

INTERSTATE OPTIONS – INITIAL LIST (8-01-12)

COLUMBIA RIVER-UMATILLA SOLUTIONS TASKFORCE

Flow-Management Options:

1. Managing Columbia River to increase flow in spring and summer months.

This option is intended to increase flow in the John Day or McNary pools at specific periods to address fish migration needs as well as irrigation needs. A version of this option involves Canadian storage and release, to be discussed as part of the Canada Treaty on the Columbia River. Initial discussion by the subcommittee suggests that this option will likely have some impact on some of the other uses of the Columbia River (i.e. power generation and/or flood control).

2. Additional Draw-down of Lake Roosevelt.

This option would provide additional spring and summer flows in the Columbia by drawing down Lake Roosevelt beyond its current levels. The thinking behind this option is: given the size of Lake Roosevelt, it would not require a sizable drawdown to provide significant amounts of water for irrigation and in-stream uses.

There are a number of recognized challenges to this option: a) Use of Lake Roosevelt water is tied to Congressional authorization, and currently restricted to use in the Columbia Basin Project in Washington. Therefore, Congressional action would be required; b) A recent agreement with the Colville Indian Tribes prohibits additional drawdowns of Lake Roosevelt; and c) The current levels in Lake Roosevelt were not arrived at arbitrarily, but represent a balancing of the interests served by that reservoir including flood control, fish survival, power generation, and recreation, as well as irrigation.

3. Revised management of 'run of the river' reservoirs.

The idea here is to hold additional water levels in one or more run of the river reservoirs, to be release during the irrigation (and fish migration) season. This option has been reviewed by the State of Washington on two reservoirs, one of which has been “taken off the table”. Such a change in management would require a license modification and may involve capital improvements to reinforce the dam.

Several issues have already surfaced that would need to be explored, related to this option:

- Capital cost of the dam improvements could be as much as \$60 million for a 5-foot increase at one Washington reservoir.
- Raising the level of one reservoir would reduce electrical generating capacity at the dam above the reservoir.
- Again, there would need to be analysis of how this option would impact other reservoir functions, such as recreation and flood control.
- Impacts related to the current Biological Opinion on reservoir operation

The subcommittee also discussed the potential of raising McNary pool levels a modest amount (1-2 feet), given that impacts to the next upstream hydroelectric dam would appear to be negligible. Further discussion with the Corps of Engineers and others will be needed to further evaluate this option.

A related option offered at the July 27 Solutions Taskforce meeting was to take an additional 1,000 cfs from the John Day pool.

4. Operate the John Day Pool at minimum operating depths during the summer.

Reducing the summer operating depth of the John Day pool would increase flow velocities, benefitting juvenile fish migration. In addition, taking out the water to achieve that depth would potentially provide additional water for out-of-stream uses as well as off-channel or aquifer storage.

Depending upon the degree of draw-down, there could be impacts to navigation or power generation that would need to be considered. In addition there is the potential to increase costs to irrigators of pumping from the John Day pool, to lift water those additional feet. If this option were to be considered, it would likely also involve the State of Washington.

Above-Ground Storage Options.

The State of Washington has conducted a number of studies (“appraisals”) of potential above-ground storage sites. The State of Washington has expressed interest in exploring a partnership with Oregon in the feasibility analysis, authorization, and financing for these sites. A next step will be consideration by the Washington Policy Advisory Group whether or not to proceed with a request to Congress for feasibility analysis on one or more of these sites, at the end of this year.

Ballpark estimates are \$16 million to do a full feasibility study which would be a 50% cost share arrangement with the BOR so the state share would be \$8 million or \$4 million for each state. Subsequently, Oregon and Washington could potentially request authorization from Congress for feasibility studies.

5. Crab Creek Site, Washington

The Crab Creek site is located in western Grant County on a tributary to Priest Rapids Lake. This potential large storage site is “scaleable”, and estimated to be capable of providing up to approximately 2,300,000 acre-feet of active storage. The pre-appraisal cost estimate is \$1.7 billion. The estimated cost per acre-foot is \$740. This site has been the subject of an appraisal conducted by Bureau of Reclamation on behalf of the State of Washington. It would require Congressional authorization and appropriation.

Water stored in the Crab Creek Reservoir could be used to supplement Columbia River instream flows for anadromous fish and could be released during April through August when 2000 BiOp target flows are not met at McNary Dam. In Washington, Crab Creek Dam and Reservoir could help meet long-term water needs for both agriculture and for future growth of those urbanized areas.

Environmental concerns include potential habitat loss due to inundation, anadromous fish passage issues, and potentially high water temperatures due to reservoir depth.

6. Goose Lake Site, Washington

The Goose Lake site lies in a basin north of the Columbia River, between Rufus Woods Lake (Chief Joseph Reservoir) and Omak Lake. The site is located completely within the boundaries of the Colville Indian Reservation. The total storage volume is estimated to be approximately 3,350,000 acre-feet. The pre-appraisal cost estimate is \$3 – 3.4 billion. The estimated cost per acre-foot is \$997.

