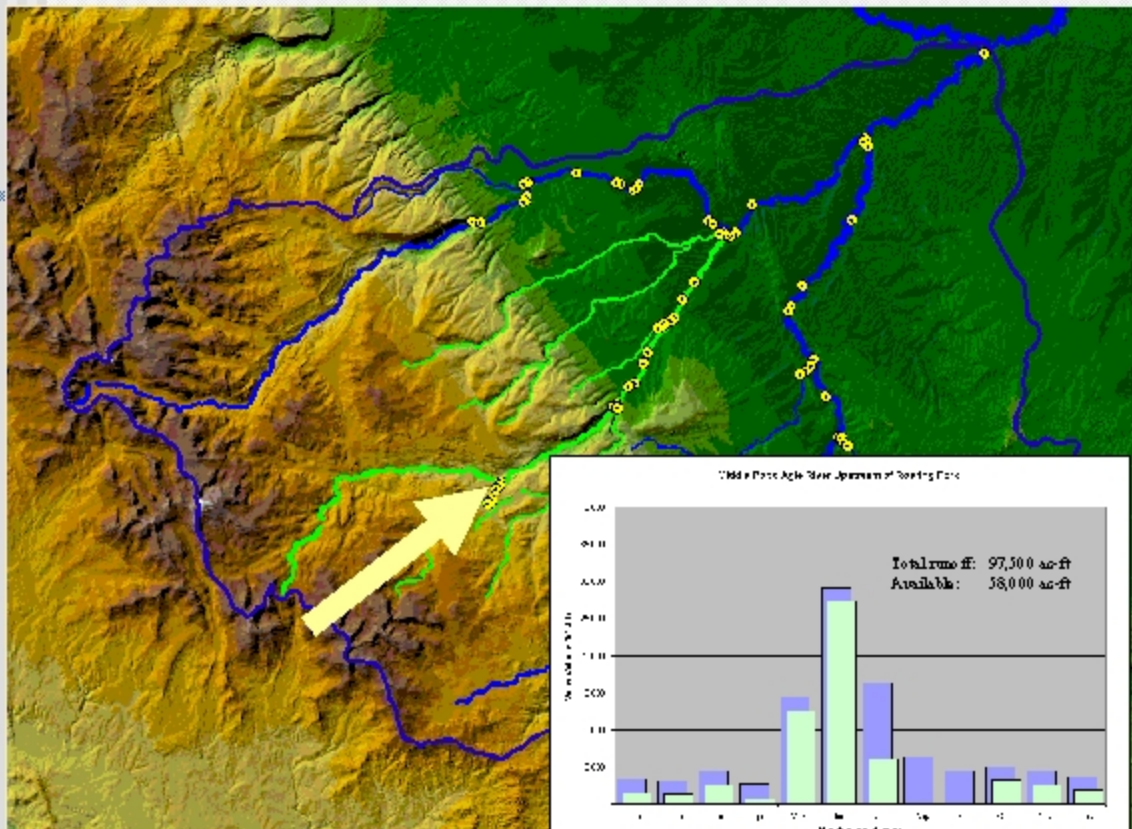
Twin Cr

Red Canyon Cr

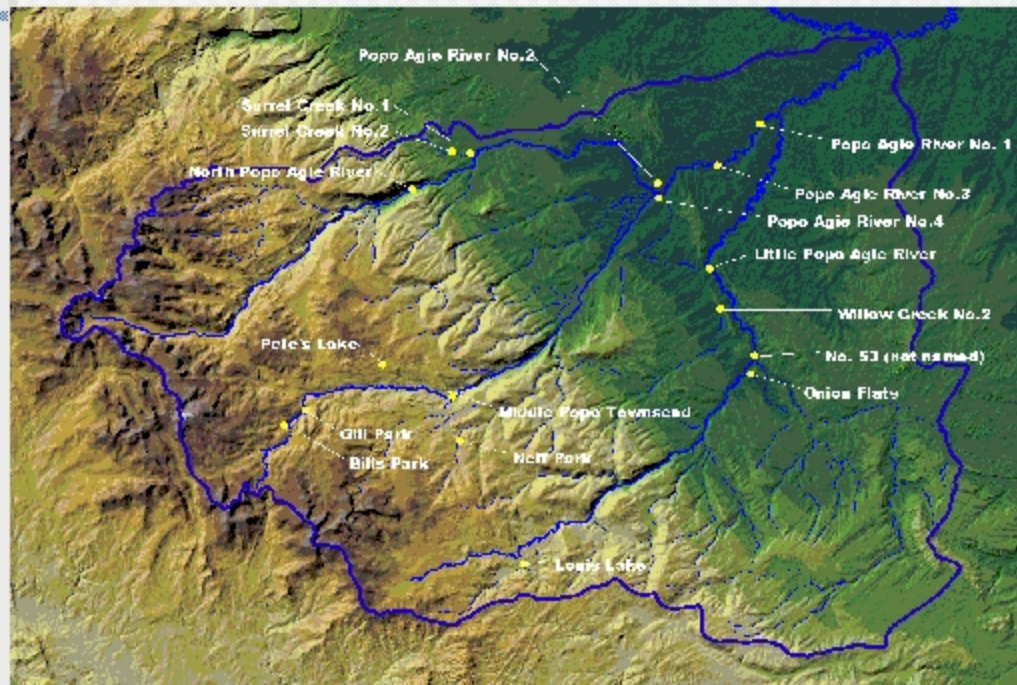
Middle Popo Agie

Roaring Fork





Potential Storage Sites in the Popo Agie watershed



Popo Agie River Watershed Level I Study – Storage Analysis

- Look at needs or un-met demands
- Look at reservoir sites that can help meet the needs or un-met demands.
- Provide conceptual information for each reservoir alternative.