

New Storage is the Only Solution for the Yakima River Basin

Yakima River Basin Storage Study

Integrated Plan Storage Element

Located in each EIS information on the amount of water and effect of climate change on future water availability.

A 1.3 million acre/foot of active storage reservoir (Black Rock) with at least 800,000 acre/feet of water available when storage is completed.

Storage:
Kachess 200,000 a/f
Wymer 162,000 a/f
Bumping 156,000 a/f
Total 518,000 a/f of water when all three storage projects completed if found possible.
Wymer 1/2 for ag 1/2 for instream flow

Black Rock storage adds 1.3 million acre/feet active storage capacity to the Yakima Project to bring the total storage capacity to 2.38 million acre/feet.

Integrated Plan storage adds 518,000 acre/feet to Yakima Project to bring the total storage capacity to 1.58 million acre/feet.

Very little effect of climate change because Columbia River water originates in the Rocky Mountains in Canada.

Climate change affecting East Cascades snowpack could reduce the amount of water available.

There will be up to 800,000 acre/feet of water available from the Columbia River annually. Fish, agriculture and municipal growth in the Yakima Basin during drought years will receive the maximum water needed.

Up to 518,000 acre/feet of water will be available if climate change has no effect and all storage elements are completed.

How does each storage plan affect Sockeye returns?

Fish passage at Lake Cle Elum Dam and instream flow volume in the lower Yakima River will be available annually. Using Black Rock water for irrigation in the Roza and Sunnyside Irrigation Districts frees up water in the Yakima Basin for salmon (Sockeye) returns annually.

The fish passage at Cle Elum Dam will operate but low flows of water in the lower Yakima River may restrict returning Sockeye during the summer.

How pumped storage with wind generated electricity affects droughts in the Yakima River Basin and flows in the Columbia River.

Pumping water from the Columbia River during the spring, when excess water is available and when the wind blows (wind power for electricity), and storing the water for use by Roza and Sunnyside Irrigation Districts will free up water to reduce drought impacts in the Yakima Basin and will not reduce the flow of the Columbia River when needed for fish in the Hanford Reach. Water from Black Rock could be returned to the Columbia River when needed in the Hanford Reach.

The storage element in the Integrated Plan does not preclude possible droughts and will meet the 70% goal for proratables only during the less adverse climate change.

Instream flow and fish.

High water flows in the Naches and Tieton Rivers (a process called Flip Flop) will be reduced and will provide the Bureau of Reclamation the ability to return waters in the Naches, Cle Elum, and Yakima Rivers to a more normal flow.

Flip Flop will continue and with the possibility of a greater amount of water in the lower Naches River that impacts spring Chinook, Steelhead, and Coho juveniles.

Using pumped storage of Columbia River water for irrigation allows the water previously withdrawn from the Yakima River to stay in the Basin. It creates a water exchange by returning more Yakima River water to the Columbia River during water short years.

The Integrated Plan storage element will allow the Yakima and Naches Rivers to continue flowing at levels that exceed normal. During drought years less Yakima River water returns to the Columbia River.

Effects on the Environment and Endangered Species

A pumped storage multipurpose water pump generation project could inundate private property, grass lands, and very little shrub steppe habitat. All Columbia River stored water would be placed in existing Roza and Sunnyside canals. The seepage of stored water in the reservoir will not affect Hanford according to the Black Rock Reservoir Sensitivity Analysis published by PNNL.

Bumping Lake Enlargement would inundate privately owned cabins, a private resort, a forest service campground, old growth timber, miles of Bull Trout spawning areas, and remove some Spotted Owl habitat. Wymer Reservoir would inundate shrub-steppe habitat and return warm water to the Yakima River. Lake Kachess drawdown would remove habitat for Kokenee, Rainbow Trout, and Bull Trout which reside in the lake. It would create a larger mudflat when the reservoir is drawn down below the original natural lake level.

What is the reliability of the water supply on instream and out-of-stream needs due to climate change and droughts? How more surface water effects ground water withdrawals.

Columbia River (Black Rock Reservoir) water available for irrigation will leave additional water in the Yakima River to meet the contracts in place for senior and junior water rights and instream flows regardless of climate change and droughts. The additional water in the Yakima Basin could reduce the need to restrict use of ground water to protect senior water rights.

Storage elements if completed may not provide the water needed when climate change and droughts occur. There will be little possible assistance in addressing the possible expansion of ground water restrictions unless more surface water becomes available to protect senior water rights.

How does evaluation methods used to determine the cost/benefit ratio and total cost of each storage component differ?

The cost benefit ration prepared for Yakima River Basin Water Enhancement (pumped storage) Study did not include the 100 year present worth of monetary benefits of \$7.4 billion that were credited to the Integrated Plan with \$6.2 billion estimated for fisheries.