Water stored in the Goose Lake Reservoir could be used to supplement Columbia River instream flows for anadromous fish and could be released during April through August

when 2000 BiOp target flows are not met at McNary Dam. The Goose Lake Reservoir would store enough water to meet a range of 36 to 111 percent of the 2000 BiOp target flows at McNary Dam during a one-month period from April through August based on monthly average flows at Grand Coulee, Priest Rapids and Bonneville dams.

Of the counties surrounding the potential Goose Lake dam and reservoir site, only Grant County has significant irrigated agriculture. The north half of Grant County lies within 50 miles of the site for agricultural water use and could benefit from irrigation water conveyed from the Goose Lake site.

Construction and operation of a dam and reservoir at the Goose Lake site would potentially impact approximately 382 acres of NWI wetlands. The site is located within the boundaries of the Colville Indian Reservation and the Colville Confederated Tribes would have to be consulted concerning potentially sensitive sites with respect to natural resources, cultural resources and other trust resources within the potential project boundary. Additionally, potential impacts on Indian Trust Assets would need to be evaluated, analyzed and mitigated.

7. Nine Mile Flat Site, Washington

The Nine Mile Flat site is located west of the Columbia River, approximately 55 river miles upstream from Grand Coulee Dam. The proposed site is located entirely within the Colville Indian Reservation boundary. The reservoir site is estimated to potentially store 930,000 acre-feet of active storage. The pre-appraisal cost estimate is \$1.5 billion, but could be higher. The estimated cost per acre-foot is \$1,564. (These are very preliminary numbers)

Water stored in the Nine Mile Flat Reservoir could be used to supplement Columbia River instream flows for anadromous fish and could be released during April through August when 2000 BiOp target flows are not met at McNary Dam. The Nine Mile Flat Reservoir would store enough water to meet a range of 10 to 30 percent of the 2000 BiOp target flows at McNary Dam during a one-month period from April through August based on monthly average flows at Grand Coulee, Priest Rapids and Bonneville dams.

Existing Columbia Basin Project irrigation infrastructure has the potential to convey irrigation water from a potential off-stream surface storage site to agricultural land in Grant, Adams and Franklin counties. The Nine Mile Flat site could be a resource for significant agricultural irrigation in these areas.

Construction and operation of a dam and reservoir at the Goose Lake site would potentially impact approximately 326 acres of NWI wetlands. The site is located within the boundaries of the Colville Indian Reservation and the Colville Confederated Tribes would have to be consulted concerning potentially sensitive sites with respect to natural

resources, cultural resources and other trust resources within the potential project boundary. Additionally, potential impacts on Indian Trust Assets would need to be evaluated, analyzed and mitigated.

8. Washington Co-investing on Oregon storage sites

The sub-committee also discussed the potential interest of Washington helping to finance some smaller Oregon above ground storage options, including Wallowa Dam improvements as well as 2-3 other options being explored by the Oregon Options committee.

The benefits of such an arrangement would be dependent upon the specific location and circumstances surround the particular storage site.

Below-ground Storage Options

9. Washington Aquifer Storage

Aquifer storage is attractive because its per-unit costs are less than new above-ground storage. The State of Washington has begun looking at large-scale aquifer storage, in aquifers adjacent to the Columbia River, at both basalt and alluvial aquifer storage, with gravity/passive return to the Columbia River (reducing pumping costs). Derek Sandison described aquifer storage as “the quickest way to additional water”.

Washington envisions a series of aquifer storage sites, with a modular design that could be expanded as the need arises. Potentially, Oregon could co-invest in one of those modular sites. Washington has done some investigation of candidate sites, and will be doing some aquifer testing over the next year – drilling in an area just south of the Chief Joseph pool. A small –scale pilot project is planned for the Kennewick area. Additional funding is needed for the testing phase.

An issue with below-ground storage is pumping costs, both to the storage site and then out of the storage site. The timing of that pumping can determine how economical the site is (i.e. pumping into storage in low energy-use times can reduce costs).

The sub-committee discussion identified one near-term step, which is coordination to pool learning from both the Oregon (Umatilla) aquifer project as well as the Washington pilots. Issues needing to be addressed by both state include reducing pumping costs and predicting hydraulic response to recharge.

Other Options

10. Coordinated Conservation Projects

The State of Washington has provided some grant funding to encourage water conservation investments and practices. Since 2008, the Office of the Columbia River has reduced water use by more than 10,000 acre-feet through conservation by irrigation districts.

Currently, Washington is working with the Columbia-Snake River Irrigators Association to identify and construct three pilot projects to test the hypothesis that the timing of saved water from conservation is more beneficial to fish migration than return flow from flood irrigations.

There had been some interest expressed by the State of Washington in Oregon co-investing in Conservation measures by Washington irrigators, in order to free up flow in the Columbia River. However, there are differences in State law in regard to use of conserved water, some difficulty in accurately monitoring actual water savings, and additional implementation issues that would need to be address.

11. Short Term options

The sub-committee discussed briefly a couple of possible short-term options, involving lease/purchase by Oregon irrigators of currently unused municipal water rights in Washington. The Port of Walla Walla and Klickitat Public Utility District were two entities that might be contacted.