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Managing Water in the West

Yakima River Basin Water Storage Feasibility Study

Briefing for
YRBWEP Work Group
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U.S. Department of the Interior
Bureau of Reclamation

Background

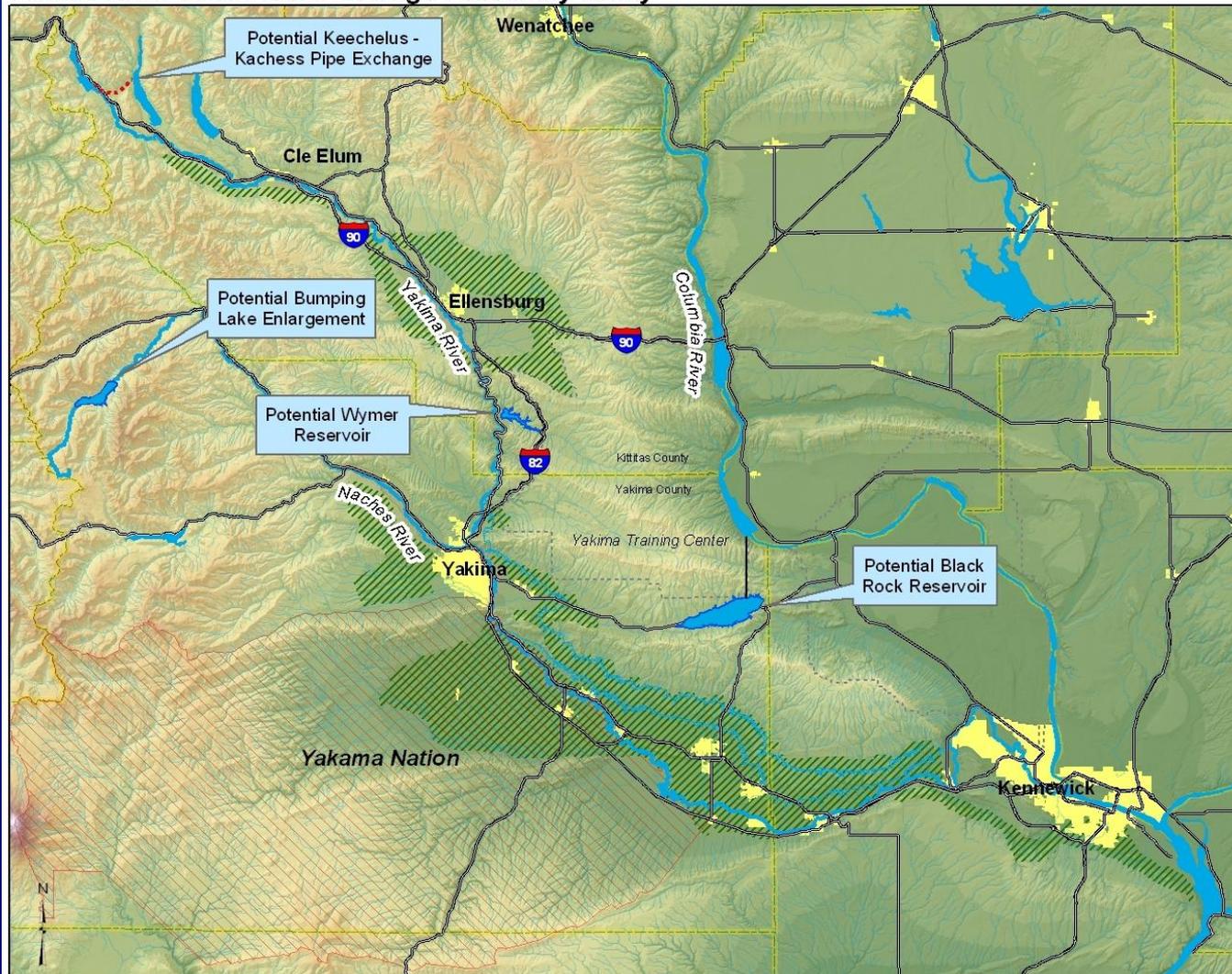
➤ Storage Study Goals

- **Improve water supply for proratable irrigation water rights**
...Not less than 70% in dry years
- **Improve anadromous fish habitat**
...Move toward more natural (unregulated) hydrograph
- **Meet future municipal water supply needs**