The cost benefit ratio for the Integrated Plan was developed without a separate cost benefit for Bumping Lake, Wymer Reservoir, Lake Cle Elum, and Lake Kachess drawdown; the storage elements in the plan.

Possible storage sites evaluation.

Storage Study alternatives appraisal assessment (Reclamation, 2006) reviewed the possible storage sites in the Yakima Basin. The Omnibus Appropriations Act of 2003, Public Law 108-7 authorized the examination of the feasibility and acceptability of storage augmentation for the benefit of fish, irrigation and future municipal water supply for the Yakima Basin. Both Wymer and Bumping Lake Enlargement were not included. Only Wymer Dam and Reservoir with Yakima River Pump Alternative was considered along with the Black Rock Alternative. Only the Black Rock Alternative met the goals set in Public Law 108-7.

The Department of Ecology and the Bureau of Reclamation proposed an Integrated Plan to develop a comprehensive approach to water supply management. Goals were to provide opportunities for comprehensive ecological restoration and enhancement to address instream flows, aquatic habitat, and fish passage and insure water supply to 70% reliability for proratables during drought years. An appointed Work Group was developed and it approved, by consensus, the Yakima River Basin Integrated Water Resource Management Plan.

The benefit package was developed for pumped storage (Black Rock) and the Integrated Plan using different criteria. The information used in the Integrated Plan was available but not used during the pumped storage study.

Benefits credited for pumped storage

Irrigation:	\$ 84,600,000
Fisheries:	\$ 20,900,000
Municipal & Domestic:	\$284,600,000
Total:	\$390,100,000

Benefit credited for Integrated Plan

Irrigation:	\$800,000,000
Fisheries:	\$6,200,000,000
Municipal & Domestic:	\$400,000,000
Total:	\$7,400,000,000

Economic Package

Recreation and At-Site Development

A cash flow analysis of potential spending over a 20-year period associated with a new Black Rock Reservoir is estimated to result in the following present worth values:

Travel & Recreation	\$1.2 billion
Residential & Resort Develop	\$2.0 billion
Commercial Development	\$0.2 billion
Total	\$3.4 billion

Study by Mitchell Nelson Group, LLC, January 12, 2007.

An economic evaluation of recreation opportunities of the surface water storage element is not available. The proposed Bumping Lake Reservoir enlargement would inundate all of the current shoreline recreational facilities and restrict access to trails upstream. The enlarged reservoir would increase the area available for boating activities from 1,300 acres to 3,200 acres. Recreation facilities at Wymer Reservoir are not planned. Lower drawdown of Kachess Reservoir by tapping into the inactive storage for use in drought years would affect fishing and boating

Integrated Plan Final Programmatic Environmental Impact Statement, March, 2012

Surface Storage Element Jobs and Income

Yakima Basin Economic Impacts Stemming from Construction Activities of Black Rock

Output	Income	Jobs
3.38 billion	1.195 billion	31.400

- Output represents the dollar value of industry production.
- Income is the dollar value of total payroll plus income received by self-employed individuals.

Final Planning Report/Environmental Impact Statement, December, 2008, page 4-234, Table 4.47.

Long-term expenditures (output) on a new storage facility would likely increase the demand for labor and generate new job opportunities and higher incomes for some workers. The impact of these expenditures on the regional economy are expected to be small. Similarly, increases in the supply of goods and services derived from the new storage structure, such as fish populations and water for irrigation, would likely have a corresponding impact on jobs and incomes in associated commercial activities. Any increase in jobs may be offset if the new jobs drew workders away from jobs elsewhere in regional or statewide economics. Overall, this element would be expected to have beneficial long-term effects on jobs and incomes.

Yakima River Basin Water Resource Management Plan DPEIS, November, 2011 pg. 5-106

Yakima Basin Economic Activity Associated With Agricultural Production			
Item	Farm Level (Direct)	Farm Related (Indirect)	Total
<u>Value of Production</u>			
Full Water Supply	\$1,407,000,000	\$707,000,000	\$2,144,000,000
2001 Drought Loss	-\$ 130,000,000	-\$ 66,000,000	-\$ 196,000,000
<u>Income Earned</u>			
Full Water Supply	\$577,000,000	\$417,000,000	\$994,000,000
2001 Drought Loss	-\$ 32,000,000	-\$ 24,000,000	-\$ 56,000,000
<u>Jobs</u>			
Full Water Supply	22,000	13,000	35,000
2001 Drought Loss	- 3,600	- 1,200	- 4,800

Information provided in the comparison can be found in the Yakima River Basin Water Storage Feasibility Study and the Yakima River Basin Water Resource Management Plan.