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January 20, 2011

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Subject: Comments on the Bighorn River draft operating criteria plan

I am writing to comment on the draft operating plan for the Bighorn River. I wish to suggest that there may be a long term solution to the water allocation issues related to trout resources, lake recreation, power generation, flood control and irrigation that may not have been fully considered or appreciated within the debate so far. It is clear that there are conflicting values and allocation priorities between various sectors, as well as not enough water to meet everyone's demands. Unless one of these factions achieves an overwhelming political advantage the debate is likely to remain unresolved for a long time. The present debate has centered on priorities within the groups and the value of competing interests. I maintain that more can be gained by looking to a different way to manage the available water resources that will result in a more equitable distribution of those water resources that are actually available to satisfy the different interest sectors. Personally, I have fished the Bighorn River and am most sympathetic to the wildlife and trout management issues. However, I am sensitive to the fact that the goals desired by the fisheries managers can never be met in the current system, or any reasonable solution that might come forward in the foreseeable future. We must focus on minimum requirements to satisfy competing interests rather than ideal environmental conditions or habitat values for a single interest.

I suggest that the USBR consider enhanced water storage to better use the water resources within the Bighorn River. By banking water during high flow period for use later in the hydrologic year for competing uses will provide a more equitable way to manage the river than is currently in place. This can be accomplished with a pumped storage or water diversion reservoir outside of the mainstem of the Bighorn River. The storage reservoir could be located either near Lovell or Yellowtail dam, depending on the purposes desired for the stored water. It would be more cost effective to build the reservoir near Yellowtail Dam if cost is a driving issue. While this might seem on the surface a poor solution, I would mention that the USBR has done this before to better manage water flows. Specifically, I would call your attention to two projects, the San Luis Rey Reservoir Forebay in California, and the Willard Bay Reservoir in Utah. The second example, which may be most applicable, is the Willard Bay Reservoir in Utah. This is a 10,000 acre, mostly above grade impoundment adjacent to the Great Salt Lake. It was formed by the construction of a 14 mile long rectangular earthen dike allowing the reservoir to be filled 20 feet above the elevation of the Great Salt Lake. Water diverted into the reservoir is used for both agricultural and culinary uses and is administered by the Weber River Water Conservancy District. The water district diverts 155,500 acre feet of water annually into this reservoir. Without this storage reservoir the water district would not have this water available for use during the year.

The same type of storage reservoir could be built on uplands adjacent to the Bighorn River either near Lovell (near the Lovell canal) or west of the Yellowtail dam. If the location were near Lovell, the water could serve multiple purposes, if near Yellowtail Dam it would primarily serve fisheries and irrigation interests. While I have referred to this reservoir as pumped or diversion storage, I think either location could operate with a diversion canal system just as well. The point is to divert surplus water when available from the river into the reservoir for use later in the hydrologic year as needed to meet user demands, or your water management/allocation plan. It would provide a much needed flexibility in the seasonal availability of water for competing uses. It would work well under normal or abundant water years, would ease the conflicts during shortages, and would help the USBR to meet minimum flows under drought conditions.

The construction of the reservoir only to a depth of 20-30 feet using an earthen dike approach and diversion canals would also be cheaper than other construction techniques. Both locations could support a storage reservoir of 1,000 to 1,500 surface acres, and most likely larger if necessary. At Yellowtail Dam a diversion canal could be incorporated into the existing dam

design to fill the storage reservoir that could be built in a variety of nearby locations (within 5 miles) to the west of the Bighorn River. A return canal would allow water to flow back into the River below the dam. The addition of 130 cfs in this manner from stored water during high flow periods would meet the minimum requirements of the fishery managers for that stretch of the river. It would be more difficult to develop a diversion canal at the Lovell location due to more challenging terrain and elevation issues. However, pumped storage would be a possible way to move the water from the river into the reservoir using non peak electrical generation capacity. In this case return flows to Bighorn Reservoir has the added advantage that it could also be used to supplement power needs during peak use periods. Use of the Lovell location would allow greater fisheries enhancement along the Bighorn River than available from the Yellowtail Dam site, but at a much increased project cost.

Based on the USBR plan to provide a base flow of 2370 cfs to the river, it would only take a supplemental flow of 130 cfs to meet the minimum criteria desired by fishery managers. Such a flow could be met for at least a period of 180 days each year with a reservoir of 1300 surface acres and a depth of 20 ft, assuming all of the water was available for fisheries habitat enhancement. I would recommend that it be located in the vicinity of the Lovell canal or on the west side of Yellowtail dam. I believe both locations could support a canal feeder system rather than pump storage.

I recognize that there is considerable cost in implementing such an approach. However, there is little you can do now in managing these water resources with competing interests - everyone feels they should have a priority and no one wants to compromise. The solution is to allow all of the water flowing in the river to be used within the management plan. Surplus flows must be balanced out with low period s of flow. This can't be done any better than you are now proposing without an additional storage reservoir to make surplus flows available. It is in everyone's interest to raise the money through user fees or other mechanisms; or by lobbying Congress to fund such a project. This solution may not resolve the conflicts, but it will improve the positions of all user groups to meet their needs. If the needs are not met it will be clear to all that the water resources are not there to do a better job.

Thank you for the opportunity to comment on this management plan for the Bighorn River. I would be glad to work with others interested in improving water resource management on the Bighorn River if the opportunity arises. I, for one, appreciate your efforts to do the best you can to manage the water resources of the Bighorn River to meet the needs of all user groups.