➤ Screening of Alternatives

- *Appraisal Assessment of the Black Rock Alternative, 12/04*
- *Yakima Basin Storage Alternatives Appraisal Assessment, 5/06*
- *Appraisal Assessment of the Yakima River Pump Exchange Alternative, 9/06*
- *Technical Information and Hydrologic Analysis for Plan Formulation, 11/06*

Yakima River Basin Water Storage Feasibility Study



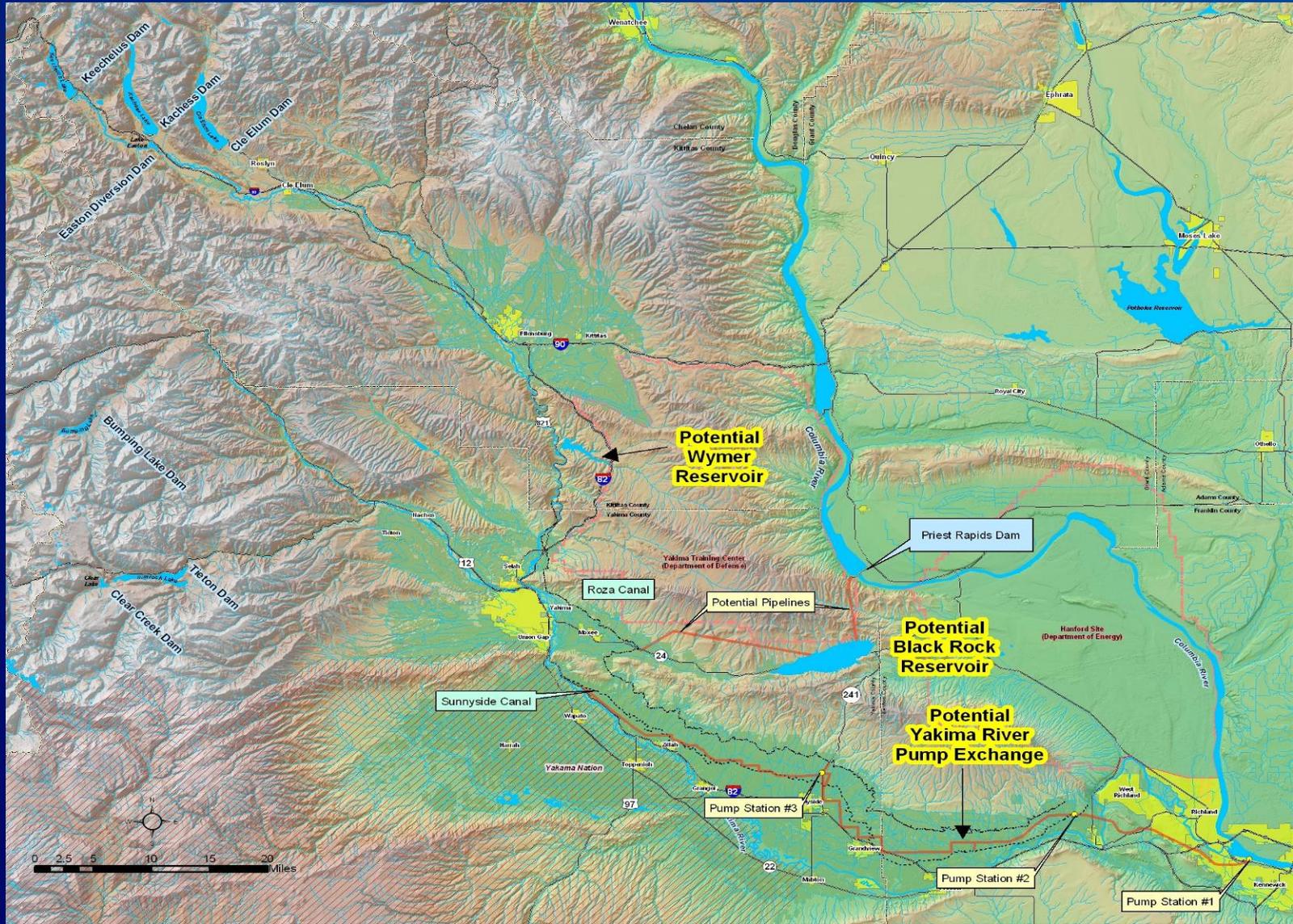
 Bureau of Reclamation Irrigation Projects

REFERENCE GRAPHIC

0 5 10 20 Miles

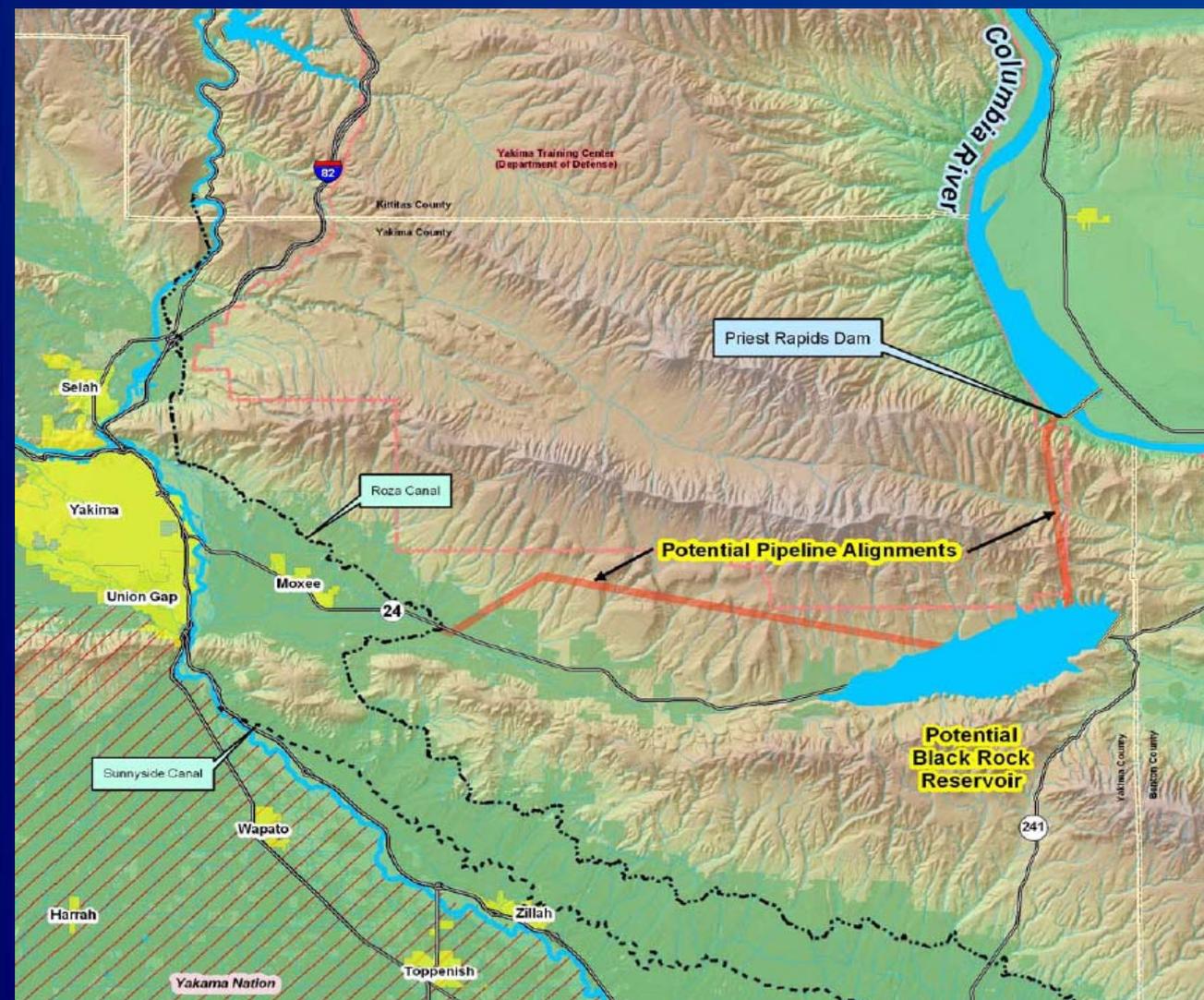
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Storage Study Alternatives



Black Rock

- Reservoir active storage: 1,300,000 af
- Inflow: 3,500 cfs pumping plant; pipeline from Priest Rapids to Black Rock Reservoir
- Outflow/distribution: 2,000 cfs pipeline (~17 miles); gravity flow; discharge points on Roza & Sunnyside canals
- Powerplants: At both discharge points



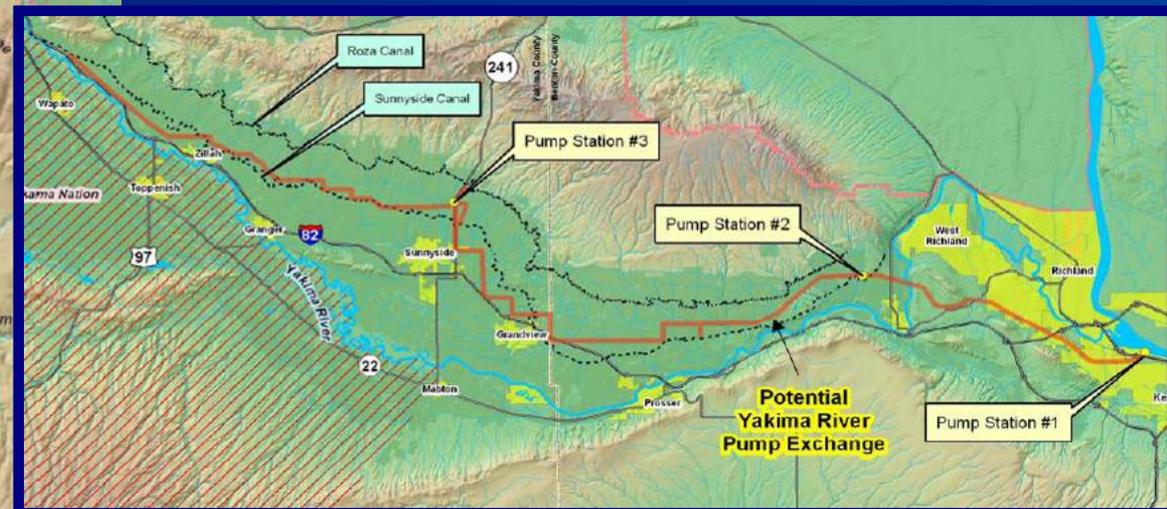
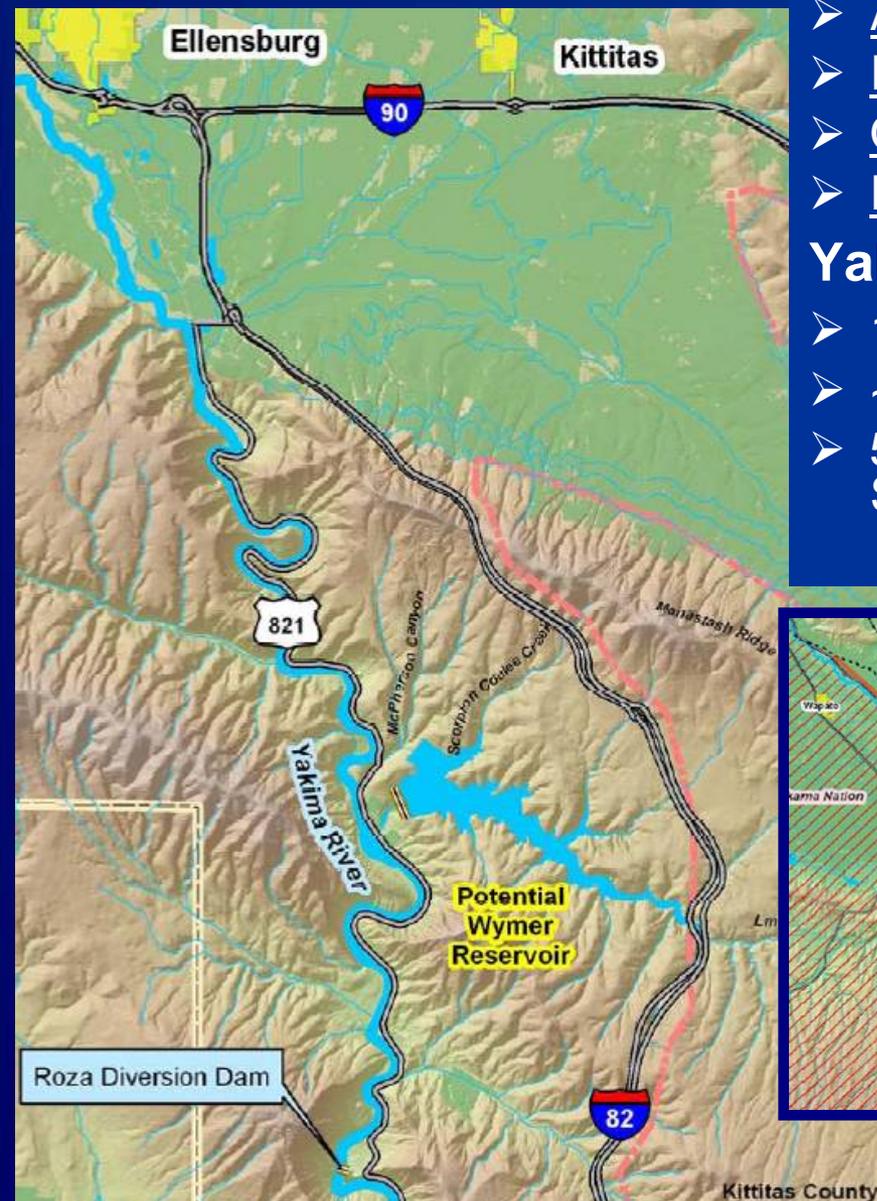
Wymer + Pump Exchange

Wymer Reservoir

- Active storage: 174,000 af
- Inflow: 420 cfs pumped from Yakima River
- Outflow: 1200 cfs gravity flow to Yakima River
- Powerplant: Possible—not studied

Yakima River Pump Exchange

- 1,200 cfs pumped from mouth of Yakima River
- ~55 mile pipeline system, 3 pumping plants
- 550 cfs delivery to Roza canal; 650 cfs to Sunnyside canal



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Results

➤ Black Rock

- Improved instream flow for fish
- Irrigation goal of 70% met in all years
- Municipal Supply average 81,100 acre-ft (for 25-year period of record)

➤ Wymer

- Improved instream flow for fish
- Irrigation goal of 70% not met in all years
- Municipal Supply average 79,800 acre-ft (for 25-year period of record)

➤ Wymer plus Pump Exchange

- Improved instream flow for fish
- Irrigation goal of 70% not met in all years
- Municipal Supply average 79,800 acre-ft (for 25-year period of record)

Economic Analysis Results

(present value calculations using April 2007 price levels)

	Value Option	Black Rock			Wymer Dam and Reservoir			Wymer Dam Plus Pump Exchange
		Most Probable	Monte Carlo 0%	Monte Carlo 100%	Most Probable	Monte Carlo 0%	Monte Carlo 100%	As shown in Draft PR/EIS
Total Costs (\$ million)	Present	8,308.4	7,390.2	10,907.8	1,340.6	1,148.4	1,751.6	5,926.8
	Annual	408.5	363.2	536.4	65.9	56.5	86.1	291.4
Total Benefits (\$ million)	Present	1,068.0	1,068.0	1,068.0	411.5	411.5	411.5	432.1
	Annual	52.5	52.5	52.5	20.2	20.2	20.2	21.2
Net Benefits (\$ million)	Present	-7,240.5	-6,322.3	-9,839.9	-929.1	-737.0	-1,340.2	-5,494.7
	Annual	-356.0	-310.9	-483.8	-45.7	-36.2	-65.9	270.2
Benefit-cost ratios	Present	.13	.14	.10	.31	.36	.23	.07

Conclusions

- **Black Rock, Wymer Dam, and Wymer Dam + Yakima River Pump Exchange generally meet Storage Study goals**
- **None of the Alternatives are economically justified based on federal guidelines**